

# Appendix A

Request for Proposal



**COUNTY OF MIDDLESEX**

COUNTY ENGINEER'S OFFICE

399 RIDOUT STREET N., LONDON, ON N6A 2P1

Tel: 519-434-7321

Fax: 519-434-0638



July 4, 2012

AECOM

Attn: Ian Blevins, M.Eng., P.Eng.

Citi Plaza

250 York Street, Suite 410

LONDON, ON N6A 6K2

Dear Mr. Blevins:

You are formally invited to submit a proposal for the replacement of the Albert Street Bridge for completion by the end of 2014. The request for proposal is attached.

Please submit your proposal by no later than 12 noon, Wednesday, August 1, 2012 to the attention of:

Chris Traini, P.Eng.  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London, ON N6A 2P1

If you have any questions, please contact the undersigned.

Yours truly,

**Chris Traini, P.Eng.**  
County Engineer  
County Engineer's Office

CT/kh

Encl.: RFP



**COUNTY OF MIDDLESEX  
ALBERT STREET BRIDGE REPLACEMENT  
ALBERT STREET, TOWN OF STRATHROY  
MUNICIPALITY OF STRATHROY-CARADOC  
REQUEST FOR PROPOSALS**

The intent for this request for proposal is to retain a consultant to complete the replacement of the Albert Street Bridge including environmental assessment, detailed design, tendering and contract administration by the end of 2014.

The Albert Street Bridge is located in the town of Strathroy on Albert Street, just west of the intersection of Victoria Street. This bridge is a steel truss bridge constructed in 1937 and the last major rehabilitation was undertaken in 1996.

Information related to this structure is available at the County of Middlesex Engineer's Office at 399 Ridout Street North in London. County structure files contain various information including engineering drawings, photographs, inspection records, etc.

The consultant will be required to complete the required environmental assessment for the replacement of this structure as well as obtaining all required approvals from local, provincial and federal agencies. The proposal must include details on an approach to the environmental assessment, potential of required approvals from other agencies, and an estimated timeline for completion of this phase of the project.

The consultant will also prepare detailed engineering drawings for the removal and subsequent replacement of the Albert Street Bridge with a structure designed to meet all current standards. The new structure must be constructed to accommodate full traffic loading and two full lanes of vehicular traffic and include sidewalks. Pedestrians are anticipated to have very heavy use of the bridge due to its location adjacent to residential areas and parks.

This bridge is a vital link in the town of Strathroy and carries over 5,000 vehicles a day and local detour routes, especially for commercial vehicles, are not ideal. Special consideration will be given to proposals that limit the disruption to traffic through the use of expedited construction methods and/or rapid bridge construction technologies.

The consultant will also be responsible for the administration of the contract for the construction of the bridge including preparation of tender documents, administration of the tendering procedure, recommending approval of a reputable bridge contractor, construction inspection, preparation of payment certificates, and all other normal contract administration activities.

The proposal for engineering services should include, but is not limited to, the following:

- Name, size, location and description of the firm
- Total fixed fee for remuneration detailed for each phase of the project (environmental assessment; engineering design; contract administration)
- An estimated total preliminary construction budget for the project
- Proposed schedule including:
  - Details for the environmental assessment stage including scope, timing, and other anticipated required approvals
  - Details and timing of any other preliminary engineering investigations required prior to detailed design such as geotechnical, site surveys, etc.
  - Detailed scheduling of completion of engineering drawings and specifications
  - Detailed scheduling for removal and replacement of the structure
- List of staff that will participate on the design and inspection team including resumes outlining their technical background and previous experience with similar projects
- List of sub-consultants who will be used to complete any portion of the project outside of the consultant's own firm
- List of similar projects undertaken by the firm, including references.

The proposal for engineering services will become part of a standard form PEO agreement for engineering services between the County and the successful consultant. The successful consultant will be required to execute the agreement and supply the following documentation:

- Workplace Safety and Insurance Board Certification of Clearance
- Satisfactory proof of liability insurance
- Copy of Company's safety policy manual/procedures

Interested firms must submit two (2) copies of their proposal for consulting services for this project by no later than 12 noon, Wednesday, August 1, 2012 to the following:

Chris Traini, P.Eng.  
County Engineer  
County Engineer's Office  
County of Middlesex  
399 Ridout Street North  
London, Ontario N6A 2P1

Engineering staff will review and evaluate the proposals and make a recommendation to Middlesex County Council on August 14, 2012 at which time final approval will be given to proceed with the project.

The lowest (or highest, or any part, if that is the case) of any Proposal may not necessarily be accepted. Proposals will be evaluated on budget, previous experience of the firm, previous experience of staff assigned to the project, timelines and schedules, and details of the environmental assessment proposal.



# Appendix B

## Steel Bridge Condition Report



## Steel Bridge Condition Report

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<b>Inventory No</b>	<b>ST-04</b>	<b>MTO Structure No</b>	<b>19-194</b>
<b>Location</b>	County Road 39, Albert Street, over Ausable River		
<b>Structure Name</b>	<b>Albert Street Bridge</b>		



**01 - North Elevation**

<b>Structure Type</b>	Part-through (pony) truss		
<b>Framing System</b>	Single simple span		
<b>Materials</b>	Structural steel and reinforced concrete		
<b>Deck Length (m)</b>	29.87	<b>Overall Width (m)</b>	12.7
<b>Deck Area (m<sup>2</sup>)</b>	379	<b>Roadway Width (m)</b>	9.14
<b>Deck Skew (deg)</b>	0	<b>Restrictions</b>	None
<b>AADT</b>	5575 ( 2007 )		
<b>Road Authority</b>	Middlesex County		
<b>Construction Date</b>	1937	<b>Replacement Cost</b>	\$1,100,000

### Maintenance and Inspection History

1977 - Replaced deck and sidewalk, installed compression seals at both abutments, installed pedestals and bearings for stringers at both abutments, waterproofed and paved deck, cleaned and coated all structural steel.  
1996 - Replaced truss bearings at west abutment with elastomeric bearings and replaced plates on all five verticals on both trusses.

<b>Inspection Date</b>	01-Jun-07	<b>Inspector</b>	Graydon Knights, P. Eng. Dillon Consulting Limited
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## Steel Bridge Condition Report

Inventory No

ST-04

MTO Structure No

19-194

### CONDITION DATA

### Rating:

#### **Foundations**

Not visible - no apparent problems.

7

#### **Abutments**

A few vertical cracks with minimal amount of leachate staining but no adjacent deterioration. Corner of seat at S-W truss bearing is spalled (Photo 3).

7

#### **Wingwalls**

Fair to good condition. Considerable freeze-thaw spalling on top of all wingwalls, more extensive at west abutment. Because of the massive concrete section, the loss of material is not structurally significant (Photos 4 to 6).

6

#### **Piers**

None.

#### **Bearings**

Elastomeric bearings at west abutment under trusses and end diaphragm beam are in good condition (Photo 7). Accumulated sand at S-E truss bearing prevents inspection and is conducive to corrosion (Photo 8).

7

#### **Floor Beams**

Generally in good condition with limited surface rusting (Photos 9 and 10), except for considerable rusting/corrosion at connection to south truss (Photo 11).

6

#### **Stringers**

In good condition with limited surface rusting (Photos 9 and 10). Slightly more surface rusting at abutment diaphragms (Photo 7) and under sidewalk (Photo 12). Some bird nests on stringers but no corrosion yet (Photo 13).

7

#### **Abutment Diaphragms**

Exposed faces show 20% - 30% surface rusting (Photo 7), but hammering results in corrosion product to fall from back of the diaphragms. Also more extensive corrosion at connection to south truss.

6

#### **Pier Diaphragms**

N/A

#### **Truss Chords**

Bottom chord of south truss shows considerable corrosion at floor beam connections (Photos 10, 11, and 14). Only limited rusting visible at same locations on north truss (Photo 15). Top chords display 20% - 60% surface rusting, but no significant corrosion.

6

#### **Truss Verticals/Diagonals**

Diagonals are generally in good condition on both trusses, with predominately surface rusting, except connections to the bottom chord of the south truss. Verticals display extensive surface rusting and limited to moderate corrosion of the full length of the plates installed in 1996. On the south truss the corrosion is markedly greater on the surface of the plate facing traffic (Photos 16 to 18).

6

#### **Bottom Horizontal Bracing**

None.

#### **Top Horizontal Bracing**

N/A

### **Rating System**

10 - Excellent, Like New	9 - Very Good	8 - Good	7 - Satisfactory	6 - Adequate
5 - Further Investigation	4 - Deficient	3 - Poor	2 - Critical	1 - Dangerous



## Steel Bridge Condition Report

Inventory No      ST-04

MTO Structure No      19-194

### CONDITION DATA

### Rating:

#### **Deck Slab**

Underside of deck slab in very good condition. No visible leaking cracks, spalls or delaminations (Photo 9).

9

#### **Deck Surface**

Asphalt pavement in generally good condition, with a limited amount of narrow randomly oriented cracking and limited pavement breakdown of joints. About 20 metres of cracking along centre line paving joint.

8

#### **Deck Joints**

Armoured joints at both abutments are in good condition (Photos 19 and 20), except at the south end of the east joint where shallow chipping of the end dam has resulted in a 10 mm depression which produces noise as vehicles cross (Photos 21 and 22).

7

#### **Sidewalks/Safety Curbs**

Sidewalk, on north side only, in good condition. Narrow curb on south side has some minor spalling.

7

#### **Railings**

Original lattice railings. Railing on south side, on inside of truss, immediately adjacent to traffic shows 100% surface rusting but no significant corrosion (Photo 23). North railing on outside edge of sidewalk is 70% - 80% surface rusted (Photo 5). Concrete posts on wingwalls in fairly good condition with some spalling disintegration (Photos 24 and 25).

6

#### **Deck Drains**

Six deck drains each side in good condition from top to bottom. Top of drains depressed slightly below top of asphalt.

8

#### **Approaches**

Smooth profile. East approach recently repaved. Some cracking of pavement at west abutment (Photo 19). The curb height on the west approach sidewalk is very low, providing little protection to pedestrians from errant vehicles (Photo 27).

7

#### **Guide Rail**

None. Low speed urban location.

#### **Slope Protection/Miscellaneous**

No slope protection and no indication of erosion. However, a large, branched, tree trunk has landed under the N-W corner of the bridge, which will trap additional debris and impact the bridge when the water level raises.

7

### **Rating System**

10 - Excellent, Like New	9 - Very Good	8 - Good	7 - Satisfactory	6 - Adequate
5 - Further Investigation	4 - Deficient	3 - Poor	2 - Critical	1 - Dangerous



## Steel Bridge Condition Report

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Inventory No	ST-04	MTO Structure No	19-194
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### IDENTIFIED PROBLEMS/COMMENTS

### Timing

#### **Major Repairs**

Clean and recoat structural steel, including steel repairs.

3-5

#### **Preventative Maintenance**

Clear sand/debris from S-E truss bearing.

0-1

Rout and seal pavement joint on bridge centre line.

0-1

Remove tree trunk at N-W corner of bridge.

0-1

Eliminate pavement depression at south end of west joint.

0-1

Reconstruct west approach sidewalk to provide adequate curb height.

1-3

#### **Additional Inspections**

None.

#### **Routine Maintenance**

Clean deck drains and abutment joints.

Yearly

### PHOTOGRAPHS:



***02 - Deck Looking East***





## Steel Bridge Condition Report

Inventory No

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MTO Structure No

19-194



***03 - Spalled Abutment Seat S-W Corner***



***04 - Freeze Thaw Spalling of Wing Walls***



## Steel Bridge Condition Report

Inventory No

ST-04

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19-194



***05 - Freeze Thaw Spalling of Wing Walls***



***06 - Freeze Thaw Spalling of Wing Walls***





## Steel Bridge Condition Report

Inventory No

ST-04

MTO Structure No

19-194



***07 - West Abutment Bearings and Diaphragm***



***08 - Sand Accumulation at S-E Truss Bearing***





## Steel Bridge Condition Report

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19-194



***09 - Concrete Deck, Floor Beam and Stringer***



***10 - Floor Beam, Stringers and South Truss Bottom Chord***



## Steel Bridge Condition Report

Inventory No

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MTO Structure No

19-194



***11 - Floor Beam Corrosion at South Truss***



***12 - Stringers Under Sidewalk***



## Steel Bridge Condition Report

Inventory No

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MTO Structure No

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***13 - Bird Nest on Stringer***



***14 - Complete Perforation of the Plate at South Truss Panel Point***





## Steel Bridge Condition Report

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***15 - Tie Plate at North Truss Panel Paint***



***16 - Corrosion of Vertical Angles and Cover Plate - South Truss***



## Steel Bridge Condition Report

Inventory No

ST-04

MTO Structure No

19-194



***17 - Corrosion of Vertical Plate on Side Facing Traffic***



***18 - Corrosion on Vertical Plate Remote from Traffic***



## Steel Bridge Condition Report

Inventory No

ST-04

MTO Structure No

19-194



***19 - West Abutment Joint***



***20 - East Abutment Joint***



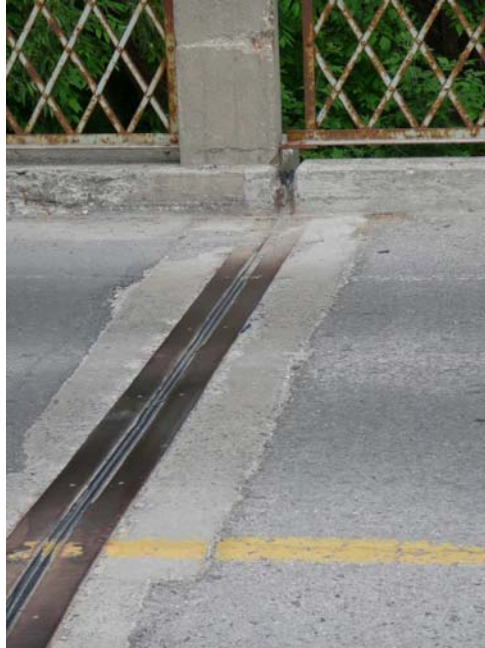
## Steel Bridge Condition Report

Inventory No

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***21 - South End of East Abutment Joint***



***22 - Depression in End Dam and Asphalt South End of East Joint***





## Steel Bridge Condition Report

Inventory No

ST-04

MTO Structure No

19-194



***23 - Typical Railing Panel on South Side***



***24 - Spalled Railing Post on S-W Wing Wall***





## Steel Bridge Condition Report

Inventory No

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MTO Structure No

19-194



***25 - Spalling at Post Base at N-W Wing Wall***



***26 - Water Borne Tree Trunk at N-W Corner of Bridge***



## Steel Bridge Condition Report

Inventory No

ST-04

MTO Structure No

19-194



***27 - Sidewalk on West Approach***

# Appendix C

Stage 1  
Archaeological Assessment



10 September 2013

## STAGE 1 ARCHAEOLOGICAL ASSESSMENT

**Albert Street Bridge Replacement  
Lot 21, Concessions 4 and 5 S.E.R.  
Adelaide Township, Town of Strathroy  
Middlesex County, Ontario**

ORIGINAL REPORT

**Submitted to:**

Mr. Ian Blevins, M.Eng., P.Eng.  
London Regional Office Manager  
AECOM Canada Ltd.  
Citi Plaza, 250 York Street, Suite 410  
London, Ontario N6A 6K2  
Tel: (519) 673-0510 Fax: (519) 673-5975

**Licensed Archaeologist:** Michael Teal, M.A. (P364)

**PIF Number:** P364-002-2012

**Report Number:** 12-1132-0133-2000-R01

**Distribution:**

1 Copy - AECOM Canada Ltd.  
1 PDF Copy - Ministry of Tourism, Culture and Sport  
2 Copies - Golder Associates Ltd.





## Executive Summary

*This Executive Summary highlights key points from the report only; for complete information and findings, as well as the limitations, the reader should examine the complete report.*

Golder Associates Ltd. (Golder) was contracted by AECOM on behalf of the Corporation of the County of Middlesex to undertake a Stage 1 archaeological assessment of the proposed Albert Street Bridge Replacement project, Township of Strathroy-Caradoc, Middlesex County. As currently anticipated, the construction zone for this project would extend outward from the existing bridge for a distance of 100 metres to the east and west along Albert Street, and a maximum of 10 metres to the north and south along that linear corridor.

The existing Albert Street Bridge spans the Sydenham River on Albert Street (Regional Road 39) in the Town of Strathroy. An approximate area of less than one hectare would be potentially affected by proposed improvements on part of Lot 21, Concessions 4 and 5, S.E.R. (South of Egremont Road), formerly Geographic Township of Adelaide, now Town of Strathroy in the Township of Strathroy-Caradoc, Middlesex County.

This Stage 1 assessment was conducted to meet the standard requirements of a Schedule “B” Class Environmental Assessment.

As currently anticipated, the construction zone for this project would extend outward from the existing bridge for a distance of 100 metres to the east along Albert Street and 100 metres to the west along Albert Street from the current east and west abutments of the bridge, and a maximum of 10 metres to the north and south along that linear corridor.

The Stage 1 archaeological assessment determined that although there have been considerable previous disturbances in portions of the study area relating to the previous construction of the existing bridge, road, sidewalks, hydro line, watermain, sanitary sewer, gas line and other subsurface utilities, some areas within the project lands do retain archaeological integrity for pre-contact Aboriginal resources and historic Euro-Canadian resources, and that therefore a **Stage 2 field assessment is recommended for undisturbed lands with archaeological potential within the study area.**

The Ontario Ministry of Tourism, Culture and Sport is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports and **issue a standard letter of concurrence with the findings presented herein.**

This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.



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## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

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It is an offence under Section 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alterations to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, R.S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.





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## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

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### Project Personnel

<b>Project Director</b>	Rebecca Balcom, M.A., Principal
<b>Project Manager</b>	Michael Teal, M.A. (P364), Staff Archaeologist
<b>Archaeological License Holder</b>	Michael Teal, M.A. (P364), Staff Archaeologist
<b>Report Production</b>	Robert Pearce, Ph.D. (P014), Project Archaeologist Cassandra Duckworth-Robb, Office/Lab Assistant, Graphics Stacey Carson, Cultural Sciences Group Administrator
<b>Senior Review</b>	Rebecca Balcom, M.A., Principal, Director of Cultural Sciences

### Acknowledgements

<b>Proponent Contact</b>	Mr. Ian Blevins, London Regional Office Manager Ms. Nancy Martin, Project Coordinator AECOM Canada Ltd., London
<b>Ministry of Tourism, Culture &amp; Sport</b>	Robert Von Bitter, Archaeological Data Coordinator Shari Prowse, M.A., Archaeology Review Officer, SW Region



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## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

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## **1.0 PROJECT CONTEXT**

### **1.1 Development Context**

Golder Associates Ltd. (Golder) was contracted by AECOM on behalf of the Corporation of the County of Middlesex to undertake a Stage 1 archaeological assessment of the proposed Albert Street Bridge Replacement project, Township of Strathroy-Caradoc, Middlesex County.

The existing Albert Street Bridge spans the Sydenham River on Albert Street (Regional Road 39) in the Town of Strathroy. An approximate area of less than one hectare would be potentially affected by proposed improvements on part of Lot 21, Concessions 4 and 5, S.E.R. (South of Egremont Road), formerly Geographic Township of Adelaide, now Town of Strathroy in the Township of Strathroy-Caradoc, Middlesex County.

This Stage 1 assessment was conducted to meet the standard requirements of a Schedule “B” Class Environmental Assessment.

As currently anticipated, the construction zone for this project would extend outward from the existing bridge a distance of 100 metres to the east along Albert Street and 100 metres to the west along Albert Street from the current east and west abutments of the bridge, and a maximum of 10 metres to the north and south along that linear corridor.

The project involves design and replacement of the existing Albert Street Bridge, built in 1937. The existing bridge is defined as a part-through (pony) truss simple span bridge of structural steel and reinforced concrete, with a deck length of 29.87 metres and overall width of 12.7 metres. The deck and sidewall were repaired in 1977 and the truss bearings of the west abutment were replaced in 1996 (Dillon 2007).

The objective of the Stage 1 assessment was to compile all available information about the known and potential cultural heritage resources within the study area and to provide specific direction for the protection, management and/or recovery of these resources. In compliance with the provincial standards and guidelines set out in the *Standards and Guidelines for Consultant Archaeologists* (Government of Ontario 2011), the objectives of the Stage 1 Archaeological Overview/Background Study are as follows:

- To provide information about the study area’s geography, history, previous archaeological fieldwork and current land conditions;
- To evaluate in detail the study area’s archaeological potential which will support recommendations for Stage 2 survey for all or parts of the property, if required; and
- To recommend appropriate strategies for Stage 2 survey, if required.

To meet these objectives Golder archaeologists employed the following research strategies:

- A review of relevant archaeological, historic and environmental literature pertaining to the property;
- Review of an updated listing of archaeological sites from the provincial database (ASDB);
- Visual inspection of the property; and
- Review of historic maps of the study area.



## **1.2 Archaeological Context**

### **1.2.1 The Natural Environment**

The existing Albert Street Bridge spans the Sydenham River, a major (primary) watercourse (Maps 1 and 2), in the Town of Strathroy.

The East Branch of the Sydenham River flows north to south under the Albert Street Bridge. The East Branch originates as a series of several feeder streams and creeks well to the northeast of the study area, on a moraine near Ilderton in London Township (13 km northwest of London). It then flows in a general south-westerly direction, through Strathroy to eventually widen into a primary river continually fed by additional feeder streams and creeks. Near Wallaceburg the East Branch joins the North Branch, and the river then continues to flow south-westerly into Lake St. Clair. The Sydenham is the only major river in southwestern Ontario to lie completely within the Carolinian Life Zone (St. Clair River Conservation Authority 2013).

The study area is situated within the Caradoc Sand Plains physiographic region (Chapman and Putnam 1984:146).

*West and east of London there are small plains which differ from the adjacent moraines and clay plains in that they are covered with sand and other light-textured, water-lain deposits. Together they comprise about 300 square miles or 192,000 acres in which the soils are conducive to specialized agriculture.*

*Immediately surrounding the city and extending several miles eastward there is a basin lying between 850 and 900 feet a.s.l. into this basin the earliest glacial spillways discharged muddy water, laying down beds of silt and fine sand. Later, when standing water had retired westward to lower levels, gravelly alluvium was spread over the lower parts of the basin. These gravels continue along the Thames to Komoka where high level terraces now appear. Later, when the standing water had lowered to the level of Lake Whittlesey, the early Thames River cut through the Komoka terraces and built a delta which covers most of Caradoc Township.*

*... The main part of the Caradoc sand plains in Caradoc Township has been characterized by three soil types on the Middlesex soil map. Fox fine sandy loam appears on the finer sands which are deep and well drained, while the main type in those areas with a shallow layer of sand over clay, and having wet subsoil, is classified as Berrien sandy loam. On the old fixed dunes and other sandhills, the less productive Oshtemo sand appears.*

(Chapman and Putnam 1984:146)

Although not specifically mentioned by Chapman and Putnam (1984) in their text description of the Caradoc sand plains, the large scale map which accompanied the publication shows that the southern part of Adelaide Township and the Sydenham River valley within the Town of Strathroy are part of the Caradoc sand plains. In contrast, a lower section of the Sydenham River in adjoining Metcalf Township to the southwest, and lands further west in Adelaide Township including the area around the village of Kerwood, are situated in the Ekfrid Clay Plain physiographic region (Chapman and Putnam 1984:147).



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## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

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The soils map of Middlesex County contained in Ontario Soil Survey Report 56 (Hagerty and Kingston 1992) unfortunately does not contain soil data for the entire town of Strathroy; the area is shown on the map as “NM”, meaning not mapped. Lands beyond the limits of the town of Strathroy are mapped, and show the valley of the Sydenham River as “VC”, meaning Valley Complex and lands above the river valley immediately southwest of the town limits as “PL4”, meaning Plainfield fine sand to loamy fine sand.

In 1979 Golder had completed a “Subsurface Investigation, Proposed Albert Street Pumping Station, Strathroy, Ontario” (Golder 1979), involving the drilling of boreholes in the location of the pumping station now located just northeast of the Albert Street Bridge. These boreholes encountered “very loose to very dense sandy deposits” overlying “interlayered silt, clay and sand” (Golder 1979).



## **2.0 STAGE 1 ARCHAEOLOGICAL ASSESSMENT**

### **2.1 Previously Known Archaeological Resources and Surveys**

For the present study, Golder received an updated listing of known (registered) archaeological sites in the vicinity of the study area from the provincial archaeological sites database (ASDB) administered by the Ontario Ministry of Tourism, Culture and Sport, and reviewed data on file in Golder's London office from previous archaeological assessments in the general region of the study area.

Information concerning specific site locations is protected by provincial policy, and is not fully subject to the Freedom of Information Act. The release of such information in the past has led to looting or various forms of illegally conducted site destruction. Confidentiality extends to all media capable of conveying location, including maps, drawings, or textual descriptions of a site location. The Ministry of Tourism, Culture and Sport will provide information concerning site location to the party or an agent of the party holding title to a property, or to a licensed archaeologist with relevant cultural resource management interests.

On November 27, 2012, the Archaeological Sites Database Coordinator of the Ministry of Tourism, Culture and Sport informed Golder that there were no known (registered) archaeological sites in the study area and no known (registered) archaeological sites within one kilometre of the study area.

### **2.2 Summary of Pre-Contact Aboriginal Occupation of Southwestern Ontario**

The first human occupation of southern Ontario began just after the end of the Wisconsin Glacial period. Although there was a complex series of ice retreats and advances which played a large role in shaping the local topography, southwestern Ontario was finally ice free by 12,500 years ago. The first human settlement can be traced back 11,000 years, when this area was settled by Native groups that had been living south of the Great Lakes. These early Native inhabitants have been called "Paleo-Indians," which literally means old or ancient Indians (Ellis and Deller 1990:37).

Our current understanding of Early Paleo period settlement patterns suggest that small bands, consisting of probably no more than 25-35 individuals, followed a pattern of seasonal mobility extending over large territories (Ellis and Deller 1990:54). One of the most thoroughly studied of these groups followed a seasonal round that extended from as far south as Chatham to the Horseshoe Valley north of Barrie. Early Paleo sites tend to be located in elevated locations on well-drained loamy soils. Many of the known sites were located on former beach ridges associated with Lake Algonquin, the post-glacial lake occupying the Lake Huron/Georgian Bay basin. There are a few extremely large Early Paleo sites, such as one located close to Parkhill, Ontario, which covered as much as six hectares (Ellis and Deller 1990:51).



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## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

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It appears that these sites were formed when the same general locations were occupied for short periods of time over the course of many years. Given their placement in locations conducive to the interception of migratory mammals such as caribou, it has been suggested that they may represent communal hunting camps (Ellis and Deller 1990:51). There are also smaller Early Paleo camps scattered throughout the interior of southwestern Ontario, usually situated adjacent to wetlands. The most recent research suggests that population densities were very low during the Early Paleo period (Ellis and Deller 1990:54). Because this is the case, Early Paleo sites are exceedingly rare.

While the Late Paleo period (8400-8000 B.C.) is more recent, it has been less well researched, and is consequently more poorly understood. By this time the environment of southwestern Ontario was coming to be dominated by closed coniferous forests with some minor deciduous trees (Ellis and Deller 1990:60). It seems that many of the large game species that had been hunted in the early part of the Paleo period had either moved further north, or as in the case of the mastodons and mammoths, become extinct (Ellis and Deller 1990).

As in the early Paleo period, late Paleo period peoples covered large territories as they moved about in response to seasonal resource fluctuations. On a province wide basis Late Paleo-Indian projectile points are far more common than Early Paleo materials, suggesting a relative increase in population (Ellis and Deller 1990:62).

The end of the Paleo period was heralded by numerous technological and cultural innovations which may be best explained in relation to the dynamic nature of the post-glacial environment and region-wide population increases.

During the Early Archaic period (8000-6000 B.C.), the jack and red pine forests that characterized the Late Paleo-Indian environment were replaced by forests dominated by white pine with some associated deciduous trees (Ellis, Kenyon and Spence 1990:68-69). One of the more notable changes in the Early Archaic period is the appearance of side and corner-notched projectile points. Other significant innovations include the introduction of ground stone tools such as celts and axes, suggesting the beginnings of a simple woodworking industry (Ellis and Deller 1990:65). The presence of these often large and not easily portable tools suggests there may have been some reduction in the degree of seasonal movement, although it is still suspected that population densities were quite low, and band territories large.

During the Middle Archaic period (6000-2500 B.C.) the trend to more diverse toolkits continued, as the presence of netsinkers suggest that fishing was becoming an important aspect of the subsistence economy. It was also at this time that "bannerstones" were first manufactured (Ellis, Kenyon and Spence 1990:65). Bannerstones are carefully crafted ground stone devices that served as a counterbalance for "atlatls" or spear-throwers. Another characteristic of the Middle Archaic is an increased reliance on local, often poor quality chert resources for the manufacturing of projectile points. It seems that during earlier periods, when groups occupied large territories, it was possible for them to visit a primary outcrop of high quality chert at least once during their seasonal round. However, during the Middle Archaic, groups inhabited smaller territories that often did not encompass a source of high quality raw material. In these instances lower quality materials which had been deposited by the glaciers in the local till and river gravels were utilized.

This reduction in territory size was probably the result of gradual region-wide population growth which led to the infilling of the landscape (Ellis, Kenyon and Spence 1990:67). This process resulted in a reorganization of Native subsistence practices, as more people had to be supported from the resources of a smaller area.



## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

During the latter part of Middle Archaic, technological innovations such as fish weirs have been documented as well as stone tools especially designed for the preparation of wild plant foods. It is also during the latter part of the Middle Archaic period that long distance trade routes began to develop, spanning the northeastern part of the continent. In particular, native copper tools manufactured from a source located northwest of Lake Superior were being widely traded (Ellis, Kenyon and Spence 1990:66). By 3500 B.C. the local environment had stabilized in a near modern form (Ellis, Kenyon and Spence 1990:69).

During the Late Archaic (2500-900 B.C.) the trend towards decreased territory size and a broadening subsistence base continued. Late Archaic sites are far more numerous than either Early or Middle Archaic sites, and it seems that the local population had definitely expanded. It is during the Late Archaic that the first true cemeteries appear (Ellis, Kenyon and Spence 1990:66). Before this time individuals were interred close to the location where they died. During the Late Archaic, if an individual died while his or her group happened to be at some distance from their group cemetery, the bones would be kept until they could be placed in the cemetery. Consequently, it is not unusual to find disarticulated skeletons, or even skeletons lacking minor elements such as fingers, toes or ribs, in Late Archaic burial pits.

The appearance of cemeteries during the Late Archaic has been interpreted as a response to increased population densities and competition between local groups for access to resources. It is argued that cemeteries would have provided strong symbolic claims over a local territory and its resources. These cemeteries are often located on heights of well-drained sandy/gravel soils adjacent to major watercourses (Ellis, Kenyon and Spence 1990:66-67, 106, 117).

This suggestion of increased territoriality is also consistent with the regionalized variation present in Late Archaic projectile point styles. It was during the Late Archaic that distinct local styles of projectile points appear. Also during the Late Archaic the trade networks which had been established during the Middle Archaic continued to flourish. Native copper from Northern Ontario and marine shell artifacts from as far away as the Mid-Atlantic coast are frequently encountered as grave goods (Ellis, Kenyon and Spence 1990:117). Other artifacts such as polished stone pipes and banded slate gorgets also appear on Late Archaic sites. One of the more unusual and interesting of the Late Archaic artifacts is the "birdstone" (Ellis, Kenyon and Spence 1990:111). Birdstones are small, bird-like effigies usually manufactured from green banded slate.

The Early Woodland period (900-200 B.C.) is distinguished from the Late Archaic period primarily by the addition of ceramic technology. While the introduction of pottery provides a useful demarcation point for archaeologists, it may have made less difference in the lives of the Early Woodland peoples. The first pots were very crudely constructed, thick walled, and friable. It has been suggested that they were used in the processing of nut oils by boiling crushed nut fragments in water and skimming off the oil (Spence, Pihl and Murphy 1990:137). These vessels were not easily portable, and individual pots must not have enjoyed a long use life. There have also been numerous Early Woodland sites located at which no pottery was found, suggesting that these poorly constructed, undecorated vessels had yet to assume a central position in the day-to-day lives of Early Woodland peoples.

Other than the introduction of this rather limited ceramic technology, the life-ways of Early Woodland peoples show a great deal of continuity with the preceding Late Archaic period. For instance, birdstones continue to be manufactured, although the Early Woodland varieties have "pop-eyes" which protrude from the sides of their heads (Spence, Pihl and Murphy 1990:129).





## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

Likewise, the thin, well-made projectile points which were produced during the terminal part of the Archaic period continue in use. However, the Early Woodland variants were side-notched rather than corner-notched, giving them a slightly altered and distinctive appearance.

The trade networks which were established in the Middle and Late Archaic also continued to function, although there does not appear to have been as much traffic in marine shell during the Early Woodland period (Spence, Pihl and Murphy 1990:129). During the last 200 years of the Early Woodland period, projectile points manufactured from high quality raw materials from the American Midwest begin to appear in southern Ontario (Spence, Pihl and Murphy 1990:138).

In terms of settlement and subsistence patterns, the Middle Woodland (200 B.C.-900 A.D.) provides a major point of departure from the Archaic and Early Woodland periods. While Middle Woodland peoples still relied on hunting and gathering to meet their subsistence requirements, fish were becoming an even more important part of the diet (Spence, Pihl and Murphy 1990:151). Some Middle Woodland sites have produced literally thousands of bones from spring spawning species such as walleye and sucker. Nuts such as acorns were also being collected and consumed (Spence, Pihl and Murphy 1990:134). In addition, Middle Woodland peoples relied much more extensively on ceramic technology. Middle Woodland vessels are often decorated with hastily impressed designs covering the entire exterior surface and upper portion of the vessel interior. Consequently, even very small fragments of Middle Woodland vessels are easily identifiable.

It is also at the beginning of the Middle Woodland period that rich, densely occupied sites appear on the valley floor of major rivers. Middle Woodland sites are significantly different in that the same location was occupied off and on for as long as several hundred years. Because this is the case, rich deposits of artifacts often accumulated.

Unlike earlier seasonally utilized locations, these Middle Woodland sites appear to have functioned as base camps, occupied off and on over the course of the year. There are also numerous small upland Middle Woodland sites, many of which can be interpreted as special purpose camps from which localized resource patches were exploited. This shift towards a greater degree of sedentism continues the trend witnessed from at least Middle Archaic times, and provides a prelude to the developments that follow during the Late Woodland period.

The Late Woodland period began with a shift in settlement and subsistence patterns involving an increasing reliance on corn horticulture (Fox 1990:185; Smith 1990; Williamson 1990:312). Corn may have been introduced into southwestern Ontario from the American Midwest as early as 600 A.D. (Fox 1990:174; Williamson 1990:312). However, it did not become a dietary staple until at least three to four hundred years later.

The first agricultural villages in southwestern Ontario date to the 10th century A.D. (Williamson 1990:291). Unlike the riverine base camps of the Middle Woodland period, these sites are located in the uplands, on well-drained sandy soils. Categorized as "Early Ontario Iroquoian" (900-1300 A.D.), many archaeologists believe that it is possible to trace a direct line from the Iroquoian groups which inhabited southwestern Ontario at the time of first European contact, to these early villagers.

Village sites dating between 900 and 1300 A.D., share many attributes with the historically reported Iroquoian sites, including the presence of longhouses and sometimes palisades. However, these early longhouses were actually not all that large, averaging only 12.4 metres in length (Dodd et al 1990:349; Williamson 1990:304-305).





## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

It is also quite common to find the outlines of overlapping house structures, suggesting that these villages were occupied long enough to necessitate re-building. The Jesuits reported that the Huron moved their villages once every 10-15 years, when the nearby soils had been depleted by farming and conveniently collected firewood grew scarce (Pearce 2010). It seems likely that Early Ontario Iroquoians occupied their villages for considerably longer, as they relied less heavily on corn than did later groups, and their villages were much smaller, placing less demand on nearby resources.

Judging by the presence of carbonized corn kernels and cob fragments recovered from sub-floor storage pits, agriculture was becoming a vital part of the Early Ontario Iroquoian economy. However, it had not reached the level of importance it would in the Middle and Late Ontario Iroquoian periods. There is ample evidence to suggest that more traditional resources continued to be exploited, and comprised a large part of the subsistence economy. Seasonally occupied special purpose sites relating to deer procurement, nut collection, and fishing activities, have all been identified (Williamson 1990:317). While beans are known to have been cultivated later in the Late Woodland period, they have yet to be identified on Early Ontario Iroquoian sites (Williamson 1990:291).

The Middle Ontario Iroquoian period (1300-1400 A.D.) witnessed several interesting developments in terms of settlement patterns and artifact assemblages. Changes in ceramic styles have been carefully documented, allowing the placement of sites in the first or second half of this 100-year period. Moreover, villages, which averaged approximately 0.6 hectares in extent during the Early Ontario Iroquoian period, now consistently range between one and two hectares.

House lengths also change dramatically, more than doubling to an average of 30 metres, while houses of up to 45 metres have been documented. This radical increase in longhouse length has been variously interpreted. The simplest possibility is that increased house length is the result of a gradual, natural increase in population (Dodd et al 1990:323, 350, 357; Smith 1990). However, this does not account for the sudden shift in longhouse lengths around 1300 A.D. Other possible explanations involve changes in economic and socio-political organization (Dodd et al 1990:357). One suggestion is that during the Middle Ontario Iroquoian period small villages were amalgamating to form larger communities for mutual defense (Dodd et al 1990:357). If this was the case, the more successful military leaders may have been able to absorb some of the smaller family groups into their households, thereby requiring longer structures. This hypothesis draws support from the fact that some sites had up to seven rows of palisades, indicating at least an occasional need for strong defensive measures. There are, however, other Middle Ontario Iroquoian villages which had no palisades present (Dodd et al 1990:358). More research is required to evaluate these competing interpretations.

The lay-out of houses within villages also changes dramatically by 1300 A.D. During the Early Ontario Iroquoian period villages were haphazardly planned at best, with houses oriented in various directions. During the Middle Ontario Iroquoian period villages are organized into two or more discrete groups of tightly spaced, parallel aligned, longhouses. It has been suggested that this change in village organization may indicate the initial development of the clans which were a characteristic of the historically known Iroquoian peoples (Dodd et al 1990:358).

Initially at least, the Late Ontario Iroquoian period (1400-1650 A.D.) continues many of the trends which have been documented for the preceding century. For instance, between 1400 and 1450 A.D. house lengths continue to grow, reaching an average length of 62 metres.



## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

One longhouse excavated on a site southwest of Kitchener stretched an incredible 123 metres (Lennox and Fitzgerald 1990:444-445). After 1450 A.D., house lengths begin to decrease, with houses dating between 1500-1580 A.D. averaging only 30 metres in length. Why house lengths decrease after 1450 A.D. is poorly understood, although it is believed that the even shorter houses witnessed on historic period sites can be at least partially attributed to the population reductions associated with the introduction of European diseases such as smallpox (Lennox and Fitzgerald 1990:405, 410).

Village size also continues to expand throughout the Late Ontario Iroquoian period, with many of the larger villages showing signs of periodic expansions. The Late Middle Ontario Iroquoian period and the first century of the Late Ontario Iroquoian period was a time of village amalgamation. One large village situated in London expanded one-fifth of its size (Anderson 2009) and one village north of Toronto have been shown to have expanded on no fewer than five occasions (Ramsden 1990:374-375). These large villages were often heavily defended with numerous rows of wooden palisades, suggesting that defence may have been one of the rationales for smaller groups banding together.

After 1525 A.D. communities of pre-contact Aboriginals of the Late Ontario Iroquoian period who had formerly lived throughout southwestern Ontario as far west as the Chatham area moved further east to the Hamilton area. During the late 1600's and early 1700's, the French explorers and missionaries reported a large population of Iroquoian peoples clustered around the western end of Lake Ontario. They called these people the "Neutral", because they were not involved in the ongoing wars between the Huron and the League Iroquois located in upper New York State. It has been satisfactorily demonstrated that the Late Ontario Iroquoian communities which were located in southwestern Ontario as far west as the Chatham area were ancestral to at least some of the Neutral Nation groups (Lennox and Fitzgerald 1990; Smith 1990:283). For this reason the Late Ontario Iroquoian groups which occupied southwestern Ontario prior to the arrival of the French are often identified as "Prehistoric Neutral". They occupied a large area extending along the Grand River and throughout the Niagara Peninsula as far east as Fort Erie and Niagara Falls (Lennox and Fitzgerald 1990:448).

The following table presents an overview of the pre-contact Aboriginal culture history of southern Ontario.

**Table 1: Overview of Pre-Contact Aboriginal Culture History of Southern Ontario**

Period	Characteristics	Time	Comments
Early Paleo	Fluted Projectiles	9000-8400 B.C.	spruce parkland/caribou hunters
Late Paleo	Hi-Lo Projectiles	8400-8000 B.C.	smaller but more numerous sites
Early Archaic	Kirk and Bifurcate Base Points	8000-6000 B.C.	slow population growth
Middle Archaic	Brewerton-like Points	6000-2500 B.C.	environment similar to present
Late Archaic	Narrow Point	2000-1800 B.C.	increasing site size
	Broad Point	1800-1500 B.C.	large chipped lithic tools
	Small Point	1500-1100 B.C.	introduction of bow hunting
Terminal Archaic	Hind Points	1100-950 B.C.	emergence of true cemeteries
Early Woodland	Meadowood Points	950-400 B.C.	introduction of pottery
Middle Woodland	Dentate/Pseudo-Scallop Pottery	400 B.C.-A.D. 500	increased sedentism



## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

Period	Characteristics	Time	Comments
	Princess Point	A.D. 550-900	introduction of corn
Late Woodland	Early Ontario Iroquoian	A.D. 900-1300	emergence of agricultural villages
	Middle Ontario Iroquoian	A.D. 1300-1400	long longhouses (100m +)
	Late Ontario Iroquoian	A.D. 1400-1650	tribal warfare and displacement
Contact Aboriginal	Various Algonkian Groups	A.D. 1700-1875	early written records and treaties
Historic	French/Euro-Canadian	A.D. 1749-present	European settlement

### 2.3 Potential for Pre-Contact Aboriginal Archaeological Sites

Archaeological potential is established by determining the likelihood that archaeological resources may be present on a subject property. Archaeological potential takes into consideration a range of physiographic and cultural-historical variables, any or all of which may have influenced past patterns of land use. These variables include distance to various types of water source, soil texture, soil drainage, glacial geomorphology, slope, aspect, the general topographic variability in and around a particular study area, and proximity of study area to known archaeological sites.

Portions of the study area which include the channel, valley and slopes of the Sydenham River would have no archaeological potential because of the water, valley and slopes.

Undisturbed lands immediately above the top-of-bank of the river, being flat, well-drained sandy soil in close proximity to water, would have archaeological potential. However, disturbed lands within these zones would have no archaeological potential due to past disturbance. The nature of these disturbances, as documented elsewhere in this report, include the road (Albert Street), the bridge (Albert Street Bridge), sidewalks along Albert Street, areas previously impacted by above-ground services such as hydro transmission lines, and areas previously impacted by installation of underground services including but not limited to watermain, sanitary forcemain (sewer), gas lines, telephone lines and other buried utilities.

Images included in this report (Images 1 to 6; see Map 3 for locations of images) show different views of the study area and existing Albert Street Bridge.

### 2.4 First Nations Treaties

The study area is located along the Sydenham River in the Town of Strathroy.

The post-contact Aboriginal occupation of Southern Ontario was heavily influenced by the dispersal of various Iroquoian-speaking communities by the New York State Iroquois and the subsequent arrival of Algonkian-speaking groups from northern Ontario at the end of the 17<sup>th</sup> century and the beginning of the 18<sup>th</sup> century (Konrad 1981; Schmalz 1991).



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## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

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By 1690, Algonkian speakers from the north began to settle in Bruce County and in this period the Mississaugas are known to have moved into southern Ontario and the lower Great Lakes watersheds (Konrad 1981). In southwestern Ontario, however, members of the Three Fires Confederacy (Chippewa, Ottawa and Potawatomi) were immigrating from Ohio and Michigan in the late 1700s (Feest and Feest 1978:778-779).

The study area first enters the Euro-Canadian historic record as part of Treaty No. 21 made between the First Nation inhabitants of the area and the British. Treaty No. 21 was a provisional agreement signed on March 19, 1819, between John Aiken, Esquire, on behalf of His Majesty, and the Principal Men of the Chippewa Nation of Indians (Morris 1943:24). It encompassed the tract of land:

*Commencing at the northerly side of the River Thames at the south west angle of the Township of London; thence along the western boundary of the Township of London, in a course north 21 degrees, 30 minutes west, twelve miles to the north west angle of the said Township; then on a course about south 62 degrees and 30 minutes west forty-eight miles more or less until it intersects a line on a course produced north two miles from the north east angle of the Shawnee [Sombra] Township; then along the eastern boundary line of the said Township, twelve miles and a half more or less to the northern boundary line of the Township of Chatham; then east twenty-four miles more or less to the River Thames; then along the water's edge of the River Thames against the stream to the place of beginning, reserving a tract of land situate[d] on the northerly side of the River Thames nearly opposite to the northerly angle of the Township of Southwold and south west angle of the Del[a]ware Township containing 15,360 acres; also reserving two miles square distant about four miles above the rapids where the Indians have their improvements and nearly parallel to the Moravian Village containing 5,120 acres.*

(Morris 1943:24-25)

Treaty No. 21 was further modified in Treaty No. 280½ (Anonymous 1891:281-282) and finally confirmed in Treaty No. 25, which modified the method of quantity of payment to the First Nation Groups concerned, with some minor variation in the description of the land surrender (Morris 1943:25).

While it is difficult to exactly delineate treaty boundaries today, Map 4 provides an approximate outline of the limits of Treaty Number 21.

Presently, the closest First Nations communities are the Oneida Nation of the Thames, the Munsee-Delaware Nation and Chippewas of the Thames First Nation all located within approximately 17 to 20 kilometres southeast of the study area.

## 2.5 Euro-Canadian History of Study Area

The study area encompasses part of Lot 21 of Concessions 4 and 5 S.E.R. (South of Egremont Road), formerly Township of Adelaide, now Town of Strathroy in the Township of Strathroy-Caradoc, Middlesex County.



## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY

The 1878 *Historical Atlas of Middlesex County* (H. R. Page 1878:9, 11) states that both the Township of Adelaide and the Town of Strathroy were first settled in 1832. The Township of Adelaide had primarily English and Irish settlers and remained a largely rural area with two small hamlets known as Adelaide and Kerwood. The first settler in the Town of Strathroy, in the spring of 1832, was John Stewart Buchanan, who soon thereafter established a saw mill and a grist mill on the Sydenham River on Lot 25, Concession 3 S.E.R. By 1840 there were 14 inhabitants in a hamlet which grew up around Buchanan's mills. By 1850 there were three stores, a tavern, a blacksmith shop and a shoe shop as well as several new residents (H. R. Page 1878:9). Growth and expansion of the hamlet were greatly facilitated by the construction of the Sarnia Branch of the Great Western Railway in 1856, and by 1878 the town (incorporated in 1871) had over 4,000 residents and several industries and businesses such as the Strathroy Knitting Works, a hub, spoke and bending works, two stave factories, five carriage shops, two breweries, a rake and cradle factory, flouring mills, and brick works (H. R. Page 1878:9).

The map of the Town of Strathroy in the 1878 *Historical Atlas of Middlesex County* (H. R. Page 1878:66-67) (Map 5) indicates that in 1878 the roadway now known as Albert Street was known as Concession Street, and that the major north-south road to the east of the Sydenham River was then known as Victoria Street (today known as Centre Road). The side street running north from Concession Street (now Albert Street) to the west of the Sydenham River was known then, as it is now, as Carrie Street.

According to the 1878 Historical Atlas, all of the land south of Concession Street (now Albert Street) on both sides of the Sydenham River was part of a large block owned by W. H. Armstrong, and there was a brewery at the northeast corner of that block (at the southeast corner of Concession Street (now Albert Street) and Victoria Street (now Centre Road) (well away from the area to be potentially impacted by the Albert Street Bridge replacement). No other structures are shown on the block owned by W. H. Armstrong in 1878 in the vicinity of the Sydenham River.

Lands on each side of the Sydenham River on the north side of Concession Street (now Albert Street) were in 1878 a rectangular block which had been subdivided into a series of numbered lots of varying sizes and orientations, numbered 1 through 12. The Sydenham River ran through Lots 3 and 4 in the southern half of this block (closest to Concession Street or Albert Street), and Lots 9, 10 and 11 in the northern half of the block. The only structure shown on the 1878 map within this block of land was a woolen mill on Lot 6, along the west side of and fronting Victoria Street (well away from the area to be potentially impacted by the Albert Street Bridge replacement).

The map of Adelaide Township in the 1878 Historical Atlas (H. R. Page 1878:37) (Map 6) indicates a different ownership of lands to the south of Concession Street (now Albert Street) from the above-noted map of Strathroy. It shows the land east of the Sydenham River as being owned by "Wm. A." (probably meaning William A. Armstrong as on the map of Strathroy), but it shows lands west of the Sydenham River as being part of a block owned by Jas. Young, with a structure (house?) located in mid-lot (but well away from the area to be potentially impacted by the Albert Street Bridge replacement).

The Business Directory in the 1878 Historical Atlas indicates that W. H. Armstrong had settled in Strathroy/Adelaide Township in 1852; he was a native of Ireland and served as a Justice of the Peace and town treasurer in Strathroy. There is no listing for Jas. Young in either the directory for Strathroy or Adelaide Township.



## **2.6 Potential for Euro-Canadian Historic Resources**

As documented in Section 2.5 above, the first settlers in the vicinity of the study area arrived in 1832, and by 1878 the Town of Strathroy was a thriving community with many businesses and residents. As in any urban area, a particular block of land within an established community has potential for the future recovery of mid to late 19<sup>th</sup> century artifacts and/or potential for the future recovery of archaeological evidence of former buildings, especially along a well-travelled roadway such as Concession Street (now Albert Street). Thus it can be concluded that any undisturbed lands in the study area that would potentially be impacted by the proposed Albert Street Bridge replacement have archaeological potential for Euro-Canadian resources.





### **3.0 STAGE 1 SITE INSPECTION AND EXISTING CONDITIONS**

Personnel from Golder undertook a site inspection of the study area on November 27, 2012. The weather was cold at two degrees Celsius but sunny and conducive to good observation of existing conditions. Permission to access the property was not required because all of the land is publically accessible.

The site inspection involved a walk-about to view existing conditions, and the recording of said conditions through a series of 18 digital images, some of which are reproduced in Images 1 to 6.

Lands immediately under and adjacent to the existing bridge contain the Sydenham River and its steep sloped river banks covered with scrub brush and small trees.

Lands to the west-northwest of the existing bridge contain an above-ground hydro transmission line pole, buried underground services (watermain) and a gravel parking lot which provides access to Centennial Park located further to the north-northwest. Some of these disturbances can be seen in Image 1.

Lands to the east-northeast of the existing bridge contain an above-ground hydro transmission line pole, buried underground services (watermain), a gravel laneway running north from Albert Street, and a small paved parking lot and a pumping station which services underground sewers (a sanitary forcemain or sewer with manhole north of Albert Street). The sanitary forcemain crosses under Albert Street just east of the bridge, and then turns 90 degrees west and parallels the south side of Albert Street and the Albert Street Bridge. Also, a smaller diameter water service line branches from the watermain north of Albert Street and crosses under Albert Street just east of the bridge.

Lands to the east-southeast of the existing bridge are a lawn adjacent to the west side of a private residence on the south side of Albert Street.

Lands to the west-southwest of the existing bridge are open space/lawn.

As part of a geo-technical investigation associated with the bridge replacement project, Golder was also retained by AECOM on behalf of the Corporation of the County of Middlesex to complete a soils and stability investigation, including the drilling of boreholes. At the date this Stage 1 archaeological assessment was completed, Golder had drilled only one borehole; further boreholes will be drilled in the spring of 2013. The single borehole drilled to date (on flat land on the west side of the Sydenham River, south of Albert Street) encountered loose sandy soil to a depth of 17 feet, and it was determined this borehole must be drilled deeper in the spring of 2013 (personal communication, David Mitchell, Golder Associates Ltd., London, January 10, 2013). A chart describing the results of Borehole #1 is not yet available, but will be completed by February 2013.

As part of the background research for the geo-technical investigation and to obtain permits to drill boreholes, Golder arranged for locates of buried underground services and acquired from a variety of sources including the Corporation of the County of Middlesex a series of sketches and plans which show buried services. The data from these sketches and plans are incorporated onto Map 3 of the current report.



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## **STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY**

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Some of the lands immediately on each side of the existing bridge which would potentially be impacted by the proposed bridge replacement have already been extensively disturbed by existing buried services including a watermain and a high pressure gas line along the north side of the bridge and a sanitary forcemain (sewer) and telephone cables along the south side of the existing bridge. There is a concrete sidewalk along the north side of the bridge. There are also previous land disturbances caused by the installation of water service lines and other subsurface utilities.



## **4.0 ANALYSIS AND CONCLUSIONS**

The Stage 1 archaeological assessment determined that within the general vicinity of the project lands, the potential for pre-contact Aboriginal resources is high, given proximity of the study area to the Sydenham River and a combination of other factors including physiography, soils and topography which would have been favourable for pre-contact Aboriginal occupation or use and which create zones of archaeological potential.

Similarly, the potential for historic Euro-Canadian resources is high due to the location of the study area in an established community settled from 1832 onward, and also due to proximity to a major roadway (Concession Street in the 19<sup>th</sup> century, now Albert Street).

As documented in Sections 2.3 and 2.6 above, portions of the study area which include the channel, valley and slopes of the Sydenham River would have no archaeological potential because of the water, valley and slopes.

Undisturbed lands immediately above the top-of-bank of the river, being flat, well-drained sandy soil in close proximity to water, have archaeological potential. However, disturbed lands within these zones would have no archaeological potential due to past disturbance. The nature of these disturbances, as documented elsewhere in this report, include the road (Albert Street), the bridge (Albert Street Bridge), sidewalks along Albert Street, and areas previously impacted by installation of underground services including but not limited to watermain, sanitary forcemain (sewer), gas lines, telephone lines and other buried utilities (Map 3).

As currently anticipated, the construction zone for this project would extend outward from the existing bridge a distance of 100 metres to the east along Albert Street and 100 metres to the west along Albert Street from the current east and west abutments of the bridge, and a maximum of 10 metres to the north and south along that linear corridor.

The Stage 1 archaeological assessment determined that although there have been considerable previous disturbances in portions of the study area relating to the previous construction of the existing bridge, road, sidewalks, hydro line, watermain, sanitary sewer, gas line and other subsurface utilities, **some areas within the project lands do retain archaeological integrity for pre-contact Aboriginal resources and historic Euro-Canadian resources.**

Images included in this report (Images 1 to 6; see Map 3 for locations of images) show different views of the study area and existing Albert Street Bridge.



## **5.0 RECOMMENDATIONS**

The Stage 1 archaeological assessment determined that although there have been considerable previous disturbances in portions of the study area relating to the previous construction of the existing bridge, road, sidewalks, hydro line, watermain, sanitary sewer, gas line and other subsurface utilities, some areas within the project lands do retain archaeological integrity for pre-contact Aboriginal resources and historic Euro-Canadian resources and that therefore a **Stage 2 field assessment is recommended for undisturbed lands with archaeological potential within the study area.**

The Ontario Ministry of Tourism, Culture and Sport is asked to review the results and recommendations presented herein, accept this report into the Provincial Register of archaeological reports and **issue a standard letter of concurrence with the findings presented herein.**



## **6.0 ADVICE ON COMPLIANCE WITH LEGISLATION**

This report is submitted to the Minister of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

It is an offence under Section 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alterations to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeological reports referred to in Section 65.1 of the *Ontario Heritage Act*.

Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48(1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48(1) of the *Ontario Heritage Act*.

The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, R.S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.

Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48 (1) of the *Ontario Heritage Act* and may not be altered, or have artifacts removed from them, except by a person holding an archaeological licence.





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## **8.0 IMAGES**



*Image 1: View to Southeast of Existing Bridge and Disturbed Flat Plateau Northwest of Bridge, November 27, 2012*



*Image 2: View East Across Existing Bridge, November 27, 2012*





## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY



*Image 3: View West Across Existing Bridge, November 27, 2012*



*Image 4: View West-Southwest of Existing Bridge and Slope Down to Sydenham River, November 27, 2012*





## STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT, STRATHROY



*Image 5: View Northwest of Existing Bridge and Disturbed/Steep Sloped Lands on Each Side of Sydenham River, November 27, 2012*

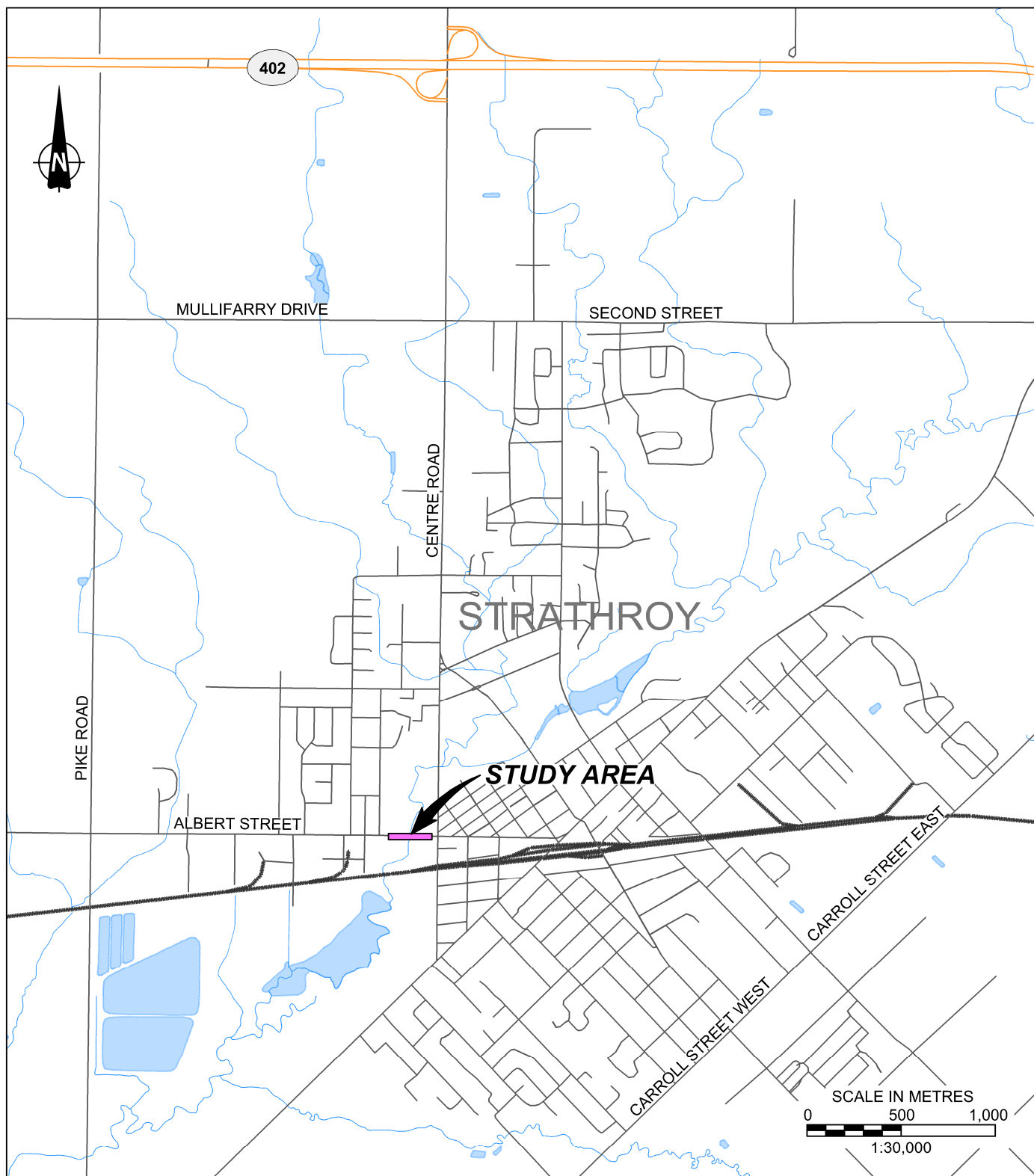


*Image 6: View Northeast of Existing Bridge and Disturbed Lands Southwest of Bridge, November 27, 2012*



## **9.0 MAPS**

All maps follow on the succeeding pages.



## LEGEND

- APPROXIMATE LIMITS OF STUDY AREA

## REFERENCE

DRAWING BASED ON MNR LIO, OBTAINED 2009  
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## NOTES

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PROJECT

STAGE 1 ARCHAEOLOGICAL ASSESSMENT  
 ALBERT STREET BRIDGE REPLACEMENT  
 TOWN OF STRATHROY  
 MIDDLESEX COUNTY, ONTARIO

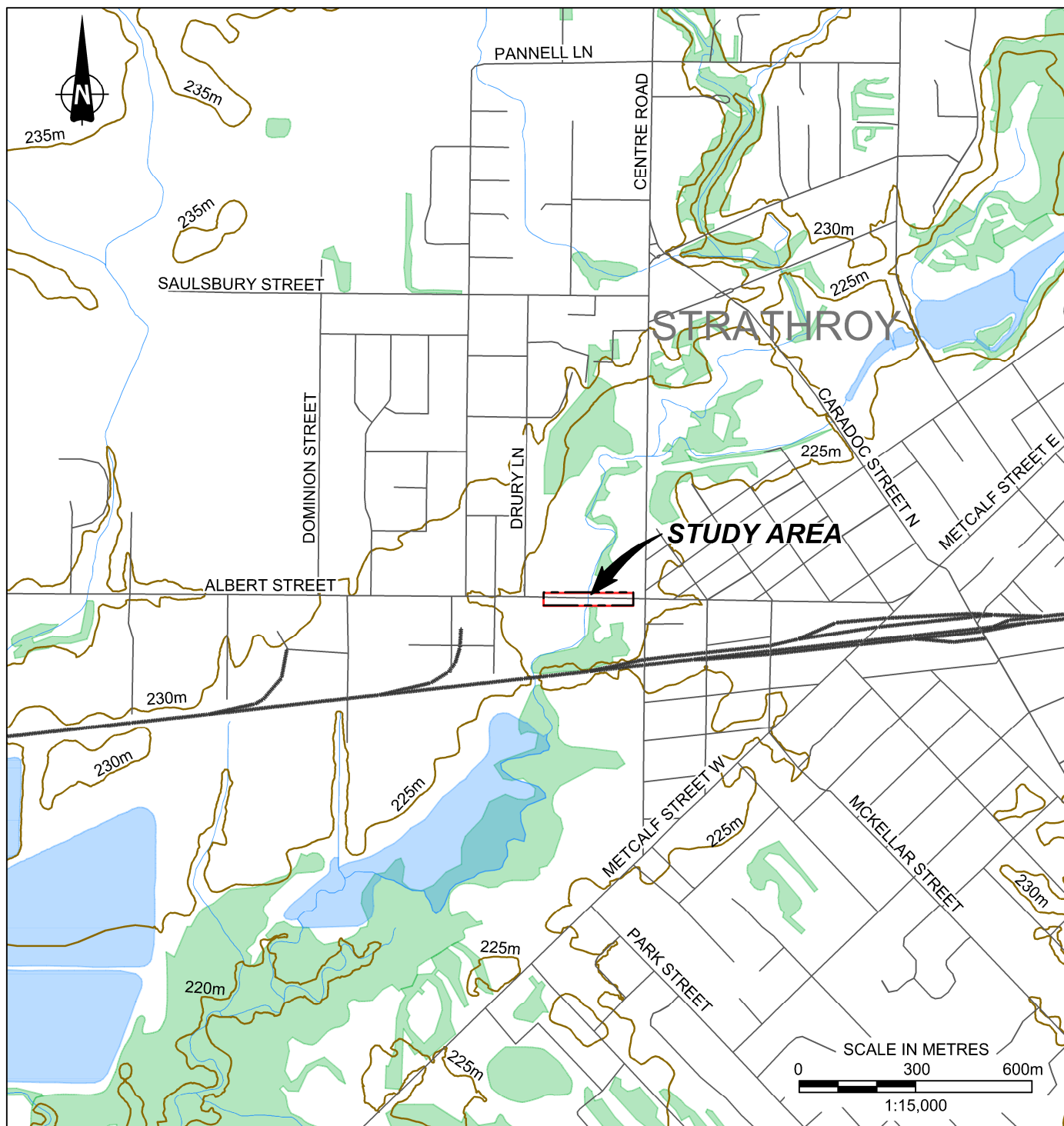
TITLE

## KEY PLAN



PROJECT No. 12-1132-0133			FILE No. 1211320133-2000-R01001	
CADD	DCH	Jan. 15/13	SCALE	AS SHOWN
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			<b>MAP 1</b>	





## LEGEND

### LINES:

- RIVER/STREAM/CREEK/DRAINAGE DITCH
- OBM GROUND SURFACE CONTOUR

### AREAS:

- WOODED/TREE LINE/BRUSH AREA
- WATER BODY
- APPROXIMATE LIMITS OF STUDY AREA

## REFERENCE

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
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Golder Associates LONDON, ONTARIO				MAP 2	



Drawing file: 1211320133-2000-R01003.dwg Jan 15, 2013 - 1:34pm



#### LEGEND

-  PHOTOGRAPH LOCATION, VIEWING DIRECTION, AND IMAGE NUMBER
-  APPROXIMATE AIR RELEASE CHAMBER
-  APPROXIMATE HYDRANT
-  APPROXIMATE WATER MAIN
-  APPROXIMATE WATER SERVICE LINE
-  APPROXIMATE LIMIT OF STUDY AREA


#### REFERENCE

PLAN BASED ON 2010 PHOTOGRAPHIC PHOTOGRAPH BY FIRST BASE SOLUTIONS; AND MUNICIPALITY OF STRATHROY-CARADOC ENVIRONMENTAL SERVICES, WATER LOCATION REQUEST MAP, DECEMBER 21, 2012.

#### NOTES

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PROJECT	STAGE 1 ARCHAEOLOGICAL ASSESSMENT ALBERT STREET BRIDGE REPLACEMENT TOWN OF STRATHROY MIDDLESEX COUNTY, ONTARIO				
TITLE	PLAN OF DEVELOPMENT				
 Golder Associates LONDON, ONTARIO	PROJECT No.	12-1132-0133	FILE No.	1211320133-2000-R01003	
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MAP 3					







## LEGEND

STUDY AREA

## REFERENCE

DRAWING BASED ON H. R. PAGE & CO.'S 1878  
ILLUSTRATED HISTORIC ATLAS OF MIDDLESEX COUNTY.

## NOTES

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## PROJECT

**STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT  
ALBERT STREET BRIDGE REHABILITATION  
TOWN OF STRATHROY, MIDDLESEX COUNTY, ONTARIO**

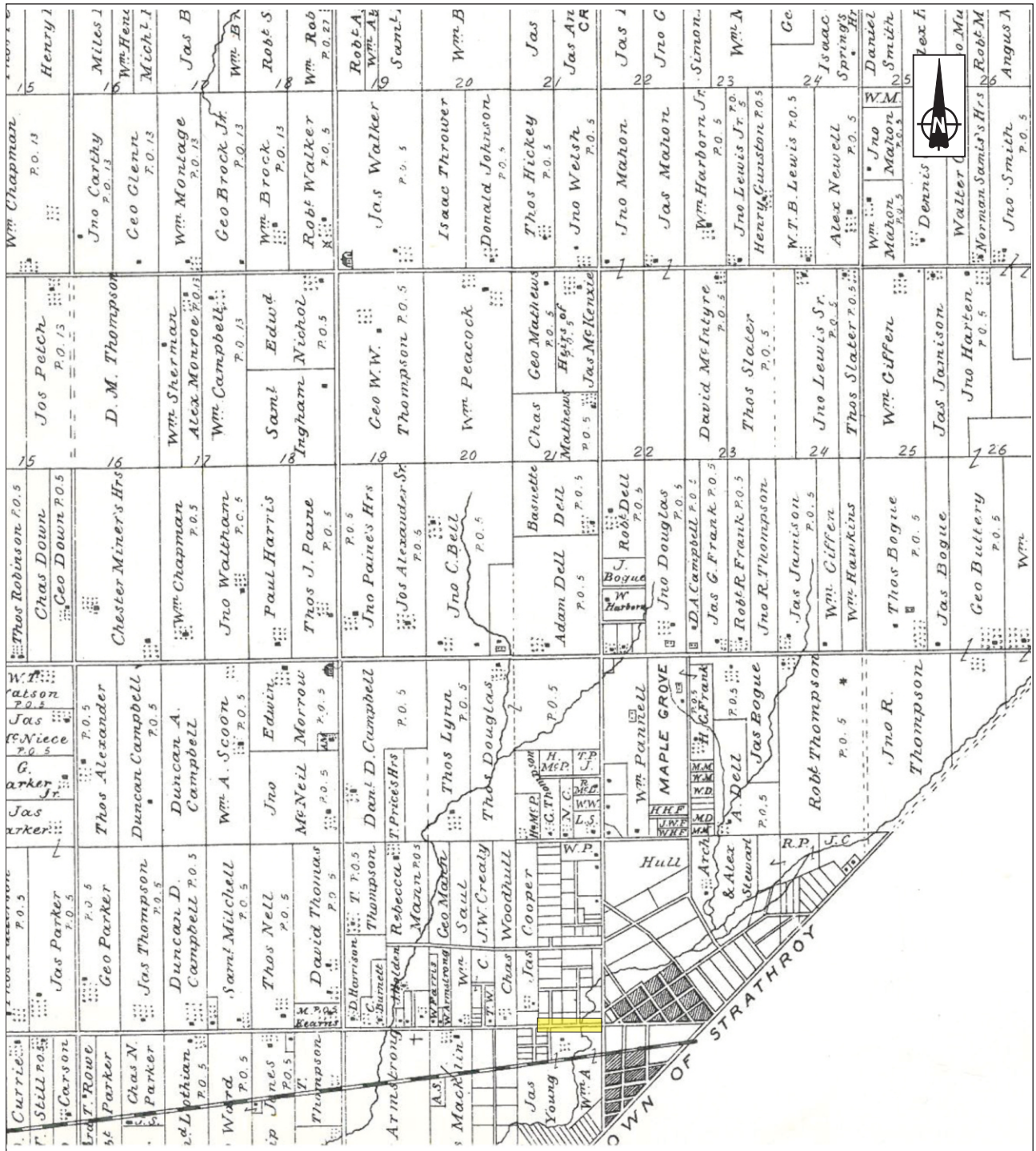
## TITLE

**A PORTION OF THE 1878 MAP OF  
STATHROY SHOWING LOCATION  
OF STUDY AREA**



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<b>MAP 5</b>			





## LEGEND

 STUDY AREA

## REFERENCE

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ILLUSTRATED HISTORIC ATLAS OF MIDDLESEX COUNTY.

## NOTES

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PROJECT

**STAGE 1 AND 2 ARCHAEOLOGICAL ASSESSMENT  
ALBERT STREET BRIDGE REHABILITATION  
TOWN OF STRATHROY, MIDDLESEX COUNTY, ONTARIO**

TITLE

**A PORTION OF THE 1878 MAP OF  
ADELAIDE TOWNSHIP SHOWING LOCATION  
OF STUDY AREA**



PROJECT No.	12-1132-0133	FILE No.	1211320133-2000-R01006
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**MAP 6**



## **10.0 IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT**

Golder has prepared this report in a manner consistent with the level of care and skill ordinary exercised by members of the archaeological profession currently practicing under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

This report has been prepared for the specific site, design objective, developments and purpose described to Golder by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client cannot rely upon the electronic media versions of Golder's report or other work products.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project.

Special risks occur whenever archaeological investigations are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain archaeological resources. The sampling strategies incorporated in this study comply with those identified in the Ministry of Tourism, Culture and Sport's *Standards and Guidelines for Consultants Archaeologists* (Government of Ontario 2011).





## 11.0 CLOSURE

We trust that this report meets your current needs. If you have any questions, or if we may be of further assistance, please contact the undersigned.

**GOLDER ASSOCIATES LTD.**

**ORIGINAL SIGNED**

Michael Teal, M.A.  
Staff Archaeologist

MT/RJB/slc

**ORIGINAL SIGNED**

Rebecca J. Balcom, M.A.  
Principal, Director of Cultural Sciences

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# Appendix D

## Natural Environment Background Information

# Memorandum

To	Corri Marr; AECOM, Nancy Martin; AECOM	Page 1
CC	Gary Epp; AECOM	
Subject	Albert Street Bridge Natural Heritage Assessment	
From	Rob Aitken; AECOM, Sarah Aitken; AECOM, Nicola Lower; AECOM	
Date	March 8, 2013	Project Number 60275667

## 1. Introduction

AECOM Canada Ltd (AECOM) was retained by the County of Middlesex to undertake the Class Environmental Assessment, Detailed Design, Tendering and Contract Administration for the replacement of the Albert Street Bridge, which is located in the Township of Strathroy-Caradoc in the Town of Strathroy. This memo documents the existing conditions within the study area, which for the purposes of this project has been defined as lands and water bodies within 120m of the existing bridge (study area), **Figure 1**.

The existing conditions within the study area were evaluated through the review of available background data and the completion of field assessments. Information collected from background resources also incorporated data from outside of the study area to provide an understanding of the broader ecological landscape surrounding the study area. Natural heritage features that were identified within or in close proximity to the study area through the background data and site assessment include:

- the Sydenham River, which flows through the site and underneath the Albert Street Bridge;
- the Sydenham River Provincially Significant Wetland Complex, which is comprised of multiple wetlands along the Sydenham River to the north and south of the study area;
- Alexandra Park, which is a community park that is located north of Albert Street and generally follows the Sydenham River valley through the Town of Strathroy;
- a few forested communities which are primarily located along the east and west banks of the Sydenham River; and
- a cultural meadow which is located south of Albert Street west of the Sydenham River.

In addition to the identification of the natural heritage features present within or in close proximity to the study area an assessment of their significance was also completed. This included:

- an evaluation of the habitat within the study area for its suitability for species at risk (SAR) that have occurred within Township of Strathroy-Caradoc and the Sydenham River;
- screening for any potential significant wildlife habitat within the study area; and
- an evaluation of the quality of the aquatic habitat present within the Sydenham River within the study area.

## 2. Background Review

In order to evaluate the existing conditions at the site, background information pertaining to the natural heritage features, wildlife and Species at Risk (SAR) that have been documented at or adjacent to the site, was obtained from several different sources. These include: the Corporation of the Township of Strathroy-Caradoc Official Plan (Official Plan), the St. Clair Region Conservation Authority (SCRCA), the Ontario Ministry of Natural Resources (OMNR) district office, the OMNR Natural Heritage Information (NHIC) Biodiversity Explorer Database, the Department of Fisheries and Oceans (DFO), Conservation Ontario (CO) and the Atlas of the Breeding Birds of Ontario (ABBO).

### 2.1 Corporation of the Township of Strathroy-Caradoc Official Plan

Information obtained from the Official Plan that pertains to the lands and natural features present within the study area revealed the following:

- a) **'Schedule B – Land Use and Transportation Plan' of the Official Plan** identifies the lands within the study area as 'Open Space'. Open Space within the settlement area of Strathroy contains a number of parks and areas of open space, some of which are used for recreational purposes (i.e. sports fields, golf courses, hiking trails, etc.) while others are intended to remain relatively undisturbed due to their natural heritage features and the presence of plant and animal life. The majority of the open space within Strathroy is associated with the Sydenham River Valley and its tributaries (Community Planners Inc., 2008);
- b) **'Schedule C – Special Policy Areas' of the Official Plan** identifies the lands within the study area as part of the 'Sydenham River Valley' which is classified as a significant natural area and a significant recreational asset. Upstream of Head Street, which is located approximately 1 km to the North East of the study area, the valley is largely uninterrupted and rich in natural features and acts as a significant migration route for wildlife and fish. Rare species that have been classified as endangered under the federal Species at Risk Act (SARA) and the provincial Endangered Species Act (ESA) are known to occur within the valley corridor. Downstream of Head Street, the 'Sydenham River Valley' accommodates some of the Strathroy's major outdoor recreation facilities including Alexander Park (Community Planners Inc., 2008);
- c) **'Schedule D – Natural Heritage Features' of the Official Plan** identifies the Sydenham River, which flows through the study area and beneath the Albert Street Bridge, as a natural watercourse. It also identifies wetlands approximately 120 m to the north west and 200 m south of the bridge and a small woodland immediately south of the bridge along the eastern edge of the river (Community Planners Inc., 2008); and
- d) **'Schedule K – Land Use & Development Sensitivity Areas' of the Official Plan** identifies the lands within the study area as 'Hazard Lands.' Section 6.1 of the Official Plan identifies 'Hazard Lands' as lands that are associated with the Sydenham River and its tributaries as being hazardous or potential hazardous to development and a risk to life and property due to their susceptibility to flooding, erosion, subsidence, slumping, inundation, or the presence of steep slopes or poorly drained soils. These lands have been delineated using mapping provided by the St. Clair Region Conservation Authority (SCRCA) (Community Planners Inc., 2008).

### 2.2 St. Clair Region Conservation Authority

Information obtained from the SCRCA, provided in **Attachment A**, included:

- a) mapping which identified the lands within the study area are within the jurisdiction and regulation limits of the SCRCA;
- b) mapping which identified two wetlands that are part of the Provincially Significant Sydenham River Wetland Complex approximately 120 m to the north and 200 m to the south of the bridge;
- c) the Township of Adelaide-Metcalf municipal drain classification map;
- d) the Township of Strathroy-Caradoc municipal drain classification map;
- e) water quality data from two water quality stations located approximately 3 km downstream and 4 km upstream of the study area on the Sydenham River (water quality data was not included in the attachment due to the size of the file);



- f) fish sampling records were provided for three electrofishing sites located approximately 4 km upstream of the study area on Bell Drain (sampled in 1999) and Humphrey Drain (sampled in 2000), both tributaries of the Sydenham River. No fish records were provided for the main branch of the East Sydenham River; and
- g) benthic sampling records from three benthic sampling stations one of which is located approximately 4 km upstream of the site on the Humphrey Drain and the others approximately 2 km south east of the study area on the Trout Creek and Buttrey Drain.

A review of the 2008 St. Clair Watershed Report Card indicates the study area is located in the East Branch of the Sydenham River within the Sydenham Headwaters subwatershed of the greater Sydenham River Watershed. The Sydenham Headwaters subwatershed captures an area of 224 km<sup>2</sup> within the municipalities of Middlessex Centre, Strathroy-Caradoc and Adelaide-Metcalf. Dominant land use within the subwatershed includes agriculture, woodlots and urban/industrial. The geology is dominated by sandplains and shallow overburden aquifers are found within the subwatershed. The Sydenham River provides warm water habitat for 41 fish species including Northern Pike (*Esox lucius*), Largemouth Bass (*Micropterus salmoides*), Smallmouth Bass (*Micropterus dolomieu*), Rock Bass (*Ambloplites rupestris*) and sunfish (*Lepomis*) species.

Fish sampling was conducted in 1999 and 2000 upstream of the Albert Street Bridge in two tributaries to the Sydenham River; Bell Drain and Humphrey Drain. Bell Drain is classified as a 'D' drain according to the CA-DFO Classification Scheme. This classification indicates that Bell Drain is a cold/cool water system with Trout/Salmon present. The CA-DFO drain classification for Humphrey Drain is unknown.

The fish records for both of these watercourses are provided below in Table 1. This review indicated a total of 10 species that have been documented in the tributaries to the East Branch of the Sydenham River. These fish species may also be found in The East Sydenham River as there are no known fish barriers. The East Sydenham River may provide important migration routes, spawning beds or provide food for the species identified in the tributaries. All of the species are native to Ontario with the exception of the Rainbow Trout which is an introduced species. With the exception of one species (Blacknose Dace) that is ranked as limited abundance, but not rare (S5), all species are common, widespread, abundant, and secure on a provincial level (S5). There are no records or observations of aquatic species at risk, or special concern, and all species range between intermediate to tolerant in their tolerance to environmental conditions and perturbations with the exception of Rainbow Trout which is intolerant. The fish community in the Bell Drain and Humphrey Drain ranges from coldwater to warmwater with majority of species preferring coolwater.

**Table 1. Fish Community Records (1999-2000) from St. Clair Region Conservation Authority**

Family	Fish Species	Latin Name	Watercourse	Thermal Regime	Spawning Season	Tolerance*	Abundance	S-Rank <sup>1</sup>	SARO <sup>2</sup>	SARA <sup>3</sup>
<b>Catostomidae</b>	White Sucker	<i>Catostomus commersonii</i>	Bell	Coolwater	spring	tolerant	common	S5	None	None
<b>Cottidae</b>	Mottled Sculpin	<i>Cottus bairdii</i>	Humphrey	Coolwater	spring	intermediate	common	S5	None	None
<b>Cyprinidae</b>	Blacknose Dace	<i>Rhinichthys atratulus</i>	Bell, Humphrey	Coolwater	spring	Intermediate	Limited abundance	S5	None	None
	Creek Chub	<i>Semolilus atromaculatus</i>	Bell	Coolwater	spring	intermediate	common	S5	None	None
	Fathead Minnow	<i>Pimephales promelas</i>	Bell	Warmwater	Spring/ summer	tolerant	common	S5	None	None
	Northern Redbelly Dace	<i>Chrosomus eos</i>	Bell, Humphrey	Coolwater	Spring/ summer	intermediate	common	S5	None	None
	Pearl Dace	<i>Semotilus margarita</i>	Bell, Humphrey	Coolwater	spring	intermediate	common	S5	None	None
<b>Gasterosteidae</b>	Brook Stickleback	<i>Culaea inconstans</i>	Bell, Humphrey	Coolwater	Spring/ summer	intermediate	common	S5	None	None
<b>Percidae</b>	Johnny Darter	<i>Etheostoma nigrum</i>	Bell	Coolwater	spring	tolerant	common	S5	None	None
<b>Salmonidae</b>	Rainbow Trout	<i>Oncorhynchus mykiss</i>	Bell	Coldwater	spring	intolerant	common	SNA	None	None

**Notes:**

1. **S-rank:** The Natural Heritage provincial ranking system (provincial S-rank) is used by the MNR Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities.  
Definitions are as follows: S1 ..... Extremely rare in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.  
S2 ..... Very rare in Ontario; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.  
S3 ..... Rare to uncommon in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.  
S4 ..... Common and apparently secure in Ontario; usually with more than 100 occurrences in the province.  
S5 ..... Very common and demonstrably secure in Ontario.  
SNA ..... Not Applicable; a conservation status rank is not applicable because the species is not a suitable target for conservation activities
2. **SARO:** Based on ranking by SARO (Species at Risk in Ontario). If a species is classified as at risk they are added to the SARO List and protected under the Endangered Species Act, 2007.
3. **SARASatus** SARA classifies those species as being either extirpated, endangered, threatened, or a special concern.

\*information obtained from the Ontario Freshwater Fishes Life History Database.

Intermediate – species that is neither particularly sensitive nor insensitive to environmental or anthropogenic stresses

Intolerant – species that is sensitive to environmental or anthropogenic stresses

Tolerant – species that is fairly insensitive or adaptive to environmental or anthropogenic stresses

### 2.3 Ministry of Natural Resources and Natural Heritage Information Centre Database

A total of 81 species, which are included in **Attachment B**, were documented in the NHIC database on November 20, 2012 for the Lower Tier Municipality of the Township of Strathroy-Caradoc. Thirty of these species, which are listed in **Table 2**, have been classified as Endangered, Threatened or Special Concern under the Endangered Species Act (ESA).

Table 2. Species at Risk and Rare Species identified in the Lower Tier Municipality of the Township of Strathroy-Caradoc (NHIC, November 2012)

Common Name	Scientific Name	Species At Risk in Ontario (SARO) Status	Last Observed Date
American Badger	<i>Taxidea taxus</i>	Endangered	October 1980
American Chestnut	<i>Castanea dentata</i>	Endangered	2001-2002
Barn Owl	<i>Tyto alba</i>	Endangered	May 4, 1933
Drooping Trillium	<i>Trillium flexipes</i>	Endangered	May 13, 2007
Eastern Flowering Dogwood	<i>Cornus florida</i>	Endangered	1984
Eastern Sand Darter	<i>Ammocrypta pellucida</i>	Endangered	September 9, 1927
False Hop Sedge	<i>Carex lupuliformis</i>	Endangered	July 20, 2005
Henslow's Sparrow	<i>Ammodramus henslowii</i>	Endangered	June 15, 1975
Large Whorled Pogonia	<i>Isotria verticillata</i>	Endangered	June 11, 1879
Northern Bobwhite	<i>Colinus virginianus</i>	Endangered	Pre 1936
Red Mulberry	<i>Morus rubra</i>	Endangered	1984
Purple Twayblade	<i>Liparis liliifolia</i>	Threatened	July 1, 1971
Cerulean Warbler	<i>Dendroica cerulea</i>	Threatened	June 14, 1928
Silver Shiner	<i>Notropis photogenis</i>	Threatened	August 9, 1989
Blanding's Turtle	<i>Emydoidea blandingii</i>	Threatened	1965
Colicroot	<i>Aletris farinosa</i>	Threatened	June 7, 1891
Crooked-stem Aster	<i>Symphyotrichum prenanthoides</i>	Threatened	September 2, 1992
Massasauga	<i>Sistrurus catenatus</i>	Threatened	July 24, 1895
Spiny Softshell	<i>Apalone spinifera</i>	Threatened	June 20, 2008
Willowleaf Aster	<i>Symphyotrichum praealtum</i>	Threatened	September 2, 1992
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Special Concern	2002
Blue Ash	<i>Fraxinus quadrangulata</i>	Special Concern	July 25, 1954
Green Dragon	<i>Arisaema dracontium</i>	Special Concern	May 20, 1991
Hooded Warbler	<i>Wilsonia citrina</i>	Special Concern	July 3, 1991
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Special Concern	June 9, 1990
Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern	August 17, 1987
Riddell's Goldenrod	<i>Solidago riddellii</i>	Special Concern	September 14, 1993
Tuberous Indian-plantain	<i>Arnoglossum plantagineum</i>	Special Concern	July 16, 1993
Woodland Vole	<i>Microtus pinetorum</i>	Special Concern	1940
Yellow-breasted Chat	<i>Icteria virens</i>	Special Concern	July 12, 1989

Additional information which was requested from the OMNR Aylmer district office, included in **Attachment C**, indicated that there are known occurrences of Drooping Trillium (*Trillium flexipes*) – Endangered, Barn Swallow (*Hirundo rustica*) – Threatened and Eastern Hognosed Snake (*Heterodon platirhinos*) – Threatened. MNR also confirmed the occurrence of the Provincially Significant Sydenham River Wetland Complex to the north and south of the Albert Street Bridge. The

main branch of the East Sydenham River in the study area is classified as a warm water system that contains several species of fish, included in **Table 3**.

The fish records noted by the study area in the East Sydenham River were provided by MNR and presented below in Table 3. This review indicated a total of 50 species that have been documented in the Sydenham River. Majority of the fish species are common, widespread, abundant, and secure on a provincial level (S5) in southern Ontario. There are 12 species ranked as uncommon, and one ranked as rare (Spotted Gar). From a Provincial Ranking there are three species ranked as rare to uncommon (S3) in Ontario (Greater Redhorse, Longear Sunfish and River Darter), one species ranked as S2 which is very rare in Ontario (Brindled Madtom) and one ranked as S1 which is extremely rare in Ontario (Spotted Gar). The Spotted Gar is listed as Threatened under the ESA, 2007. Majority of the fish species are classified as intermediate to tolerant in their tolerance to environmental conditions and perturbations (Eakins, 2013). There are 7 species which are intolerant to environmental conditions and perturbations. The fish community in the East Sydenham River ranges from coldwater to warmwater with majority of species preferring warmwater.

Table 3. Fish Species recorded in the East Sydenham River at the Study Area

Family	Fish Species	Latin Name	Thermal Regime	Spawning Season	Tolerance*	Abundance	S-Rank <sup>1</sup>	SARO <sup>2</sup>	SARA <sup>3</sup>
<b>Catostomidae</b>	Golden Redhorse	<i>Moxostoma erythrurum</i>	Warmwater	Spring	Intermediate	Uncommon	S4	-	-
	Greater Redhorse	<i>Moxostoma valenciennesi</i>	Warmwater	Spring	Intolerant	Common	S3	-	-
	Longnose Sucker	<i>Catostomus catostomus</i>	Coldwater	Spring	Intermediate	Common	S5	-	-
	Shorthead Redhorse	<i>Moxostoma macrolepidotum</i>	Warmwater	Spring	Intermediate	Common	S5	-	-
	Silver Redhorse	<i>Moxostoma anisurum</i>	Coolwater	Spring	Intermediate	Uncommon	S4	-	-
<b>Centrarchidae</b>	Black Crappie	<i>Pomoxis nigromaculatus</i>	Coolwater	Spring	Tolerant	Common	S4	-	-
	Green Sunfish	<i>Lepomis cyanellus</i>	Warmwater	Summer	Tolerant	Common	S4	-	-
	Largemouth Bass	<i>Micropterus salmoides</i>	Warmwater	Spring	Tolerant	Common	S5	-	-
	Longear Sunfish	<i>Lepomis megalotis</i>	Warmwater	Summer	Intermediate	Uncommon	S3	-	-
	Pumpkinseed	<i>Lepomis gibbosus</i>	Warmwater	Spring/Summer	Intermediate	Common	S5	-	-
	Rock Bass	<i>Ambloplites rupestris</i>	Coolwater	Spring	Intermediate	Common	S5	-	-
	Smallmouth Bass	<i>Micropterus dolomieu</i>	Warmwater	Spring	Intermediate	Common	S5	-	-
	Walleye	<i>Sander vitreus</i>	Coolwater	Spring	Intermediate	Common	S5	-	-
	White Crappie	<i>Pomoxis annularis</i>	Warmwater	Spring	Tolerant	Uncommon	S4	-	-
<b>Clupeidae</b>	Gizzard Shad	<i>Dorosoma cepedianum</i>	Coolwater	Summer	Tolerant	Common	S4	-	-
<b>Cyprinidae</b>	Bluntnose Minnow	<i>Pimephales notatus</i>	Warmwater	Summer	Intermediate	Common	S5	-	-
	Common Carp	<i>Cyprinus carpio</i>	Warmwater	Spring/Summer	Tolerant	Common	S5	-	-
	Common Shiner	<i>Luxilus cornutus</i>	Coolwater	Spring	Intermediate	Common	S5	-	-
	Creek Chub	<i>Semolitis atromaculatus</i>	Coolwater	spring	intermediate	common	S5	-	-
	Emerald Shiner	<i>Notropis atherinoides</i>	Coolwater	Summer	Intermediate	Common	S5	-	-
	Fathead Minnow	<i>Pimephales promelas</i>	Warmwater	Spring/ summer	tolerant	common	S5	-	-
	Golden Shiner	<i>Notemigonus crysoleucas</i>	Coolwater	Summer	Intermediate	Common	S5	-	-
	Hornyhead Chub	<i>Nocomis biguttatus</i>	Coolwater	Spring/Summer	Intermediate	Common	S5	-	-
	Mimic Shiner	<i>Notropis volucellus</i>	Warmwater	Summer	Intermediate	Common	S5	-	-
	River Chub	<i>Nocomis micropogon</i>	Coolwater	Spring	Intermediate	Common	S4	-	-
	Rosyface Shiner	<i>Notropis rubellus</i>	Warmwater	Spring/Summer	Intermediate	Common	S4	-	-
	Spotfin Shiner	<i>Cyprinella spiloptera</i>	Warmwater	Summer	Intermediate	Common	S4	-	-
	Spottail Shiner	<i>Notropis hudsonius</i>	Coolwater	Spring	Intermediate	Common	S5	-	-
<b>Esocidae</b>	Northern Pike	<i>Esox lucius</i>	Coolwater	Spring	Intermediate	Common	S5	-	-
<b>Gasterosteidae</b>	Brook Stickleback	<i>Culaea inconstans</i>	Coolwater	Spring/ summer	intermediate	common	S5	-	-



Family	Fish Species	Latin Name	Thermal Regime	Spawning Season	Tolerance*	Abundance	S-Rank <sup>1</sup>	SARO <sup>2</sup>	SARA <sup>3</sup>
<b>Ictaluridae</b>	Black Bullhead	<i>Ameiurus melas</i>	Warmwater	Spring	Intermediate	Uncommon	S4	-	-
	Brindled Madtom	<i>Noturus miurus</i>	Warmwater	Summer	Intolerant	Uncommon	S2	-	-
	Channel Catfish	<i>Ictalurus punctatus</i>	Warmwater	Spring/Summer	Tolerant	Common	S4	-	-
	Stonecat	<i>Noturus flavus</i>	Warmwater	Summer	Tolerant	Common	S4	-	-
	Tadpole Madtom	<i>Noturus gyrinus</i>	Warmwater	Summer	Intermediate	Uncommon	S4	-	-
	Yellow Bullhead	<i>Ameiurus natalis</i>	Warmwater	Spring	Tolerant	Uncommon	S4	-	-
<b>Lepisosteidae</b>	Longnose Gar	<i>Lepisosteus osseus</i>	Warmwater	Spring	Tolerant	Common	S4	-	-
	Spotted Gar	<i>Lepisosteus oculatus</i>	Warmwater	Spring	Intermediate	Rare	S1	THR	THR
<b>Moronidae</b>	White Perch	<i>Morone americana</i>	Warmwater	Spring	Intermediate	Common	S/na	-	-
	Blackside Darter	<i>Percina maculata</i>	Coolwater	Spring	Intermediate	Uncommon	S4	-	-
	Fantail Darter	<i>Etheostoma flabellare</i>	Coolwater	Spring	Intolerant	Common	S4	-	-
<b>Percidae</b>	Greenside Darter	<i>Etheostoma blennioides</i>	Warmwater	Spring	Intolerant	Uncommon	S4	-	-
	Johnny Darter	<i>Etheostoma nigrum</i>	Coolwater	spring	tolerant	common	S5	-	-
	Least Darter	<i>Etheostoma microperca</i>	Warmwater	Spring	Intolerant	Uncommon	S4	-	-
	Logperch	<i>Percina caprodes</i>	Warmwater	Spring	Intolerant	Common	S5	-	-
	Rainbow Darter	<i>Etheostoma caeruleum</i>	Coolwater	Spring	Intolerant	Common	S4	-	-
	River Darter	<i>Percina shumardi</i>	Warmwater	Spring	Intermediate	Uncommon	S3	-	-
	Tessellated Darter	<i>Etheostoma olmstedii</i>	Coolwater	Spring	Intermediate	Uncommon	S4	-	-
<b>Percopsidae</b>	Trout-perches	<i>Percopsis omiscomaycus</i>	Coldwater	Spring/Summer	Intermediate	Common	S5	-	-
<b>Umbridae</b>	Central Mudminnow	<i>Umbra limi</i>	Coolwater	Spring	Tolerant	Common	S5	-	-

**Notes:**

1. **S-rank:** The Natural Heritage provincial ranking system (provincial S-rank) is used by the MNR Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities.

Definitions are as follows:

- S1....Extremely rare in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals; often especially vulnerable to extirpation.  
 S2....Very rare in Ontario; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences; often susceptible to extirpation.  
 S3....Rare to uncommon in Ontario; usually between 20 and 100 occurrences in the province; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances. Most species with an S3 rank are assigned to the watch list, unless they have a relatively high global rank.  
 S4....Common and apparently secure in Ontario; usually with more than 100 occurrences in the province.  
 S5....Very common and demonstrably secure in Ontario.

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

2. **SARO:** Based on ranking by SARO (Species at Risk in Ontario). If a species is classified as at risk they are added to the SARO List and protected under the Endangered Species Act, 2007.
3. **SARASatus** SARA classifies those species as being either extirpated, endangered, threatened, or a special concern.

\*information obtained from the Ontario Freshwater Fishes Life History Database.

Intermediate – species that is neither particularly sensitive nor insensitive to environmental or anthropogenic stresses

Intolerant – species that is sensitive to environmental or anthropogenic stresses

Tolerant – species that is fairly insensitive or adaptive to environmental or anthropogenic stresses

## **2.4 Department of Fisheries and Oceans and Conservation Ontario**

Mapping of the known Distribution of Species at Risk within the SCRCA's watershed was obtained from Conservation Ontario's website and is included in **Attachment D**. This mapping provides potential locations of species which are protected under the Federal SARA. A review of this mapping indicates that there are no records of any aquatic SARA known to occur in the Sydenham River in the Study Area. The mapping does however indicate that there are SARA species and critical habitat which is required to support their life processes located downstream of the study area. Species which have been recorded in this region include Channel Darter (*Percina copelandi*), Eastern Sand Darter (*Ammocrypta pellucida*), Lake Chubsucker (*Erimyzon sucetta*), Northern Madtom (*Noturus stigmosus*) and Pugnose Shiner (*Notropis anogenus*).

The DFO was also contacted to complete a SAR screening for the study area. This correspondence, included in **Attachment D**, verified that there are no records for aquatic species listed under the SARA in the Sydenham River within the study area.

## **2.5 The Atlas of the Breeding Birds of Ontario**

According to information obtained from the ABBO, a total of 92 species of birds displayed some level of breeding evidence in the Breeding Bird Atlas in the Study Area (Square 17MH45), see Attachment E for full list. This included a total of six species which have been classified under the ESA as Endangered, Threatened or Special Concern. These are: Barn Swallow – Threatened; Bobolink (*Dolichonyx oryzivorus*) – Threatened; Chimney Swift (*Chaetura pelagica*) – Threatened; Eastern Meadowlark (*Sturnella magna*) – Threatened; Black Tern (*Chlidonias niger*) – Special Concern; and Red-headed Woodpecker (*Melanerpes erythrocephalus*) – Special Concern. Species that are classified as Endangered or Threatened as well as the habitat that directly, or indirectly, supports their life processes, are protected under the ESA.

## **2.6 Species at Risk and Species of Conservation Concern**

Both the federal Species at Risk Act (SARA) and the provincial Endangered Species Act (ESA) were considered during the assessment of the significance of the natural heritage features within the study area.

### **2.6.1 Species at Risk Act**

The SARA was created as a result of the implementation of the Canadian Biodiversity Strategy, which was developed in response to the United Nations Convention on Biological Diversity. It provides federal legislation that is designed to prevent species, subspecies and distinct populations that are indigenous to Canada from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species and to promote the management of other species to prevent them from become at risk (Government of Canada, 2012).

Some of the key objectives of the SARA as they relate to the protection and management of SARA in Canada include:

- the creation of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts that are responsible for assessing and identifying SAR;
- using the best available knowledge to create long and short-term objectives in a recovery strategy and action plan;
- the creation of legislation that will protect listed threatened endangered species and their critical habitat; and
- the creation of a public registry that will increase public accessibility to documents and information pertaining to the act; and
- to be consistent with Aboriginal and treaty rights while respecting the authority of other federal ministers and provincial governments (SARA Registry, 2012).

Schedule 1 of the SARA is the official list of wildlife SAR in Canada. Within this schedule species are classified as:

- Extinct – a wildlife species that no longer exists;
- Extirpated - a wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild;
- Endangered - a wildlife species that is facing imminent extirpation or extinction;
- Threatened - a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction; and
- Special Concern - a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats (SARA Registry, 2012).

### **2.6.2 Endangered Species Act**

The Endangered Species Act (ESA) came into effect in 2007 and provides a protection and recovery strategy for Species at Risk in Ontario (SARO). Once a species is listed as extirpated, endangered or threatened it is automatically protected under the ESA. In addition the general habitat of endangered and threatened species is also automatically protected from damage or destruction.

Species are designated as being at risk by a team of experts that are known as the Committee on the Status of Species at Risk in Ontario (COSSARO). After consideration by COSSARO, species classified as at risk are placed on the SARO list.

The government then works to develop a long-term protection and recovery strategies that identify measures to protect and restore the populations of these species. This includes species specific habitat regulations that provides detailed information describing the habitat that is to be protected for each species.

Under the ESA species are classified as:

- Extirpated - a species that no longer exists in the wild in Ontario but still occurs elsewhere;
- Endangered - a species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's ESA;
- Threatened - a species that is at risk of becoming endangered in Ontario if limiting factors are not reversed; and
- Special Concern - species with characteristics that make it sensitive to human activities or natural events.

Species that are listed as special concern are not provided formal protection under the ESA. However habitat for these species is identified as a type of significant wildlife habitat under the Significant Wildlife Technical Guide (OMNR, 2000) which according to the Provincial Policy Statement (OMMAH, 2005) should be protected.

### **2.6.3 Species of Conservation Concern**

The Provincial Rank (SRANK) is used by the Natural Heritage Information Centre (NHIC) as a protection tool for rare species and natural communities. The SRANK is not a legal designation. The status, rarity and urgency of conservation is evaluated by NHIC on a continual basis (NHIC, 2012). The rankings are as follows:

- S1: Critically Imperiled – Species critically imperiled due to extreme rarity.
- S2: Imperiled – Species imperiled due to restricted range, very few populations or steep declines.
- S3: Vulnerable – Species vulnerable due to a restricted range, relatively few populations and/or population decline.

### 3. Existing Environmental Conditions

The assessment and description of the existing terrestrial and aquatic natural heritage features within the study area (120m upstream and downstream of the bridge) was completed by AECOM Ecologists on January 3, 2013 between 9:30 am and 11:00 am. Weather conditions during the survey were approximately -5°C with 100% cloud cover, a light snow and a light breeze (level 1 on the beaufort scale). The ground was completely snow covered and ice was starting to form along the river edges. An additional site visit was completed on January 9<sup>th</sup>, 2013.

#### 3.1 Methods

##### 3.1.1 Terrestrial Habitat Assessment Methods

Terrestrial habitat assessments included the classification of vegetation communities using the Ecological Land Classification (ELC) for Southern Ontario (Lee *et al.* 1998); the completion of a plant species list for each ELC community documenting the structure and relative abundance of vegetation present within each community; and the documentation of nests and bird species observed within the study area. Given the weather conditions during site investigations, plant species observations were limited to the classification of woody vegetation and to those which could be seen through the snow.

Representative photographs were taken at both the upstream and downstream side of Albert Street to aid in describing the vegetation communities within the study area.

##### 3.1.2 Aquatic Habitat Assessment Methods

Fish habitat assessments are completed to identify and assess water body characteristics that provide habitat for the critical life processes outlined in the *Fisheries Act*. The habitat assessments detail the characteristics and major physical attributes of the water body, including water quality parameters. This habitat assessment takes into consideration a variety of details including both flow characteristics and land influences, such as:

1. **Surrounding land use** – classifies potential pollution sources and adjacent landuse that may affect the water body.
2. **Riparian zone and canopy cover** – a healthy riparian zone consists of vegetation characterized by trees, shrubs, grasses and herbaceous plants. These plants help buffer the water body from runoff, provide shade and create habitat for fish and insects.
3. **Stream banks** – characteristics assessed include signs of erosion and bank scouring, undercut banks, evidence of the normal water mark and high water mark which indicate the water level fluctuation.
4. **In-stream characteristics** – details include substrate type (e.g. silt, gravel, cobble), aquatic vegetation, small and large woody debris. All of these in-stream characteristics provide habitat and cover for fish species and benthic macroinvertebrates, which are an important food source for fish.
5. **Stream morphology** – this includes the wetted width of the active channel and average wetted depth. Also a description of the stream morphology:
  - a. **Runs** - typically deep, fast moving water with little to no turbulence of water.
  - b. **Riffles** – shallow, fast moving water typically running over rocks. Riffles provide areas of high oxygenated waters.
  - c. **Flats** – low flowing water with a smooth un-agitated surface.
  - d. **Pools** – deep pockets of slow moving water that provide ideal refuge habitat for fish.
6. **General water characteristics** – water colour and clarity, and description of flow.

Information was collected for both the left and right banks which are defined by facing upstream in the watercourse. Representative photographs were taken both the upstream and downstream of Albert Street to document the habitat within the study area.

## 3.2 Results

### 3.2.1 Terrestrial Communities

A total of four unique ecological communities were identified as a result of the assessment of the terrestrial conditions at the site (**Figure 1**). This includes a Fresh to Moist Lowland Deciduous Forest (FOD7) located along the east and west banks of the Sydenham River to the north and south of the bridge, community parkland to the north of the bridge, a pond (OAO) located approximately 120 m to the north west of the bridge a Dry to Moist Mineral Cultural Meadow (CUM1-1) to the south west of the bridge and a small Deciduous Swamp (SWD) wetland community to the south east of the bridge.

The canopy of the FOD7 community is characterised by a variety of tree species with no clear dominant species. Species observed include Hybrid Crack Willow (*Salix X rubens*), Freeman's Maple (*Acer X freemanii*), American Basswood (*Tilia americana*), Green Ash (*Fraxinus pennsylvanica*) and American Elm (*Ulmus americana*). The sub canopy, with a relatively low percent cover of approximately 30 to 40 %, consisted primarily of Manitoba Maple (*Acer negundo*) and Basswood. The shrub layer, which also had an approximate cover of 30 to 40%, consisted primarily of various Willow Shrub Species (*Salix sp.*). The ground layer consisted of various common goldenrod (*Solidago sp.*) and aster species (*Symphyotrichum sp.*) and non-native grass species. The composition of this community is consistent with that of a naturalized community that has been disturbed by various factors commonly associated with an urbanized environment. A detailed list of all plant species documented within this vegetation community is included in **Attachment G**.

The OAO community that is located approximately 120 m to the north west of the bridge was fringed by a small band of trees that was similar in composition to that of the FOD7 community adjacent the Sydenham River. No evidence of emergent or floating vegetation was observed at the time of the survey. No vegetation was observed for this community.

The vegetation composition of the CUM1-1 community located to the south west of the bridge is consistent with that of a successional cultural meadow and was dominated by various non-native grass species and common goldenrod and aster species. Small pockets of ash (*Fraxinus sp.*) and poplar (*Populus sp.*) trees were observed succeeding into this community along with a single large white oak (*Quercus alba*) tree located along the edge of this community somewhat near the river. A detailed list of all plant species documented within this vegetation community is included in **Attachment G**.

The canopy and sub-canopy of the small SWD community located south east of the bridge is dominated by a variety of tree species that can commonly be associated with swamp communities. This includes Freeman's Maple, Hybrid Crack Willow and Green Ash. No shrub layer or ground vegetation was visible at the time of the survey partially due to the presence of a layer of ice that was frozen 2 to 3 feet from the base of the trees located in the centre of this community. This ice may indicate that the water levels within this community may be quite variable and closely related to the water levels in the adjacent Sydenham River, which may flood this area when it overtops its banks. A detailed list of all plant species documented within this vegetation community is included in **Attachment G**.

The assessment of the wetland features using the Ministry of Natural Resources Wetland Evaluation System (OWES) Protocol was not required as no wetland habitat of sufficient size (>0.5 ha) were identified within the study area (OMNR, 2002).

Representative photographs of the study area have also been taken and are included in **Attachment H**.

### 3.2.2 Aquatic Conditions

East Sydenham River is a permanent watercourse and flows in a south westerly direction discharging into the north branch of the Sydenham River at Wallaceburg, Ontario. Within the study area the east branch of the Sydenham River follows a natural meandering watercourse that flows from a park to the north of Albert Street, beneath the Albert Street Bridge and then on through a natural area with some residential properties to the south east and an agricultural area to the south west.

The average wetted width of the river within 1 to 10 m upstream and downstream of the bridge at the time of the assessment was 15.5 m, with the average wetted width upstream of the bridge at 16 m, and the average depth downstream of the bridge at 15 m. The streambed consisted mainly of sand and silt. In-stream cover was low and provided mainly by leaf litter and woody debris. Aquatic vegetation was not observed during the aquatic habitat assessment.

The reach 120 m upstream of the Albert Street Bridge flows through Alexandra Park within the vicinity of the Albert Street structure. Stream morphology consists of mostly a flat with areas of riffles and pools. Riparian vegetation consists mainly of herbaceous plants and willow shrubs that provide an approximate 5 -10 m vegetated buffer. This vegetation provides overhanging vegetative cover along the left and right bank and in-stream woody debris. Overall canopy cover for the creek was moderate and provided some in stream shading. A full assessment of terrestrial vegetation is provided above.

Stream banks appeared to be stable with the exception of areas at the meander bend to the north. The right bank was severely eroded and cutting into the bank. Deposition was observed within the stream at this location. Stormwater outlets were observed on both the left and right bank with only the outlet on the right bank flowing at the time of the site visit. A canoe launch has been constructed on the left bank approximately 20 m north of the bridge with large armour blocks that have been placed to create a formal access. No fish barriers were observed during the assessment.

The reach 100 m downstream of the Albert Street Bridge was characterized with flat and runs with some small riffle and pool areas. The downstream reach flows through a naturalized area with residential properties to the east and a cultural meadow to the west. Riparian vegetation consists mainly of herbaceous plants and grass species. This vegetation provides overhanging vegetation cover along the left and right bank and in-stream woody debris. Canopy cover in this reach was moderate with shade provided by deciduous trees. A small island that is approximately 50 m in length is located immediately downstream of the bridge. No fish barriers were observed in this reach.

The area under the bridge structure is described as a flat with some areas of pools along the left bank. The average wetted depth under the bridge was 0.40 m at the time of the investigation. Substrates in this area consisted mainly of sand and silt with some areas of organic debris (**Attachment H**).

Overall, the study reach provides suitable fish habitat of moderate quality. The in-stream cover is low within the middle of the channel, however overhanging vegetation along the banks does provide some cover for fish species. The upstream reach receives runoff from the adjacent properties and severe erosion was observed on both the right and left banks. Sediment deposition was observed in many locations, including along the abutments of the bridge. This branch of the Sydenham River acts as a fish migration route between the headwaters of the Sydenham River to downstream branches.

### **3.2.3 Species at Risk Habitat Screening**

Due to the timing of the site visit no formal wildlife surveys or detail vegetation inventories were completed as part of this study. However during the assessment incidental wildlife were documented during the site assessment. Species that were observed include: Common Mallard (*Anas platyrhynchos*), American Crow (*Corvus brachyrhynchos*), Black-capped Chickadee (*Poecile atricapillus*), Canada Goose (*Branta Canadensis*),



Mourning Dove (*Zenaida macroura*), American Goldfinch (*Carduelis tristis*), and Blue Jay (*Cyanocitta cristata*). At the time of the assessment. Approximately 5 to 10 nests in various conditions were observed on the bridge. A photo of birds nesting underneath the bridge taken during AECOM's assessment of the structural condition of the bridge on June 1, 2007 confirmed that these are Barn Swallow nests (**Attachment G**).

As the province has not been comprehensively surveyed for the presence of Species at Risk (SAR); the absence of a species within the NHIC database for a particular area when completing a 1 km search does not necessarily indicate the absence of this species. Therefore, the list of SAR known to occur within the Township of Strathroy-Caradoc (insert Municipality) obtained from the NHIC database using the Spatial Boundary Tool was supplemented with the records obtained from the NHIC 1 km search, correspondence with MNR, DFO SAR mapping and the records obtained from the Atlas of Breeding Birds of Ontario. The intention of the exercise is to use all available resources to create a comprehensive list of all potential SAR species located within the study area.

In order to better understand which species may be located within the study area, a habitat assessment of each Endangered or Threatened species identified from the background search was completed to refine possible candidate species that are more likely to be present within the study area. This assessment is based upon a combination of available information: i) the presence/absence of suitable preferred habitat identified during site investigations, and ii) known populations, obtained through range maps COSEWIC reports, MNR records. The results of this assessment are discussed in Attachment F.

In total of 13 Endangered, 16 Threatened and 13 Special Concern species have been identified within the general area surrounding the study area and/or within the Township of Strathroy-Caradoc. Through this evaluation it was determined that suitable habitat for five Threatened and four Special Concern species, may be present within the study area, which for the purposes of this study was the 120 m area of investigation surrounding the site (Table 4).

Table 4. Potential SAR Habitat which may be present within the Study Area based on habitat suitability assessment of recorded species in the Township of Strathroy-Caradoc.

Common Name	Scientific Name	Species At Risk in Ontario (SARO) Status	Last Observed Date
Spiny Softshell	<i>Apalone spinifera</i>	Threatened	June 20, 2008
Eastern Hog-nosed Snake	<i>Heterodon platirhinos</i>	Threatened	Unknown
Barn Swallow	<i>Hirundo rustica</i>	Threatened	June 1, 2007
Silver Shiner	<i>Notropis photogenis</i>	Threatened	August 9, 1989
Willowleaf Aster	<i>Symphyotrichum praealtum</i>	Threatened	September 2, 1992
Snapping Turtle	<i>Chelydra serpentina</i>	Special Concern	Unknown
Monarch Butterfly	<i>Danaus plexippus</i>	Special Concern	Unknown
Blue Ash	<i>Fraxinus quadrangulata</i>	Special Concern	July 25, 1954
Northern Map Turtle	<i>Graptemys geographica</i>	Special Concern	August 17, 1987

Species that are most likely to be present within the study area, partially due to their relative abundance within the province and the suitability of the habitat at the site, include Barn Swallow, Snapping Turtle and Monarch Butterfly. While the potential exists for the other species for which suitable habitat was identified to be present the probability of this occurring is low due to lower abundances within the area/province, more stringent habitat requirements and the absences of recent records in the area (which ranges from 20 to 100 years).

### 3.2.4 Significant Wildlife Habitat

Using the information collected during site investigations, the habitat at the site was assessed to determine if Significant Wildlife Habitat (SWH), as defined in the Significant Wildlife Habitat Technical Guide (OMNR, 2000), is present within the study area.

Due to the size and disturbed nature of the habitat present within the study area and its close proximity to human settlement there is limited potential for SWH. Turtle nesting habitat, as identified in **Figure 1**, may be present along the western edge of the south of the bridge, as exposed soil along the west bank of the river appeared to be somewhat sandy and it is located the soils along the edge of the forest community which may allow the soils exposure to the afternoon sun.

#### 4. Conclusions

Based on the review and analyses of background information and the field visit, the following is noted:

- The lands within the study area have several classifications under the Official Plan including: 'Open Space', the 'Sydenham River Valley' and 'Hazard Lands.' These lands are also located within the 'Regulation Limit' for the SCRCA.
- The MNR identified the Sydenham River within the study area as a warm water system that contains 52 species of fish. The DFO mapping of the known distribution of SAR within the SCRCA watershed indicated that there are no records of SARA species within the study area. This mapping does however indicate that habitat for SARA species is known to occur in close proximity to the downstream edge of the study area, which for the purposes of this study was the 120 m area of investigation surrounding the Albert Street Bridge. The site assessment of the aquatic features within the study area determined that the Sydenham River at the site is comprised primarily of flats with some riffles, runs and pools. The in stream cover within the study area is limited to the overhanging vegetation along the banks, with little to no instream cover present within the middle of the channel.
- The terrestrial features within the study area that are identified within the official plan include a small woodland immediately to the south of the bridge along the eastern edge of the Sydenham River and two wetlands approximately 120 m to the north and 200 m to the south of the bridge. Additional information provided by the SCRCA and the OMNR state that these wetland features are part of the Provincially Significant Sydenham River Wetland Complex. The site assessment of the terrestrial features within the study area identified four unique ecological communities were identified as a result of the assessment of the terrestrial conditions at the site. This includes a Fresh to Moist Lowland Deciduous Forest (FOD7) located along the east and west banks of the Sydenham River to the north and south of the bridge, community parkland to the north of the bridge, a pond (OAO) located approximately 120 m to the north west of the bridge a Dry to Moist Mineral Cultural Meadow (CUM1-1) to the south west of the bridge and a small Deciduous Swamp (SWD) wetland community to the south east of the bridge. The assessment of these features concluded that the habitat present within this area is consistent with that of naturalized habitat within an urban environment.
- An analysis of the habitat preferences of SAR which are known to occur or have historically occurred within the Township of Strathroy-Caradoc and the habitat present at the site determined that suitable habitat for nine species protected under the ESA, identified in Table 3, may be present within the study area. Species that are most likely to be present within the study area, partially due to their relative abundance within the province and the suitability of the habitat at the site, include Barn Swallow, Snapping Turtle and Monarch Butterfly. During the completion of the survey several nests, which were later confirmed to be Barn Swallow (a threatened species under the ESA) nests, were observed underneath the bridge. This was the only SAR which was confirmed to be present within the study area.
- Due to the size and disturbed nature of the habitat present within the study area and its close proximity to human settlement there is limited potential for SWH. The only type of SWH that may be present in the study area is turtle nesting habitat which could be present south of the bridge along the west bank of the Sydenham River adjacent the open CUM1-1 community. The proposed works should have little to no effect on this potential habitat provided they remain within the existing Albert Street right of way.

## 5. Recommendations

Based on the information provided above the following recommendations are provided:

- Continue correspondence with the OMNR regarding the presence of nesting Barn Swallow under the bridge should be continued to determine how to proceed with the habitat compensation.
- Follow the rules identified under the ESA for altering a structure that is habitat for Barn Swallow;
  - Report a rare species sighting to the Natural Heritage information Centre;
  - Register the work and the affected species with the MNR (before the work begins);
  - Minimize the effects of the activity on Barn Swallow (i.e. remove existing nests, install and monitor exclusion netting);
  - Create and maintain new habitat for barn swallow at existing location or at new nearby structure;
  - Monitor the new habitat and report on observations; and
  - Prepare and maintain records that relate to the activity and the habitat.
- Any works that will take place within the SCRCA Regulation Limits will require a permit under the Ontario Regulation 171/06.
- If in water works are proposed, these works will require review under the *Fisheries Act*. SCRCA has a level II agreement with DFO which means that the SCRCA will conduct the initial review of the project to identify any impacts to fish and fish habitat. The CA will assist in determining how the proponent can mitigate any potential impacts to fish and fish habitat. If impacts to fish and fish habitat can be mitigated, then the CA issues a letter of advice. If impacts to fish and fish habitat cannot be fully mitigated, the project is forwarded to the local DFO office for further review;
- If in water-works are required they will need to occur outside the appropriate timing windows for warm water habitat, which typically ranges from March 15 to June 30. These timing windows will be confirmed with the SCRCA prior to the commencement of construction;
- Should the removal of woody vegetation be required it will be completed outside of the breeding bird season, which typically ranges from May 1<sup>st</sup> to July 31<sup>st</sup>. If the removal of woody vegetation is required during this period the area(s) that the removal is to occur will be surveyed for nesting birds by a qualified professional;
- Should the proposed works be in close proximity to any trees that are not to be removed by the proposed works tree protection fencing should be installed 2 to 5 m outside of the dripline for that species; and
- Where restoration plantings take place native salt tolerant species which are typically associated with the vegetation communities within the study area will be utilized where feasible.

**References**

Brown, Charles R. and Mary Bomberger Brown. 1999. Barn Swallow (*Hirundo rustica*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/452>

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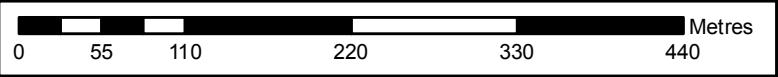
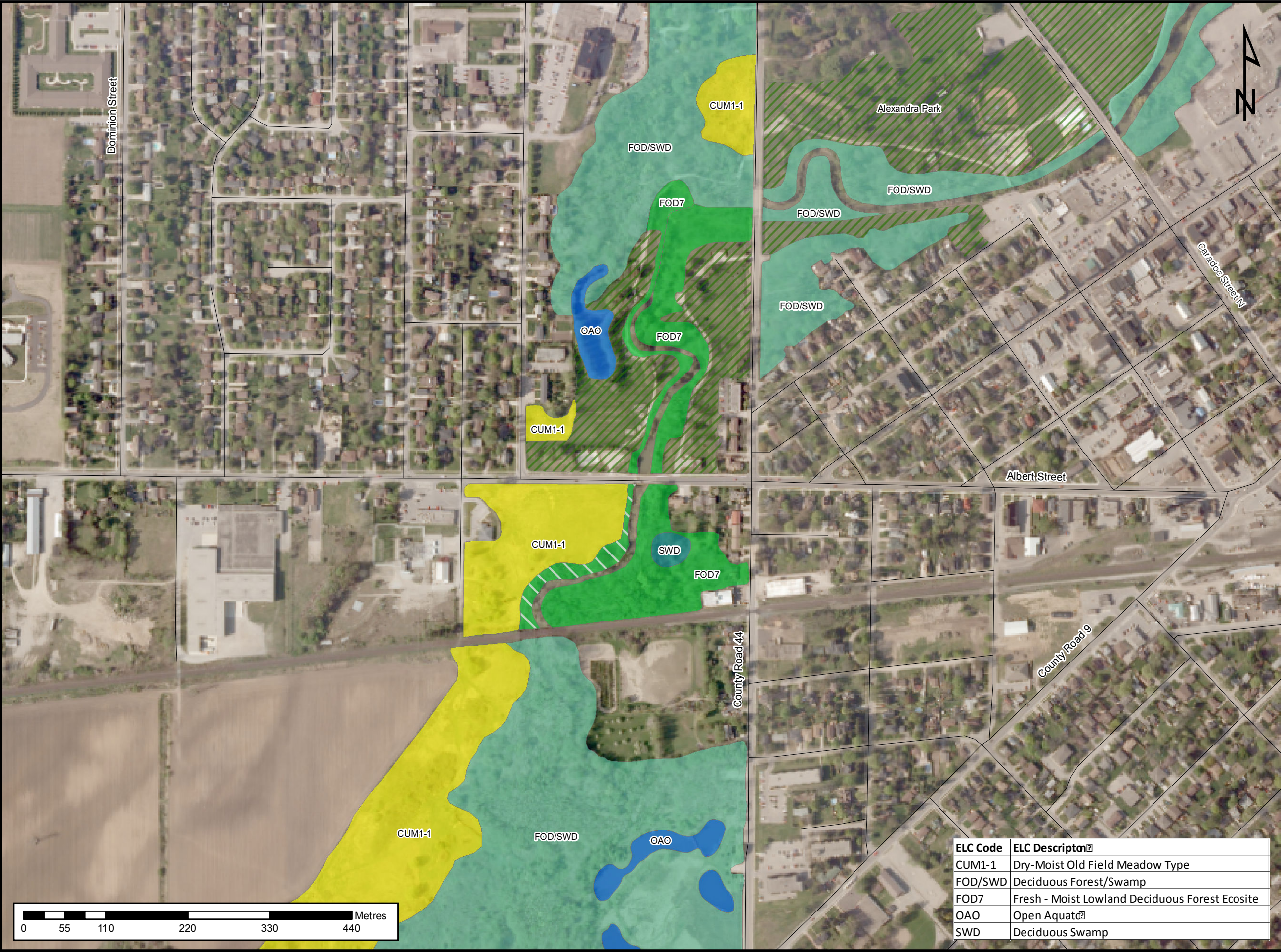
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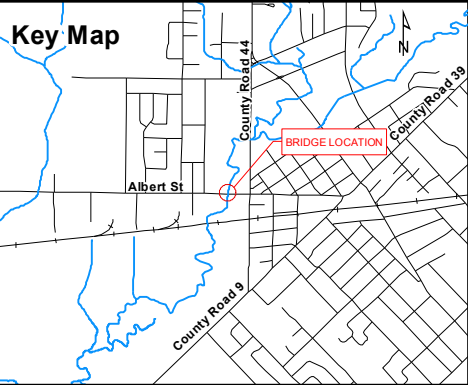
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Ontario Ministry of Natural Resources. 1993. Ontario Wetland Evaluation System Southern Manual Covering Hill's Site Regions 6 and 7. First Edition. Revised 2002.





County of Middlesex  
Albert Street Bridge  
Replacement



Legend

- Street
- ELC Code**
- Alexandra Park
  - CUM1-1
  - FOD/SWD
  - Potential Turtle Nesting - Significant Wildlife Habitat
  - FOD7
  - OAO
  - SWD

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Figure 1  
Ecological Land  
Classification

ELC Code	ELC Description
CUM1-1	Dry-Moist Old Field Meadow Type
FOD/SWD	Deciduous Forest/Swamp
FOD7	Fresh - Moist Lowland Deciduous Forest Ecosite
OAO	Open Aquat
SWD	Deciduous Swamp





# **Attachment A**

**St. Clair Region Conservation  
Authority Correspondence**

## Aitken, Robert

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**From:** Moon, Christopher  
**Sent:** Sunday, December 02, 2012 8:13 AM  
**To:** Aitken, Robert  
**Subject:** FW: Background Info Request - Albert St. Bridge, Strathroy  
**Attachments:** Sampling and Natural Heritage and Hazard Mapping.pdf; adelaide\_metcalf.pdf; caradoc.pdf; Benthic Report.xls; Fish Data.xls; Water Quality Data.xlsx

Hi Rob,

Attached is all the NH information that the conservation have provided.

**Christopher Moon, P.Eng.**

Project Manager, Water Canada Central  
D: 519.963.5871  
[christopher.moon@aecom.com](mailto:christopher.moon@aecom.com)

**AECOM**

London, ON, Canada

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From: Chris Durand [<mailto:cdurand@scrca.on.ca>]  
Sent: Thursday, July 26, 2012 11:27 AM  
Subject: Background Info Request - Albert St. Bridge, Strathroy



As requested, please see attached background information:

Map – showing Natural Hazard, Natural Heritage Features and Sampling locations  
(with respect to the wetland mapping, please contact MNR for the most recent evaluation files)

Microsoft Excel sheets for:  
Water Quality Sites: ESR012, ESR011

Benthic Sampling Sites: UESA01, UESCA1, UESC01

Fish Sampling Sites: CAR021, CAR022, CAR036, CAR019

Hydraulic/Hydrology Info (previously emailed, not included)

DFO Drain Classification Maps for Adelaide and Caradoc Townships

As discussed you shall receive an invoice by regular mail.

If you have questions, please do not hesitate to contact me.

Regards,

Chris Durand, IT / GIS Specialist

---

St. Clair Region Conservation Authority  
205 Mill Pond Cres., Strathroy, ON N7G 3P9  
Tel.: 519-245-3710 Fax.: 519-245-3348

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**Natural Heritage Features, Sampling  
Locations and Regulated Areas**

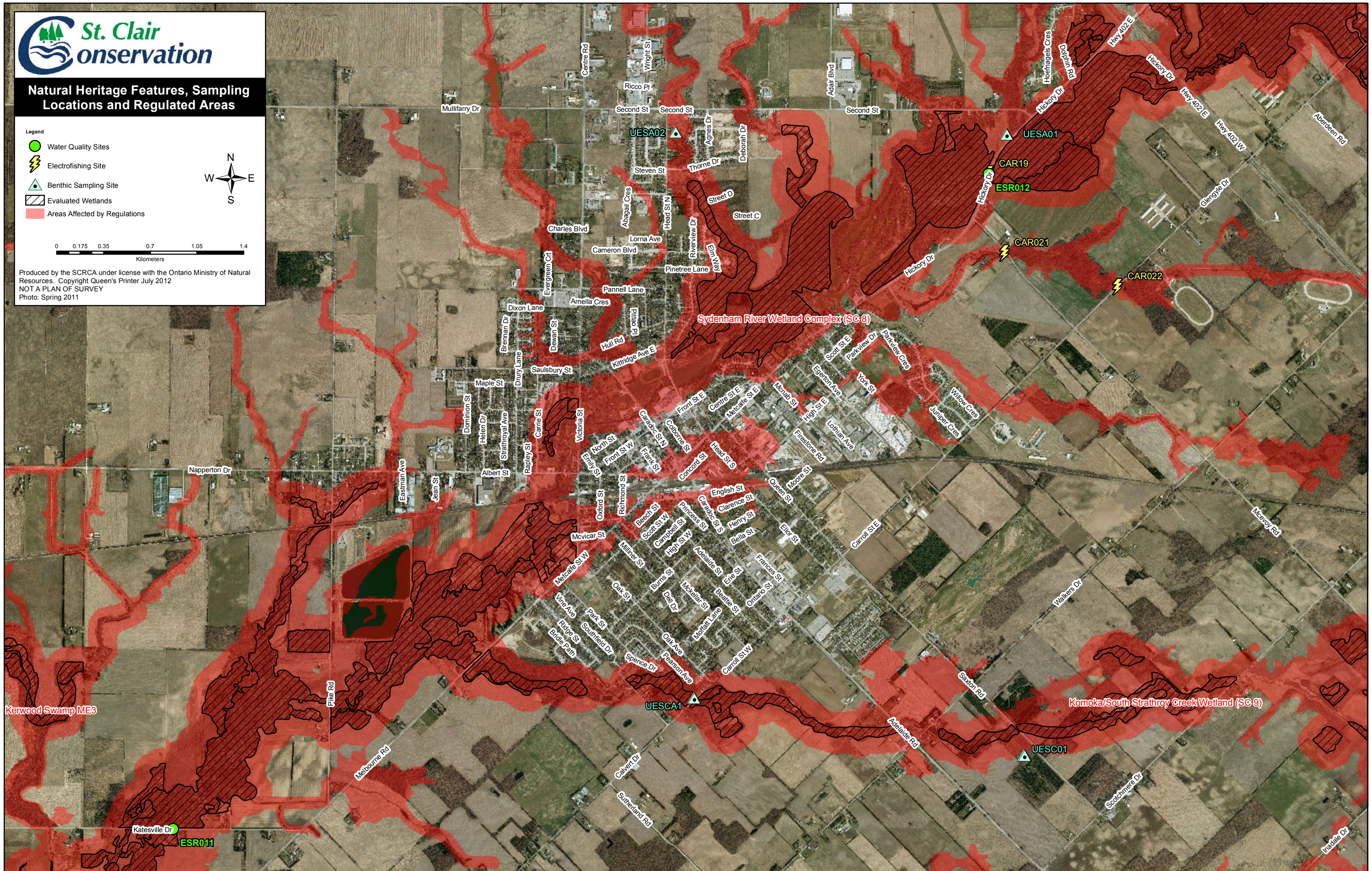
Legend

-  Water Quality Sites
-  Electrofishing Site
-  Benthic Sampling Site
-  Evaluated Wetlands
-  Areas Affected by Regulations



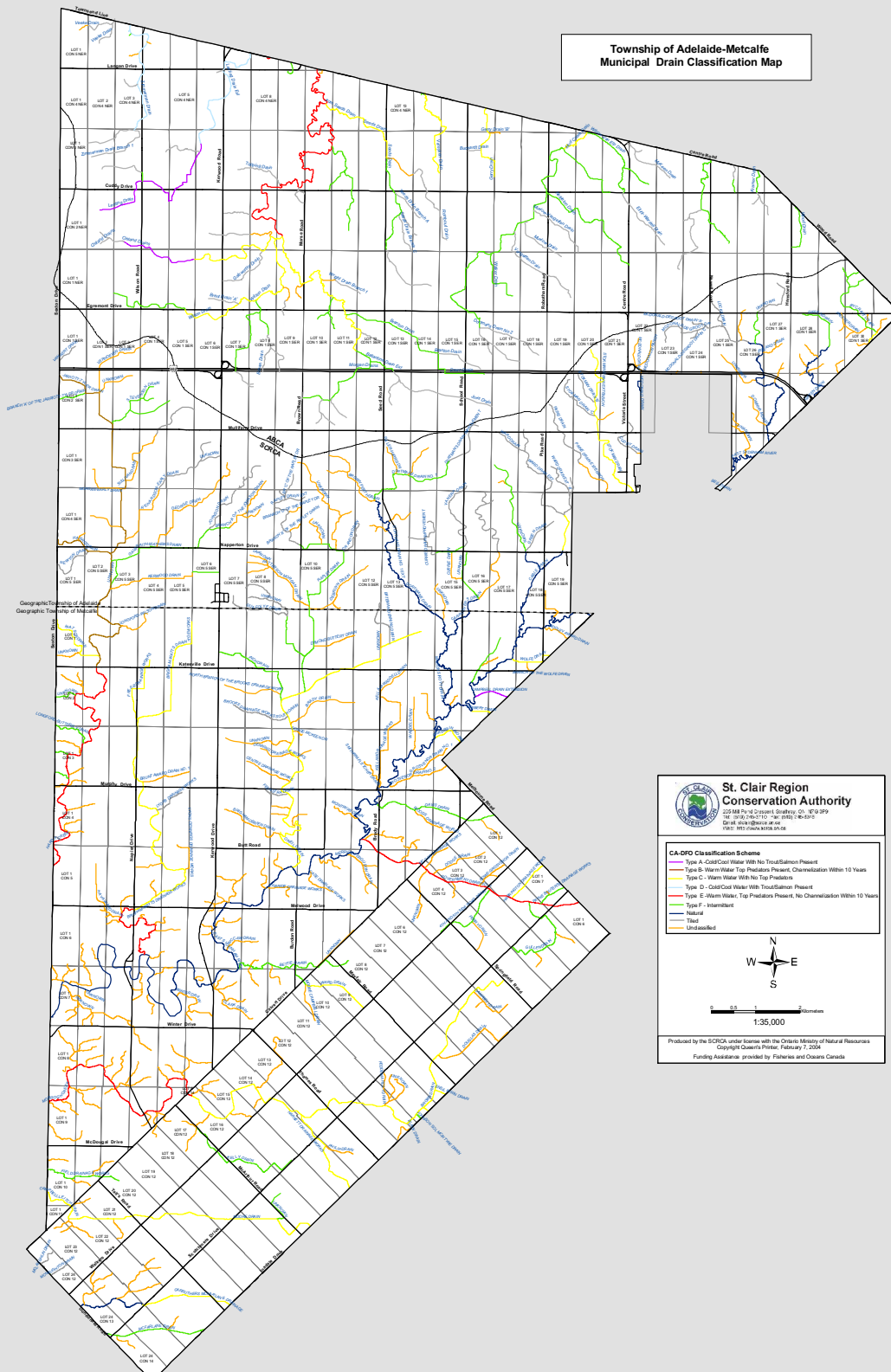
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Kilometers


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NOT A PLAN OF SURVEY  
Photo: Spring 2011





**Township of Adelaide-Metcalf  
Municipal Drain Classification Map**






**St. Clair Region  
Conservation Authority**

22188 Hwy 6, Suite 100, Sarnia, ON N6H 3P9  
Tel: (519) 764-7171 Fax: (519) 764-5291  
Email: info@scra.ca  
Web: www.scra.ca

**CA-SRD Classification Scheme**

- Type A - Cold/Cool Water With No Trout/Salmon Present
- Type B - Warm Water Top Predators Present, Channelization Within 10 Years
- Type C - Warm Water With No Top Predators
- Type D - Cold/Cool Water With Trout/Salmon Present
- Type E - Warm Water Top Predators Present, No Channelization Within 10 Years
- Type F - Interim/Unassessed
- Natural
- Threat
- Unassessed



1:35,000

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Funding Assistance provided by Fisheries and Oceans Canada

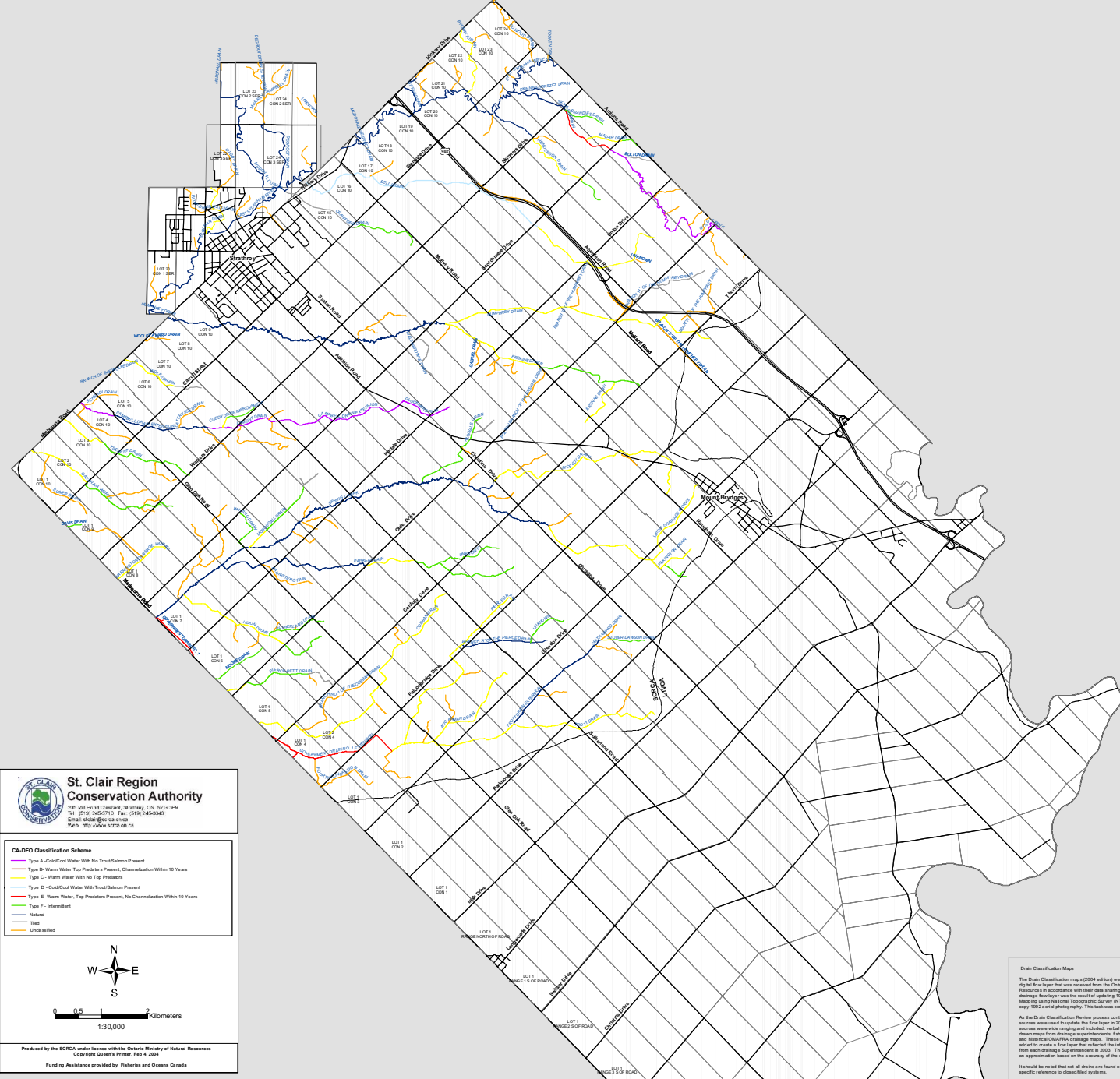
**Drain Classification Maps**

The Drain Classification maps (2004 edition) were updated from the digital flow layer that was received from the Ontario Ministry of Natural Resources in accordance with their data sharing agreement. The drainage flow layer was the result of updating 2002 Ontario Base Mapping using National Topographic Survey (NTS) data and best copy 1952 aerial photography. This was completed in early 2005.

As the Drain Classification Review process continued, further data sources were used to update the flow layer in 2005. These data sources were wide ranging and included aerial report and hand drawn maps from drainage expert/landowners, fisheries data collection and historical OMNRPA drainage maps. These updates were added to create a flow layer that reflected the information received from each drainage. Supplemented in 2017, these additions are an improvement based on the accuracy of the data provided.

It should be noted that not all drains are found on the maps, with specific reference to classified systems.

**Township of Strathroy-Caradoc  
Municipal Drain Classification Map**



### Drain Classification Maps

The drain layer that was received from the Ontario Ministry of Natural Resources in accordance with the data sharing agreement, the drainage flow layer was the result of updating 1983 Ontario Base Mapping using National Topographic Survey (NTS) data and hard copy 1992 aerial photography. This task was completed in early 2003.

As the Drain Classification Review process continued, further data sources were used to update the flow layer in 2003. These data sources were wide ranging and included: verbal input and hand drawn maps from drainage superintendents, fisheries data collection and other sources. The information was used to update the flow layer and added to create a flow layer that reflected the information received from each drainage Superintendent in 2003. These additions are an approximation based on the accuracy of the data provided.

It should be noted that not all drains are found on the maps, with specific exceptions to classified systems.

Electro Fishing Results 1999-2004													
Site Code	Easting	Northing	Drain Name		Road Name	Municipality	Lots	Concessions	Watershed	Date Sampled	Fish Species Collected		Sensitive
										(dd/mm/yr)			
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Blacknose Dace	<i>Rhinichthys atratulus</i>	
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Brook Stickleback	<i>Culaea inconstans</i>	
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Creek Chub	<i>Semotilus atromaculatus</i>	
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Fathead Minnow	<i>Pimephales promelas</i>	
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Johnny Darter	<i>Etheostoma nigrum</i>	
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Northern Redbelly Dace	<i>Phoxinus oreas</i>	
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	Rainbow Trout	<i>Oncorhynchus mykiss</i>	+
Car 021	451715	4757494	Bell Drain	UES	McEvoy Road	Caradoc	16,17	10	Sydenham	11/12/1999	White Sucker	<i>Catostomus commersoni</i>	
Car 022	452562	4757243	Bell Drain	UES	Glengyle Drive	Caradoc	17	9,10	Sydenham	11/12/1999	Blacknose Dace	<i>Rhinichthys atratulus</i>	
Car 022	452562	4757243	Bell Drain	UES	Glengyle Drive	Caradoc	17	9,10	Sydenham	11/12/1999	Brook Stickleback	<i>Culaea inconstans</i>	
Car 022	452562	4757243	Bell Drain	UES	Glengyle Drive	Caradoc	17	9,10	Sydenham	11/12/1999	Johnny Darter	<i>Etheostoma nigrum</i>	
Car 022	452562	4757243	Bell Drain	UES	Glengyle Drive	Caradoc	17	9,10	Sydenham	11/12/1999	Northern Redbelly Dace	<i>Phoxinus oreas</i>	
Car 022	452562	4757243	Bell Drain	UES	Glengyle Drive	Caradoc	17	9,10	Sydenham	11/12/1999	Pearl Dace	<i>Margariscus margarita</i>	
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Car 036	454619	4754502	Humphrey Drain	UES	McEvoy Road	Caradoc	16,17	7	Sydenham	11/9/2000	Brook Stickleback	<i>Culaea inconstans</i>	
Car 036	454619	4754502	Humphrey Drain	UES	McEvoy Road	Caradoc	16,17	7	Sydenham	11/9/2000	Mottled Sculpin	<i>Cottus bairdi</i>	+
Car 036	454619	4754502	Humphrey Drain	UES	McEvoy Road	Caradoc	16,17	7	Sydenham	11/9/2000	Northern Redbelly Dace	<i>Phoxinus oreas</i>	
Car 036	454619	4754502	Humphrey Drain	UES	McEvoy Road	Caradoc	16,17	7	Sydenham	11/9/2000	Pearl Dace	<i>Margariscus margarita</i>	

Year	Season	Subwatershed	WatercourseName	SiteCode	Main_FBI	Easting	Northing	Township	Lot	Con	RoadName	SiteNotes	Point	PointType	FBI	BugNotes	BugName	Quantity	LifeStage	Hilsenhoff
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Hydropsychidae	1	Larva	4
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Tipulidae	1	Larva	3
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Baetidae	13	Larva	4
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Copepoda	3	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Dytiscidae	2	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Dytiscidae	1	Adult	5
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Tabanidae	3	Larva	6
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Veliidae	4	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Elmidae	1	Adult	4
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Elmidae	1	Larva	4
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Collembola	3	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Muscidae	1	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Caenidae	3	Larva	7
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Hydrophilidae	2	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Gerridae	3	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Oligochaeta	5	Adult	8
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Ceratopagonidae	3	Larva	6
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Stratiomyidae	2	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Sphaeriidae	2	Adult	8
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Simuliidae	2	Larva	6
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Psychodidae	1	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Amphizoidae	1	All Stages	0
2002	Spring	Upper East Sydenham	Buttery Creek	UESA01	4.376	451741	4758608	Adelaide	27	2	Hickory Drive		R1	Riffle	4.376		Chironomidae	35	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Acariformes	4	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Ceratopagonidae	5	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Physidae	7	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Elmidae	4	Larva	4
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Chironomidae	78	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Oligochaeta	4	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Baetidae	1	Larva	4
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Empididae	1	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Nemouridae	1	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Perlodidae	1	Larva	2
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Hydroptilidae	4	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Ostracoda	1	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Lepidostomatidae	1	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Sphaeriidae	40	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R1	Riffle	6.065		Tricoptera	2	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Oligochaeta	7	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Chrysomelidae	1	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Lepidostomatidae	6	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Elmidae	3	Larva	4
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Acariformes	4	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Physidae	5	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Limnephilidae	1	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Sphaeriidae	4	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Hydroptilidae	2	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Ostracoda	1	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		P1	Pool	5.391		Chironomidae	71	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Physidae	3	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Acariformes	6	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Sphaeriidae	2	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Chironomidae	106	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Oligochaeta	3	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Ostracoda	9	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Talitridae	1	Adult	8
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Elmidae	5	Larva	4
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Hydroptilidae	6	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Ceratopagonidae	1	Larva	6
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Copepoda	1	All Stages	0



Year	Season	Subwatershed	WatercourseName	SiteCode	Main_FBI	Easting	Northing	Township	Lot	Con	RoadName	SiteNotes	Point	PointType	FBI	BugNotes	BugName	Quantity	LifeStage	Hilsenhoff
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Lepidostomatidae	5	All Stages	0
2004	Spring	Upper East Sydenham	Humphrey Drain	UESCA1	6.065	449398	4754385	Caradoc	10	10	Carroll Street		R2	Riffle	4.855		Nemouridae	2	All Stages	0
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Acariformes	3	All Stages	0
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Perlodidae	4	Larva	2
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Oligochaeta	16	Adult	8
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Chironomidae	144	Larva	6
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Lepidostoma	1	All Stages	0
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Simuliidae	9	Larva	6
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Hydroptilidae	16	All Stages	0
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Hydropsychidae	1	Larva	4
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Empididae	2	Larva	6
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Elmidae	4	Larva	4
2002	Spring	Upper East Sydenham	Trout Creek	UESC01	5.403	451874	4753953	Caradoc	13	8	Sexton Road		R1	Riffle	5.403		Ostracoda	1	All Stages	0

# Attachment B

## NHIC Database Information

English Name	Scientific Name	Species At Risk in Ontario (SARO) Status	Last Observed Date
American Badger	<i>Taxidea taxus</i>	END	1980-10
American Chestnut	<i>Castanea dentata</i>	END	2001-2002
Barn Owl	<i>Tyto alba</i>	END	4/5/1933
Drooping Trillium	<i>Trillium flexipes</i>	END	5/13/2007
Eastern Flowering Dogwood	<i>Cornus florida</i>	END	1984-00-00
Eastern Sand Darter	<i>Ammocrypta pellucida</i>	END	9/9/1927
False Hop Sedge	<i>Carex lupuliformis</i>	END	7/20/2005
Henslow's Sparrow	<i>Ammodramus henslowii</i>	END	6/15/1975
Large Whorled Pogonia	<i>Isotria verticillata</i>	END	1879-06-11
Northern Bobwhite	<i>Colinus virginianus</i>	END	Pre 1936
Red Mulberry	<i>Morus rubra</i>	END	1984-00-00
Bald Eagle	<i>Haliaeetus leucocephalus</i>	SC	2002
Blue Ash	<i>Fraxinus quadrangulata</i>	SC	7/25/1954
Green Dragon	<i>Arisaema dracontium</i>	SC	5/20/1991
Hooded Warbler	<i>Wilsonia citrina</i>	SC	7/3/1991
Louisiana Waterthrush	<i>Seiurus motacilla</i>	SC	6/9/1990
Northern Map Turtle	<i>Graptemys geographica</i>	SC	8/17/1987
Riddell's Goldenrod	<i>Solidago riddellii</i>	SC	9/14/1993
Tuberous Indian-plantain	<i>Arnoglossum plantagineum</i>	SC	7/16/1993
Woodland Vole	<i>Microtus pinetorum</i>	SC	1940
Yellow-breasted Chat	<i>Icteria virens</i>	SC	7/12/1989
Purple Twayblade	<i>Liparis liliifolia</i>	THR	7/1/1971
Cerulean Warbler	<i>Dendroica cerulea</i>	THR	6/14/1928
Silver Shiner	<i>Notropis photogenis</i>	THR	8/9/1989
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR	1965
Colicroot	<i>Aletris farinosa</i>	THR	1891-07-06
Crooked-stem Aster	<i>Symphyotrichum prenanthoides</i>	THR	9/2/1992
Massasauga	<i>Sistrurus catenatus</i>	THR	1895-07-24
Spiny Softshell	<i>Apalone spinifera</i>	THR	6/20/2008
Willowleaf Aster	<i>Symphyotrichum praealtum</i>	THR	9/2/1992
Golden Redhorse	<i>Moxostoma erythrurum</i>		6/13/1941
Appendaged Waterleaf	<i>Hydrophyllum appendiculatum</i>		
Black Gum	<i>Nyssa sylvatica</i>		10/1/1981
Blunt-lobed Grapefern	<i>Botrychium oneidense</i>		
Brainerd's Hawthorn	<i>Crataegus brainerdii</i>		7/1/1975

English Name	Scientific Name	Species At Risk in Ontario (SARO) Status	Last Observed Date
Branching Burreed	<i>Sparganium androcladum</i>		1882-09-23
Burning Bush	<i>Euonymus atropurpureus</i>		9/24/1987
Carey's Sedge	<i>Carex careyana</i>		1934
Carolina Whitlow-grass	<i>Draba reptans</i>		1896-05-29
Cliff Conobea	<i>Leucospora multifida</i>		9/8/1988
Erect Knotweed	<i>Polygonum erectum</i>		7/17/1934
Fall Crab Grass	<i>Digitaria cognata</i>		9/14/1993
False Tomentose Balsam Groundsel	<i>Packera paupercula</i> var. <i>pseudotomentosa</i>		6/2/1993
Great Lakes Sand Reed	<i>Calamovilfa longifolia</i> var. <i>magna</i>		9/2/1992
Great Plains Ladies'-tresses	<i>Spiranthes magnicamporum</i>		10/11/1989
Grooved Yellow Flax	<i>Linum sulcatum</i>		8/15/1990
Hackberry Emperor	<i>Asterocampa celtis</i>		7/5/1977
Hairy Bedstraw	<i>Galium pilosum</i>		9/2/1992
Hairy Evening-primrose	<i>Oenothera villosa</i>		8/15/1990
Hairy Pinweed	<i>Lechea mucronata</i>		9/2/1992
Hairy Valerian	<i>Valeriana edulis</i>		1934-05
Hairy-fruited Sedge	<i>Carex trichocarpa</i>		5/15/1990
Heart-leaved Alexanders	<i>Zizia aptera</i>		1891-05-25
Hoary Tick-trefoil	<i>Desmodium canescens</i>		1888-08-23
Large Yellow Pond-lily	<i>Nuphar advena</i>		7/31/1991
Long-styled Canadian Sanicle	<i>Sanicula canadensis</i> var. <i>grandis</i>		8/1/1935
Lowland Brittle Fern	<i>Cystopteris protrusa</i>		1984-07
Mead's Sedge	<i>Carex meadii</i>		6/6/1989
Northern Long-eared Bat	<i>Myotis septentrionalis</i>		10/3/1930
Prostrate Tick-trefoil	<i>Desmodium rotundifolium</i>		8/14/1934
Pumpkin Ash	<i>Fraxinus profunda</i>		5/11/1993
Rigid Sedge	<i>Carex tetanica</i>		5/14/1993
Round-fruited Panic Grass	<i>Dichanthelium sphaerocarpon</i>		1891-07-06
Sharp-fruited Rush	<i>Juncus acuminatus</i>		8/31/1993
Shrubby St. John's-wort	<i>Hypericum prolificum</i>		7/30/1990
Slender Mountain-mint	<i>Pycnanthemum tenuifolium</i>		9/14/1993
Slim-flowered Muhly	<i>Muhlenbergia tenuiflora</i>		7/16/1993
Small-footed Bat	<i>Myotis leibii</i>		5/9/1929
Spotted Beebalm	<i>Monarda punctata</i>		1984



English Name	Scientific Name	Species At Risk in Ontario (SARO) Status	Last Observed Date
Stiff Gentian	<i>Gentianella quinquefolia</i>		1898-09-16
Stiff Goldenrod	<i>Solidago rigida ssp. rigida</i>		8/27/1990
Sundial Lupine	<i>Lupinus perennis</i>		5/30/1936
Tawny Emperor	<i>Asterocampa clyton</i>		7/30/1986
White-eyed Vireo	<i>Vireo griseus</i>		1985-06
White-haired Panic Grass	<i>Dichanthelium ovale ssp. praecocius</i>		7/23/1992
Winged Loosestrife	<i>Lythrum alatum</i>		9/8/1988
Woodland Pinedrops	<i>Pterospora andromedea</i>		1888-08-22
Yellow Ladies'-tresses	<i>Spiranthes ochroleuca</i>		9/13/1928
Gravel Chub	<i>Erimystax x-punctatus</i>	EXP	1923
Illinois Tick-trefoil	<i>Desmodium illinoense</i>	EXP	1888-08-23
Timber Rattlesnake	<i>Crotalus horridus</i>	EXP	1898

# Attachment C

Ontario Ministry of Natural  
Resources Correspondence

## Aitken, Robert

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**From:** McCloskey, Amanda (MNR) <Amanda.McCloskey@ontario.ca>  
**Sent:** Friday, January 04, 2013 4:15 PM  
**To:** Aitken, Robert  
**Cc:** Marr, Corri; McCloskey, Amanda (MNR); Walker, Korey (MNR)  
**Subject:** Albert Street EA Data Request

Hi Robert,

Thank you for your email requesting information on the Albert Street Bridge Environmental Assessment, Township of Strathroy-Caradoc, Middlesex County. The MNR would like to provide the following information:

### Species At Risk

The Species at Risk in Ontario (SARO) List is Ontario Regulation 230/08 issued under the *Endangered Species Act, 2007*. The *Endangered Species Act, 2007* (ESA) came into force on June 30, 2008 and provides both individual protection (section 9) and habitat protection (section 10) to species listed as endangered or threatened on the SARO List. The current SARO List, issued under the ESA 2007, can be found on e-laws (<http://www.e-laws.gov.on.ca/navigation?file=home&lang=en>). If an activity or project will result in adverse effects to species and/or habitat protected under the ESA, an authorization under the ESA would be required to avoid contravening the act. Please note that authorizations are not guaranteed and that the review timelines for Authorization Request Packages can be several months. Site-specific investigation within and adjacent to the subject lands may find additional species and/or habitat location on or adjacent to the subject lands.

An initial ESA Screening of the subject lands has been completed. There are no known occurrences of species at risk within or adjacent to the subject lands. With that said, there are known occurrences for the following species in the general area:

- Drooping Trillium (endangered) – receives species and general habitat protection.
- Barn Swallow (threatened) – receives species and general habitat protection.
- Eastern Hognosed Snake (threatened) – receives species protection.

According to DFO mapping, the Sydenham River, directly south of the project area, contains protected fish species at risk and is identified as critical habitat. Species at risk mussels may be present in the Sydenham River directly south of the project area. DFO should be contacted in regards to the aquatic species at risk.

It should be noted that this is an initial project screening for SAR and the absence of an element occurrence does not indicate the absence of species. The province has not been surveyed comprehensively for the presence or absence of SAR, and MNR data relies on observers to report sightings of SAR. Consequently, the presence of element occurrences is useful to flag the presence of SAR within the project location and surrounding area, but is not an appropriate tool to determine whether a species or habitat is present at the local (property-scale) level.

It is important to note that changes may occur in both species and habitat protection which could affect whether proposed projects may have adverse effects of SAR. The ESA applies to species listed on the SARO List ([www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/246809.html](http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/246809.html)). The Committee on the Status of Species in Ontario (COSSARO) meets regularly to evaluate species for listing and / or re-evaluate species already listed. As a result, species designations may change, which could in turn change the level of protection they receive under the ESA. Also, habitat protection provisions for a species may change (i.e. if a species-specific habitat regulation comes into effect). The regulation would prescribe the area as the habitat of the species.

SWH

Significant wildlife habitat (SWH) may be present within the subject lands. Please note that significant wildlife habitat is to be considered separately from species at risk habitat. The Significant Wildlife Habitat Technical Guide (SWHTG), is a good document to consult, which is found at [http://www.mnr.gov.on.ca/en/Business/FW/Publications/MNR\\_E001285P.html](http://www.mnr.gov.on.ca/en/Business/FW/Publications/MNR_E001285P.html). The Natural Heritage Reference Manual (NHRM) also provides guidance regarding significant wildlife habitat, and is found at <http://www.mnr.gov.on.ca/en/Business/LUEPS/Publications/249081.html>.

### **Woodlands**

It appears that there are woodlands within the subject lands. The NHRM contains information and criteria for determining significant woodlands.

### **Valleylands**

The MNR does not possess significant valleylands mapping. We suggest you contact the Conservation Authority to find out if they have information pertaining to significant valleylands. The Natural Heritage Reference Manual (link above) also provides guidance on evaluation criteria for determining significant valleylands.

### **Provincially Significant Wetlands**

There is a known provincially significant wetland complex north and south of the Albert Street Bridge, known as the Sydenham River Wetland Complex.

### **ANSI**

There are no ANSIs found on-site or on adjacent lands.

### **Fisheries**

The Sydenham River is a warmwater system with the following species noted for the location:

yellow bullhead, rock bass, longnose sucker, white sucker, brook stickleback, common carp, gizzard shad, northern pike, rainbow darter, fantail darter, least darter, channel catfish, longnose gar, green sunfish, pumpkinseed, smallmouth bass, white perch, silver redhorse, shorthead redhorse, hornyhead chub, river chub, golden shiner, common shiner, spottail shiner, rosyface shiner, spottin shiner, redbfin shiner, mimic shiner, stonecat, tadpole madtom, logperch, blackside darter, bluntnose minnow, fathead minnow, black crappie, creek chub, walleye, central mudminnow, longear sunfish, white crappie, greenside darter, river darter, spotted gar, golden redhorse, greater redhorse, brindled madtom, black bullhead, Suckers, Trout-perches, johnny darter/tesselated darter, emerald shiner, largemouth bass.

### **Public Lands Act**

Lastly, if the proposed cross section is not within an easement please contact MNR as we may need to provide additional direction under the Public Lands Act.

*Futre Request: Due to the high volume of requests we receive, please note that MNR responses may take 6-8 weeks after receipt of all required information. It is highly recommended that proposed projects and requests for information be submitted to MNR as early as possible before the schedule commencement date.*

I was also sent a meeting request for Wednesday January 9, 2012 however I will be unable to attend. Hopefully the information provided above gives you the information you were looking for. If you have any questions please do not hesitate to contact me.

Thank you,

Amanda

**Amanda McCloskey**

District Planner  
Ministry of Natural Resources  
Aylmer District



T: 519-773-4750  
F: 519-773-9014  
[amanda.mccloskey@ontario.ca](mailto:amanda.mccloskey@ontario.ca)

# Attachment D

Department of Fisheries and  
Oceans Correspondence and  
Distribution of Fish Species at  
Risk Mapping

## Aitken, Robert

---

**From:** Cooper, Jenie <Jenie.Cooper@dfo-mpo.gc.ca>  
**Sent:** Wednesday, December 19, 2012 11:15 AM  
**To:** Aitken, Robert  
**Cc:** Erin Carroll  
**Subject:** RE: Albert Street Bridge EA Data Request

Hi Rob,

Our mapping records show no Federally listed species at risk in Sydenham River section at the Albert Street bridge crossing.

Please check with the local MNR office and/or St.Clair Conservation Authority, they may have more site specific aquatic habitat information for this area.

*Jenie Cooper*

Fisheries and Oceans Canada | Pêches et Océans Canada  
Ontario - Great Lakes Area | Secteur de l'Ontario et des Grands Lacs  
304-3027 Harvester Rd | chemin Harvester  
Burlington, ON L7R 4K3  
Tel | Tél: 905-639-4396; Fax | Téléc: 905-639-3549  
[Jenie.Cooper@dfo-mpo.gc.ca](mailto:Jenie.Cooper@dfo-mpo.gc.ca)  
Web site | site Web: <http://www.dfo-mpo.gc.ca/habitat>  
Government of Canada | Gouvernement du Canada

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From: Aitken, Robert [<mailto:Robert.Aitken@aecom.com>]  
Sent: December 7, 2012 3:08 PM  
To: Cooper, Jenie  
Subject: Albert Street Bridge EA Data Request

Hello Jenie,

We are currently in the process of completing an Environmental Assessment for the repair/replacement of the Albert Street Bridge over the Sydenham River in Strathroy, Ontario (see the attached map).

If you could please provide us with any records pertaining to the aquatic habitat at the site (such as: fish records; species at risk; thermal regimes; and any other any additional information that you feel might be relevant) that would be greatly appreciated.

If you require any additional information please do not hesitate to let me know.

Thank You,

**Rob Aitken B. Sc. (Hons.)**  
Terrestrial Ecologist  
Environment  
D. 519.840.2222  
[robert.aitken@aecom.com](mailto:robert.aitken@aecom.com)

# Distribution of Fish Species at Risk

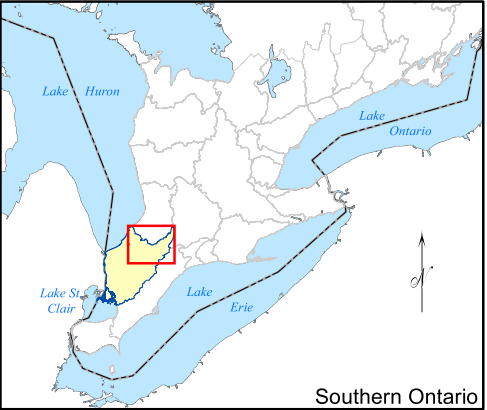
## St. Clair Region Conservation Authority (Map 2)

- Protected under SARA (EX, EN, TH)
- To be listed in 1yr+ (EN,TH)
- All Special Concern Species (Sch. 1,3 and newly listed)
- Critical Habitat/Proposed Critical Habitat\*

\* Note: Within the delineated areas, only those areas that meet the functional habitat requirements of one or more life stages of the species are considered critical habitat. For more information on critical habitat please refer to the Reference Guide.

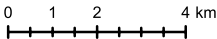
- Railway
- River/Stream
- Road
- Conservation Authority Boundary

- Waterbody
- Wetland
- First Nations Land Claim
- Urban Area



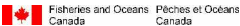
### Conservation Authority Fish SAR Listing

Common Name	Colour
* Channel Darter	Red
* Eastern Sand Darter	Red
* Lake Chubsucker	Red
* Northern Madtom	Red
* Pugnose Shiner	Red
Lake Sturgeon (DU 4,5,8)	Orange
Silver Shiner	Orange
American Eel	Purple
Blackstripe Topminnow	Purple
Grass Pickerel	Purple
Northern Brook Lamprey (Glks/UpStLaw pop)	Purple
Pugnose Minnow	Purple
River Redhorse	Purple
Silver Chub	Purple
Silver Lamprey	Purple
Spotted Sucker	Purple



Disclaimer: The information on this map is provided for general mapping purposes only. Fisheries and Oceans Canada does not warrant the quality, accuracy or completeness of any information contained or depicted herein and that this information is provided "as is" without warranty or condition of any nature, including fitness for a particular purpose. Fisheries and Oceans Canada will not be liable or held responsible for the use or misuse of information or material depicted on this map, or any loss or damage resulting therefrom. © Her Majesty the Queen in Right of Canada. Fisheries & Oceans Canada. All rights reserved, 2012.

Base Map Sources: Ontario Ministry of Natural Resources, Natural Resources Canada, Conservation Ontario  
Aussi disponible en français  
Map produced April 2012.  
Valid until April 2013.





# **Attachment E**

**The Atlas of the Breeding Birds  
of Ontario Monitoring Square  
17MH45 Species List**

**Attachment E: Breeding Birds of Ontario for Albert Street EA - Square 17MH45**

Common Name	Scientific Name	Status						Area-sensitive (OMNR) <sup>c</sup>	Significant in Region 6 (south-central)	Significant in Region 7 (south)	Middlesex	
		Species at Risk (national) <sup>a</sup>	SARA (Species at Risk Act) <sup>c</sup> status	SARA Schedule	Species at Risk (SARO) <sup>a</sup>	Provincially Rare (NHIC breeding season SRANK) <sup>b</sup>	Identified in Partners in Flight Ontario BCR 13 Landbird Conservation Plan				Level	Habitat
Alder Flycatcher	<i>Empidonax alnorum</i>										Level 3	Forest
American Coot	<i>Fulica americana</i>	NAR						A			Level 1	Marsh
American Crow	<i>Corvus brachyrhynchos</i>											
American Goldfinch	<i>Carduelis tristis</i>										Level 3	Open Country
American Redstart	<i>Setophaga ruticilla</i>							A			Level 2	Forest
American Robin	<i>Turdus migratorius</i>											
American Woodcock	<i>Scolopax minor</i>										Level 4	Forest
Baltimore Oriole	<i>Icterus galbula</i>						√					
Bank Swallow	<i>Riparia riparia</i>						√				Level 1	Open Country
Barn Swallow	<i>Hirundo rustica</i>				THR						Level 3	Open Country
Belted Kingfisher	<i>Ceryle alcyon</i>						√					
Black Tern	<i>Chlidonias niger</i>	NAR			SC	S3		A			Level 1	Marsh
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>						√				Level 2	Forest
Black-capped Chickadee	<i>Poecile atricapillus</i>										Level 4	Forest
Blue Jay	<i>Cyanocitta cristata</i>											
Blue-gray Gnatcatcher	<i>Poliptila caerulea</i>							A			Level 4	Forest
Blue-winged Teal	<i>Anas discors</i>										Level 2	Marsh
Blue-winged Warbler	<i>Vermivora pinus</i>						√				Level 1	Forest
Bobolink	<i>Dolichonyx oryzivorus</i>				THR		√	A			Level 2	Open Country
Brown Thrasher	<i>Toxostoma rufum</i>						√				Level 1	Open Country
Brown-headed Cowbird	<i>Molothrus ater</i>											
Canada Goose	<i>Branta canadensis</i>											
Carolina Wren	<i>Thryothorus ludovicianus</i>						S3S4				Level 3	Forest
Cedar Waxwing	<i>Bombycilla cedrorum</i>											
Chimney Swift	<i>Chaetura pelagica</i>	THR	THR	Schedule 1	THR		√					
Chipping Sparrow	<i>Spizella passerina</i>											
Cliff Swallow	<i>Petrochelidon pyrrhonota</i>										Level 3	Open Country
Common Grackle	<i>Quiscalus quiscula</i>											
Common Snipe	<i>Gallinago gallinago</i>											
Common Yellowthroat	<i>Geothlypis trichas</i>											
Downy Woodpecker	<i>Picoides pubescens</i>											
Eastern Bluebird	<i>Sialia sialis</i>	NAR									Level 1	Open Country
Eastern Kingbird	<i>Tyrannus tyrannus</i>						√				Level 3	Open Country
Eastern Meadowlark	<i>Sturnella magna</i>				THR		√	A			Level 2	Open Country
Eastern Phoebe	<i>Sayornis phoebe</i>										Level 3	Forest
Eastern Screech-Owl	<i>Megascops asio</i>	NAR										
Eastern Towhee	<i>Pipilio erythrophthalmus</i>						√				Level 2	Forest
Eastern Wood-Pewee	<i>Contopus virens</i>						√					
European Starling	<i>Sturnus vulgaris</i>											
Field Sparrow	<i>Spizella pusilla</i>						√				Level 3	Open Country
Gray Catbird	<i>Dumetella carolinensis</i>										Level 4	Forest
Great Blue Heron	<i>Ardea herodias</i>											
Great Crested Flycatcher	<i>Myiarchus crinitus</i>											
Great Horned Owl	<i>Bubo virginianus</i>											
Green Heron	<i>Butorides virescens</i>										Level 3	Marsh
Hairy Woodpecker	<i>Picoides villosus</i>							A				
Horned Lark	<i>Eremophila alpestris</i>										Level 3	Open Country
House Finch	<i>Carpodacus mexicanus</i>											
House Sparrow	<i>Passer domesticus</i>											
House Wren	<i>Troglodytes aedon</i>											
Indigo Bunting	<i>Passerina cyanea</i>											
Killdeer	<i>Charadrius vociferus</i>											
Least Flycatcher	<i>Empidonax minimus</i>							A			Level 3	Forest
Mallard	<i>Anas platyrhynchos</i>											
Mourning Dove	<i>Zenaida macroura</i>											
Northern Cardinal	<i>Cardinalis cardinalis</i>											
Northern Flicker	<i>Colaptes auratus</i>						√					
Northern Harrier	<i>Circus cyaneus</i>	NAR					√	A				
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>										Level 2	Open Country
Northern Shoveler	<i>Anas clypeata</i>								Y			
Pine Warbler	<i>Dendroica pinus</i>							A			Level 3	Forest
Purple Martin	<i>Progne subis</i>										Level 2	Marsh
Red-bellied Woodpecker	<i>Melanerpes carolinus</i>										Level 1	Forest
Red-eyed Vireo	<i>Vireo olivaceus</i>											
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	THR	THR	Schedule 1	SC	S3	√				Level 1	Forest
Red-tailed Hawk	<i>Buteo jamaicensis</i>	NAR										
Red-winged Blackbird	<i>Agelaius phoeniceus</i>											
Rock Pigeon	<i>Columba livia</i>											
Rose-breasted Grosbeak	<i>Pheucticus ludovicianus</i>						√					
Ruby-throated Hummingbird	<i>Archilochus colubris</i>										Level 2	Forest
Savannah Sparrow	<i>Passerculus sandwichensis</i>						√	A			Level 1	Open Country
Scarlet Tanager	<i>Piranga olivacea</i>							A			Level 2	Forest
Sharp-shinned Hawk	<i>Accipiter striatus</i>	NAR						A			Level 3	Forest
Song Sparrow	<i>Melospiza melodia</i>											
Spotted Sandpiper	<i>Actitis macularia</i>										Level 3	Open Country
Swamp Sparrow	<i>Melospiza georgiana</i>										Level 2	Marsh
Tree Swallow	<i>Tachycineta bicolor</i>											

Common Name	Scientific Name	Status						Area-sensitive (OMNR <sup>c</sup> )	Significant in Region 6 (south-central)	Significant in Region 7 (south)	Middlesex	
		Species at Risk (national) <sup>a</sup>	SARA (Species at Risk Act) status	SARA Schedule	Species at Risk (SARO) <sup>a</sup>	Provincially Rare (NHIC breeding season SRANK) <sup>b</sup>	Identified in Partners in Flight Ontario BCR 13 Landbird Conservation Plan				Level	Habitat
Turkey Vulture	<i>Cathartes aura</i>										Level 3	Forest
Veery	<i>Catharus fuscescens</i>							A			Level 3	Forest
Vesper Sparrow	<i>Poocetes gramineus</i>					√					Level 2	Open Country
Virginia Rail	<i>Rallus limicola</i>										Level 1	Marsh
Warbling Vireo	<i>Vireo gilvus</i>											
White-breasted Nuthatch	<i>Sitta carolinensis</i>							A				
Wild Turkey	<i>Meleagris gallopavo</i>											
Willow Flycatcher	<i>Empidonax traillii</i>					√						
Wood Duck	<i>Aix sponsa</i>										Level 4	Forest
Wood Thrush	<i>Hylocichla mustelina</i>					√					Level 4	Forest
Yellow Warbler	<i>Dendroica petechia</i>											
Yellow-bellied Sapsucker	<i>Sphyrapicus varius</i>							A			Level 2	Forest
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>										Level 3	Forest
Yellow-throated Vireo	<i>Vireo flavifrons</i>							A			Level 3	Forest

# KEY

<sup>a</sup> National Species at Risk are those listed by COSEWIC = Committee on the Status of Endangered Wildlife in Canada

Provincial Species at Risk are those listed by COSSARO = Committee on the Status of Species at Risk in Ontario

END = Endangered, THR = Threatened, SC = Special Concern

<sup>b</sup> SRANK (from Natural Heritage Information Centre) shown for breeding status if: S1 (Critically Imperiled, often < 5 occurrences),

S2 (Imperiled, often <20 occurrences), S3 (Vulnerable, often 80 or fewer), S3S4 (uncertain between S3 and S4),

or T (tracked species) that are S4 or S5; SRANK not shown if: S4 (apparently secure, uncommon), S5 (secure, common).

Area-sensitive sources:

<sup>c</sup> Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide (Appendix G). 151 p plus appendices.

<sup>d</sup> Ontario Ministry of Natural Resources (OMNR). 1993 (Revised 1994, 2002 draft). Ontario Wetland Evaluation System, Southern Manual. 3rd Edition. NEST Technical Manual TM-002. 173 pp.

# Attachment F

## Species at Risk Habitat Screening



Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
<b>Endangered</b>					
American Badger	<i>Taxidea taxus</i>	<p>Remnant tallgrass prairie, sand barrens, farmland, old fields, hedgerows, woodland edges. Requires sandy or friable soils to create dens. Soils should be coarse enough to resist collapse when wet but contain enough organic matter and be sufficiently adhesive to prevent collapse when dry. Look for wide burrows in hedgerows, tracks and hair (collect if found).</p> <p>Can be associated with the following ELC codes: <b>TPO, TPS1, CUM1, CUS, SBO</b> Soil: dry sandy (MR = 0, 1, 2).</p>	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	In Canada, the subspecies has a very restricted range and now occurs in extreme southwestern Ontario south of the Bruce and Niagara peninsulas. The size of the population is estimated at 0 to 200 individuals, and trends are unknown.	<b>No suitable habitat present</b>
American Chestnut	<i>Castanea dentata</i>	Deciduous forest communities; prefers forests with moist to well-drained, acid and sandy soils. If present individuals	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	In Canada, it was restricted primarily to southwestern Ontario's Carolinian Forest Zone, where it was a relatively	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		likely to be planted. Planted individuals are protected under the ESA. Blooms early summer; fruits mature late summer.  Can be associated with the following ELC codes: <b>FOD1, FOD2, FOD4, FOD5</b> . Soil: dry sandy (MR = 0, 1, 2).		widespread and dominant species in some areas. Today, less than 200 trees of any size remain in the province.	
Barn Owl	<i>Tyto alba</i>	Open country; often associated with agricultural lands, especially pasture, old fields, woodlot edges, buildings, orchards; grasslands, and marshes; In Ontario mainly nests in barns and abandoned buildings but also nests in hollow trees >46 cm dbh.  Can be associated with the following ELC codes: <b>TPO, TPS, CUM1, CUS1, MAM2, MAM3</b> adjacent old barns, abandoned buildings or woodlands with	• NHIC - 1 km	In Canada, the species breeds only in extreme southern Ontario and British Columbia. While formerly up to 30 pairs may have bred in Ontario, it is now thought that the species may be extirpated in the province.	No Suitable Habitat Present

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		hollow tees with a DBH >46 cm.			
Drooping Trillium	<i>Trillium flexipes</i>	Found in rich, mature, deciduous forests usually crossed by streams; grows on dry, circum-neutral, well-drained, sandy clay soils associated with limestone; prefers higher elevations of microsites on floodplains.  Can be associated with the following ELC codes: FOD	• NHIC - 10 km	There are two remaining populations in southwestern Ontario, one in a Middlesex County Conservation Area, and the other on private land in Elgin County.	No suitable habitat present
Eastern Flowering Dogwood	<i>Cornus florida</i>	Borders of woodlands and sunny openings; grows around edges and hedgerows. Understory species in semi open dry oak-hickory to mesic maple-beech deciduous or mixed forests. Grows in sandy soil, more or less clayey. If present, likely to be planted specimens. Planted individuals are protected by the ESA. Flowers May; fruits mature fall.	NHIC - Strathroy-Caradoc	The range of Eastern Flowering Dogwood in Ontario is limited to the Carolinian Zone, a narrow band in southwestern Ontario, extending from the south eastern shore of Lake Huron, south eastward to the west end of Lake Ontario.	No suitable habitat present

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		Can be associated with the following ELC codes: <b>FOM1, FOM2, FOM3, FOD1, FOD2, FOD5, FOD6</b> ; Soil: dry (0) to fresh (1,2,3).			
Eastern Sand Darter	<i>Ammocrypta pellucida</i>	Species requires sandy-bottomed streams and rivers where it often buries itself completely. It frequents water over limestone bottoms covered with a thin layer of mud, riffles over rubble and gravel, and silted sand bottoms. The water can be clear, tea-coloured or murky. Currents can range from still to swift. Canadian populations have occurred in Lake Huron, Lake Erie, and Lake St. Clair drainages in Michigan, Ohio, New York and Ontario. It continues to occur in lakes Erie and St. Clair and in several rivers	<ul style="list-style-type: none"> <li>• NHIC - 1 km</li> <li>• DFO SAR Mapping</li> </ul>	In Ontario it lives in Lake St. Clair, Lake Erie and several rivers in southwestern Ontario.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		in southwestern Ontario and Quebec.			
False Hop Sedge	<i>Carex lupuliformis</i>	<p>The Canadian populations occur only in the St. Lawrence Lowlands, where the annual precipitation ranges from 81-102 mm. The Ontario populations grow within the Carolinian Forest zone in areas with swamps, marshes or temporary pools flooded in spring. Populations are largest in open areas with ample sunlight, such as forest edges or clearings.</p> <p>Can be associated with the following ELC codes: <b>SWD, MAM, FOD7, FOD8, FOD9.</b></p>	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	In Ontario, it has been found at a total of five sites in Essex, Elgin and Middlesex counties. None of the populations here are large (12-100 individuals).	<b>No suitable habitat present</b>
Henslow's Sparrow	<i>Ammodramus henslowii</i>	This species prefers large, fallow, grassy areas with ground mats of dead vegetation, dense herbaceous vegetation, ground litter and some song perches. Can also be	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	The species has experienced a serious decline in Ontario and no definite evidence of breeding has been reported in the province for several years.	<b>No suitable habitat present</b>



Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		<p>found in neglected weedy fields, wet meadows, cultivated uplands. This species requires a moderate amount of moisture, as well as a tract of grasslands &gt;40 ha, but usually in areas &gt;100 ha.</p> <p>Can be associated with the following ELC codes: <b>CUM1-1, MAM, CUW.</b></p>			
Large Whorled Pogonia	<i>Isotria verticillata</i>	<p>Species requires rich, moist deciduous or mixed forest on sandy soil with a thick leaf litter and lots of humus. It favours a forest canopy that is relatively open.</p> <p>Can be associated with the following ELC codes: <b>FOD, FOM.</b></p>	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	The site of its original 1879 discovery in Ontario apparently no longer exists. The species was considered extirpated (regionally extinct) for many years until discovered at a site in Haldimand-Norfolk in 1965. In addition to this site, it is known from two other southwestern Ontario locations, both discovered in the mid-1980's.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
Northern Bobwhite	<i>Colinus virginianus</i>	<p>Can be found in grasslands, prairie or hay fields with woody cover in form of thickets, tangles of vines, and shrubs. As well as fence rows or woodland edges, cropland growing corn, soybeans or small grains and clover or grass.</p> <p>Can be associated with the following ELC codes: <b>CUM1, CUT1, TPO, TPS, CUS1</b></p>	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	Bobwhite continue to be common in many parts of their North American range although populations in the west, and those at the northern range limits, including Ontario, have been severely stressed by cold winters. The size of Bobwhite populations in Ontario is unclear, owing in large part to numerous releases of captive-reared birds.	<b>No suitable habitat present</b>
Northern Madtom	<i>Noturus stigmosus</i>	<p>The Ontario population of this species is unusual in that individuals have been caught deep out into Lake St. Clair, whereas generally the Northern Madtom prefers fast-flowing creeks and rivers with a rocky substrate.</p> <p>This species can be</p>	<ul style="list-style-type: none"> <li>DFO SAR Mapping</li> </ul>	In Ontario this species is known to occur in the the Upper Detroit River, Lake St. Clair, and the lower Thames River. There is one record of this species from the Sydneham River from 1975 however repeated surveys have failed to find the species.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		associated with the following ELC codes: <b>OAO</b> .			
Pugnose Shiner	<i>Notropis anogenus</i>	It lives in the marshy bays of lakes, ponds and in slow-moving streams where the water is clear.  This species can be associated with the following ELC Codes: <b>OAO</b> .	• DFO SAR Mapping	In Ontario this species is known to occur at five sites; three sites in southwestern Ontario and two sites in the St. Lawrence River.	<b>No suitable habitat present</b>
Red Mulberry	<i>Morus rubra</i>	Species can be found in Ontario, it grows in moist, deciduous forest habitats such as valleys, floodplains and sand pits in the Carolinian Forest Zone.  Can be associated with the following ELC codes: <b>FOD6, FOD7, FOD8, FOD9</b> .	• NHIC - Strathroy- Caradoc	In Ontario, it is found at ten locations (only six of which have more than five trees each) in the western Lake Ontario region, in Kent and Essex counties on Lake Erie, and in the Niagara region.	<b>No suitable habitat present</b>
Threatened					
Barn Swallow	<i>Hirundo rustica</i>	Nearly all nests are made on man-made structures such as barns, garages, sheds, boat houses, bridges, road culverts,	• OBBA	Found throughout Ontario.	<b>Suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		<p>eaves and warfs. Farmlands or rural areas; forages over open country especially near bodies of water.</p> <p>Can be associated with the following ELC codes: Forages in TPO, CUM1, MAM, MAS, OAO, SAS1, SAM1, SAF1; nest on suitable structures.</p>			
Blanding's Turtle	<i>Emydoidea blandingii</i>	Species is generally situated in shallow water marshes, bogs, ponds or swamps. As well as in coves in larger lakes with soft muddy bottoms and aquatic vegetation. Species basks on logs, stumps, or banks. The surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats. Species generally hibernates in bogs, and is not readily observed.	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	In Ontario, Blanding's Turtle can be found throughout the southern and central portions of the province except along the Bruce Peninsula and the far southeast.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		Can be associated with the following ELC codes: <b>SWT2, SWT3, SWD, SWM, MAS2, SAS1, SAM1,</b> where open water present.			
Bobolink	<i>Dolichonyx oryzivorus</i>	Nests primarily in forage crops, particularly <b>hayfields and pastures</b> , dominated by a variety of species such as clover, tall grasses and broadleaved plants; also occurs in wet prairie, graminoid, peatlands and abandoned fields; <b>generally requires tracts of grassland &gt;5 ha.</b> Also nests in lightly grazed pastures, fallow and abandoned fields and shallow grassy marshes.  This species can be associated with the following ELC Codes: <b>TPO, TPS, CUM1, MAM2.</b>	• OBBA	In Ontario, Bobolink is widely distributed throughout most of the province south of the boreal forest. It could also potentially be found in the north where suitable habitat exists.	<b>No suitable habitat present</b>
Cerulean Warbler	<i>Dendroica cerulea</i>	Species breeding habitat consists of large tracts of	• NHIC - Strathroy-	There are two main geographic clusters of	<b>No suitable habitat present</b>



Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		<p>mature deciduous forests with tall trees and an open understory. This species can be found in both wet bottomland forests and upland areas.</p> <p>This species can be associated with the following ELC codes: <b>FOD and SWD</b>. Mature forests with an open understory are also required.</p>	Caradoc	Cerulean Warbler within Ontario, one in the Carolinian region, and the other extending from southeastern Georgian Bay east to the Frontenac Axis. A small number of breeding pairs are also known to occur in southwestern Quebec.	
Channel Darter		In Ontario this species habitat consists of streams and lakes with over wave-washed sand and gravel bottoms and beaches with slow currents.	<ul style="list-style-type: none"> <li>DFO SAR Mapping</li> </ul>	In Ontario this species has a very sporadic distribution in tributaries of Lake Ontario, Lake Erie, Lake St. Clair and the Ottawa River.	<b>No suitable habitat present</b>
Chimney Swift	<i>Chaetura pelagica</i>	Formerly nested in the trunks of large, hollow trees. Today, mainly use chimneys or abandoned buildings as nesting sites. May forage over wide variety of habitats. It <b>requires dead trees &gt;30 cm</b> for roosting and	<ul style="list-style-type: none"> <li>OBBA</li> </ul>	In Ontario, the Chimney Swift is most widely distributed in the Carolinian zone in the south and southwest portions of the province, however has been detected throughout most of the	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		possibly nesting. Where swifts observed foraging only, is not Significant habitat.		province south of the 49th parallel.	
Colicroot	<i>Aletris farinosa</i>	Species is found in one of the warmest areas of Canada with one of the longest growing seasons. Within the southwestern area of Ontario, this plant is found in open moist prairie, old fields, and roadsides and edges of wooded areas with sandy soil that has a coarse texture.  Can be associated with the following ELC codes: <b>TPO2, CUM.</b>	• NHIC - Strathroy- Caradoc	The range of Colicroot extends from southern Ontario east to the Atlantic coast, south to the Gulf states and west to Texas. In Canada, it only occurs in southwestern Ontario.	<b>Suitable habitat present</b>
Crooked-stem Aster	<i>Symphyotrichum prenanthoides</i>	Species is found along the banks of streams and creeks draining into the north shore of Lake Erie. It prefers rich, sandy, loamy soil, and is usually found at the edge of woods, in partial to full shade.	• NHIC - Strathroy- Caradoc	In Canada, it occurs in about 20 small populations (most less than 10 plants) in Elgin and Oxford counties and the Regional Municipality of Haldimand-Norfolk in	<b>No Suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		Can be associated with the following ELC codes: <b>FOD7, FOD8, FOD9, CUW.</b>		southwestern Ontario.	
Eastern Hognosed Snake	<i>Heterodon platirhinos</i>	The Eastern Hog-nosed Snake specializes in hunting and eating toads, and usually only occurs where toads can be found. Eastern Hog-nosed Snakes prefer sandy, well-drained habitats such as beaches and dry forests where they can lay their eggs and hibernate. They use their up-turned snout to dig burrows below the frost line in the sand where eggs are deposited.  Can be associated with the following ELC codes: <b>BBO, FOD.</b> Sandy soils required.	• OMNR Correspondence	The Canadian population is limited to Ontario where it can be found in two areas: the Carolinian region and Great Lakes-St. Lawrence region.	<b>Suitable Habitat Present</b>
Eastern Meadowlark	<i>Sturnella magna</i>	Most common in native grasslands, savannah, old fields, hayfields, lightly grazed pastures, weedy	• OBBA	In Ontario, the Eastern Meadowlark's current breeding range extends from the southwestern	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		<p>meadows, fields with occasional shrubs.</p> <p><b>Minimum area of grassland required is about 5 ha.</b></p> <p>This species can be associated with the following ELC codes: <b>TPO, TPS, CUM1, MAM2, MAS2.</b></p>		part of the province more or less continuously north to include southern Algoma, Sudbury and Nipissing districts. It also occurs in a northern pocket of agricultural lands associated with the Little Clay Belt in Timiskaming District.	
Lake Chubsucker	<i>Erimyzon sucetta</i>	<p>This species prefers marshes and lakes with clear, still waters and abundant aquatic plants.</p> <p>This species can be associated with the following ELC codes: <b>OAO.</b></p>	<ul style="list-style-type: none"> <li>• DFO SAR Mapping</li> </ul>	In Ontario this species is only known to occur in seven locations in drainages of Lakes St. Clair, Erie and Huron, and the Niagara River.	<b>No suitable habitat present</b>
Purple Twayblade	<i>Liparis liliifolia</i>	<p>In Ontario it grows in oak savannah, and in relatively open, successional mixed wood and hardwood habitats.</p> <p>This species can be associated with the</p>	<ul style="list-style-type: none"> <li>• NHIC - Strathroy-Caradoc</li> </ul>	In the late 1980's, this species was known from 11 sites in southern Ontario. Since then, these populations have declined or disappeared, and only a few very small new	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		following ELC codes: <b>TPS</b> , <b>TPW</b> .		populations have been located.	
Silver Shiner	<i>Notropis photogenis</i>	The Silver Shiner prefers moderately-flowing sections of larger streams.  This species can be associated with the following ELC codes: <b>OAO</b> . Medium open flowing water.	• NHIC - Strathroy- Caradoc	In Ontario this species is found in the Thames River, Grand River, Bronte Creek and Sixteen Mile Creek.	<b>Suitable habitat present</b>
Spiny Softshell	<i>Apalone spinifera</i>	Species is intolerant of pollution, and inhabits large river systems, shallow lakes and ponds with muddy bottoms and aquatic vegetation. Can be found basking on sandbars, mud flats, grassy beaches, logs or rocks. Their eggs are laid near water on sandy beaches or gravel banks in areas with sun, and requires acceptable feeding, nesting, habitat and natural, undisturbed corridors between these critical habitats.	• NHIC - Strathroy- Caradoc	The Spiny Softshell is found sporadically in eastern and southwestern Ontario. It rarely ventures far from the shoreline, and may be seen basking on beaches, sandbars, logs and rocks.	<b>Suitable habitat present</b>



Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		Can be associated with the following ELC codes: <b>MAS, OAO, SAS, SAM, SAF.</b>			
Willowleaf Aster	<i>Symphyotrichum praealtum</i>	Species is found in prairies, meadows, and areas of dense shrubs or small trees throughout its range. In southwestern Ontario, it grows most often in oak savannahs, but is also found in disturbed areas such as roadsides, along railways, and in abandoned fields.  Can be associated with the following ELC codes: <b>TPO, CUM, CUT, CUW.</b>	• NHIC - 10 km	In Ontario, it has been found at 13 sites in Windsor, on Walpole Island, and around Sarnia.	<b>Suitable habitat present</b>
Special Concern			•		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	The Bald Eagles nests in a variety of habitats and forest types, typically near a lake or river where they will do a majority of their hunting. This species typically nests in large Pine	• NHIC - Strathroy-Caradoc	The Bald Eagle is widely distributed throughout North America and can be found in both Northern and Southern Ontario.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		<p>or Poplar trees.</p> <p>This species can be associated with the following ELC codes: <b>FOC, FOM, FOD, SWC, SWM and SWD</b>. Nests typically located near major bodies of water.</p>			
Black Tern	<i>Chlidonias niger</i>	They build floating nests in loose colonies in shallow marshes, especially in cattails. In winter they migrate to the coast of northern South America.	<ul style="list-style-type: none"> <li>• OBBA</li> </ul>	In Ontario, Black Terns can be found scattered throughout the province, but mainly breed in the marshes along the edges of the Great Lakes.	<b>No suitable habitat present</b>
Blue Ash	<i>Fraxinus quadrangulata</i>	<p>This species typically occurs as a scattered tree, mixed with White Ash, Black Ash, Chinquapin Oak, Black Walnut and other southern broadleaf trees on floodplains and other limestone outcrops. The most drought-resistant of the native ashes.</p> <p>This species can be</p>	<ul style="list-style-type: none"> <li>• NHIC - Strathroy-Caradoc</li> </ul>	In Ontario this species is at the northern limits of its range and its populations are small and isolated.	<b>Suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		associated with the following ELC codes: <b>FOD,</b> <b>SWD.</b>			
Green Dragon	<i>Arisaema dracontium</i>	Species is a perennial wildflower which grows in wet forests along streams, particularly Maple forest and forest dominated by Red Ash and White Elm.  Can be associated with the following ELC codes: <b>FOD6, FOD7.</b>	• NHIC- 1 km	In Ontario Green Dragon grows at about 50 sites in the southwestern part of the province.	<b>No suitable habitat present</b>
Hooded Warbler	<i>Wilsonia citrina</i>	In Ontario this species breeds mainly in the Carolinian Zone, in the interiors of large upland tracts of mature deciduous and mixed forest, and in ravines. It selects habitats in which small openings in the forest canopy have permitted a dense growth of low understory shrubs, and it abandons areas once the vegetation becomes too thin or too tall.	• NHIC - Strathroy- Caradoc	In Ontario the largest populations are found in Haldimand-Norfolk and Elgin counties, and much smaller numbers are present in several other southwestern counties. It has been suggested that this species warbler may be expanding its range into eastern Ontario due to increased sightings in the Kingston area.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		This species can be associated with the following ELC codes: <b>FOD</b> . Mature forests with interior habitat and small openings containing a dense growth of low understory shrubs.			
Louisiana Waterthrush	<i>Seiurus motacilla</i>	Is a southern species that is typically associated with steep, forested ravines with fast-flowing streams.  Can be associated with the following ELC codes: <b>FOD</b> . Interior forest habitat containing a ravine and fast-slowing stream typically required.	• NHIC - 10 km	In Ontario it is estimated that about 300 pairs live along the Niagara Escarpment and in woodlands along Lake Erie, as well as scattered locations elsewhere.	<b>No suitable habitat present</b>
Monarch Butterfly	<i>Danaus plexippus</i>	The Monarch butterfly uses three different types of habitat at various stages of their life cycle. Caterpillars feed exclusively on milkweed plants and are confined to open areas where milkweed grows. Adult butterflies are found in a variety of habitats	• Habitat Assessment	In Canada the Monarch Butterfly is most abundant in southern Ontario and Quebec where milkweed plants and breeding habitat are widespread. During the late summer and fall this species migrates from Ontario	<b>Suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		where they feed on nectar from a variety of wildflowers.		to central Mexico where they spend the winter months. During their migration large groups numbering in the thousands congregate along the north shores of Lake Ontario and Lake Erie.	
Northern Map Turtle	<i>Graptemys geographica</i>	Species inhabits large bodies of water with soft bottoms, and aquatic vegetation. Can be found basking on logs or rocks as well as beaches and grassy edges. Usually uses soft soil or clean dry sand for nest sites, and may nest at some distance from water. Its home range size is larger for females (about 70 ha) than males (about 30 ha) and includes hibernation, basking, nesting and feeding areas. Their aquatic corridors (e.g. stream) are required for movement. Species is not	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	In southern Ontario, the Northern Map Turtle is found primarily on the shores of Georgian Bay, Lake St. Clair, Lake Erie and Lake Ontario. It can also be found along larger rivers including the Thames, Grand and Ottawa.	Suitable habitat present



Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		readily observed.  This species can be associated with the following ELC codes: <b>OA0</b> , <b>SA</b> .			
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	The Red-headed Woodpecker typically occurs in open deciduous forest, particularly those that are dominated by oak and beach, flood plain forest, grasslands, forest edges, orchards, pastures, parks, beaver ponds, recent burns and cutovers. In agricultural areas it prefers forests with shrub cover that is grazed by livestock with a high snag density.  This species can be associated with the following ELC codes: <b>TPS</b> , <b>TPW. FOD, SWD, CUM</b> , <b>CUT, CUS and CUW</b> . Open areas with snags	• NHIC - Strathroy- Caradoc	In Ontario the Red- headed Woodpecker is known to occur in the southern part of the province, the Lake of the Woods area and along the Ottawa River Valley.	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		required.			
Snapping Turtle	<i>Chelydra serpentina</i>	<p>Although Snapping Turtles have been observed in shallow water in almost every kind of freshwater habitat, the preferred habitat of the species is characterized by slow-moving water with a soft mud bottom and dense aquatic vegetation. Established populations are most often located in ponds, sloughs, shallow bays or river edges, and slow streams, or areas combining several of these wetland habitats. Individual turtles will persist in urbanized water bodies, such as golf course ponds and irrigation canals, but it is unlikely that a population could become established in such habitats.</p> <p>This species may be associated with the</p>	<ul style="list-style-type: none"> <li>NHIC - Strathroy-Caradoc</li> </ul>	In Canada Snapping Turtle can be found from Saskatchewan to Nova Scotia. In Ontario it is primarily limited to the southern portion.	<b>Suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		following ELC codes: <b>OAO</b> .			
Tuberous Indian-plantain	<i>Arnoglossum plantagineum</i>	This species grows in wet, sandy areas along river banks and wetlands near Lake Huron.  This species can be associated with the following ELC codes: <b>BBO</b> , <b>BBS1</b> , <b>SDO1</b> , <b>SDS1</b> , <b>SWT2</b> , <b>MAM</b> . Wet, sandy soils required.	• NHIC - Strathroy- Caradoc	In Ontario this species is known to occur at approximately 15 sites near Lake Huron, the majority of which are located on the west side of the Bruce Peninsula.	<b>No suitable habitat present</b>
Woodland Vole	<i>Microtus pinetorum</i>	In Ontario this species lives in mature deciduous forest where there is a deep litter layer that allows it to burrow.  Can be associated with the following ELC codes: <b>FOD</b> . Mature forests with a deep litter layer required.	• Strathroy- Caradoc	In Ontario this species is known from about 30 sites in Kent, Lambton, Elgin and Halton counties, and Haldimand-Norfolk and Hamilton-Wentworth regional municipalities. It is difficult to survey and may have been missed at other locations in the province.	<b>No suitable habitat present</b>
Yellow-breasted Chat	<i>Icteria virens</i>	This species is a large warbler which is typically associated thickets and	• NHIC - Strathroy- Caradoc	In Ontario this species is concentrated in Point Pelee National Park	<b>No suitable habitat present</b>

Common Name	Scientific Name	Preferred Habitat (Significant Wildlife Habitat Technical Guide, Species at Risk Registry & Ontario's Biodiversity - ROM)	Source of Information	Known Populations (ROM – Range Maps, MNR Publications & COSEWIC Reports)	Habitat Present within the Study Area (Y/N)
		<p>scrub habitat.</p> <p>This species can be associated with the following ELC codes: <b>CUT</b>, <b>CUS</b>, <b>SWT</b>.</p>		and Pelee Island in Lake Erie.	

# Attachment G

## Study Area Vegetation List



BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	COSEWIC STATUS	LOCAL STATUS MIDD
<b>GYMNOSPERMS</b>		<b>CONIFERS</b>						
<b>Cupressaceae</b>		<b>Cedar Family</b>						
<i>Thuja</i>	<i>occidentalis</i>	Eastern White Cedar	4	-3		S5		X
<b>DICOTYLEDONS</b>		<b>DICOTS</b>						
<b>Aceraceae</b>		<b>Maple Family</b>						
<i>Acer</i>	<i>negundo</i>	Manitoba Maple	0	-2		S5		C
<i>Acer X</i>	<i>freemanii</i>	Freeman's Maple						
<b>Apiaceae</b>		<b>Carrot or Parsley Family</b>						
<i>Daucus</i>	<i>carota</i>	Wild Carrot		5	-2	SE5		IC
<b>Asclepiadaceae</b>		<b>Milkweed Family</b>						
<i>Asclepias</i>	<i>syriaca</i>	Common Milkweed	0	5		S5		C
<b>Asteraceae</b>		<b>Composite or Aster Family</b>						
<i>Arctium</i>	<i>minus</i>	Common Burdock		5	-2	SE5		IC
<i>Aster</i>	<i>ericoides</i>	White Heath Aster	4	4		S5		C
<i>Symphyotrichum</i>	<i>lanceolatum</i>	Tall White Aster	3	-3		S5		C
<i>Symphyotrichum</i>	<i>novae-angliae</i>	New England Aster	2	-3		S5		C
<i>Centaurea</i>	<i>biebersteinii</i>	Spotted Knapweed		5	-3	SE5		I
<i>Cichorium</i>	<i>intybus</i>	Chicory		5	-1	SE5		IC
<i>Cirsium</i>	<i>vulgare</i>	Bull Thistle		4	-1	SE5		I
<i>Solidago</i>	<i>species</i>	Goldenrod species						
<b>Brassicaceae</b>		<b>Mustard Family</b>						
<i>Alliaria</i>	<i>petiolata</i>	Garlic Mustard		0	-3	SE5		IC
<b>Caprifoliaceae</b>		<b>Honeysuckle Family</b>						
<i>Lonicera</i>	<i>tatarica</i>	Tartarian Honeysuckle		3	-3	SE5		I
<b>Cornaceae</b>		<b>Dogwood Family</b>						
<i>Cornus</i>	<i>sericea</i>	Red-osier Dogwood	2	-3		S5		C
<b>Dipsacaceae</b>		<b>Teasel Family</b>						
<i>Dipsacus</i>	<i>fullonum ssp. sylvestris</i>	Wild Teasel		5	-1	SE5		IC
<b>Fagaceae</b>		<b>Beech Family</b>						
<i>Quercus</i>	<i>macrocarpa</i>	Bur Oak	5	1		S5		C
<b>Juglandaceae</b>		<b>Walnut Family</b>						
<i>Juglans</i>	<i>nigra</i>	Black Walnut	5	3		S4		X
<b>Oleaceae</b>		<b>Olive Family</b>						
<i>Fraxinus</i>	<i>americana</i>	White Ash	4	3		S5		C
<i>Fraxinus</i>	<i>pennsylvanica</i>	Red Ash	3	-3		S5		C
<b>Platanaceae</b>		<b>Plane-tree Family</b>						
<i>Platanus</i>	<i>occidentalis</i>	Sycamore	8	-3		S4		X
<b>Rosaceae</b>		<b>Rose Family</b>						
<i>Rosa</i>	<i>species</i>	Rose species						
<i>Rubus</i>	<i>idaeus</i>	Red Raspberry				SE1		
<b>Salicaceae</b>		<b>Willow Family</b>						
<i>Populus</i>	<i>deltoides ssp. deltoides</i>	Eastern Cottonwood	4	-1		SU		X
<i>Salix</i>	<i>species</i>	Willow species						
<i>Salix X</i>	<i>rubens</i>	Reddish Willow		-4	-3	SE4		IR
<b>Tiliaceae</b>		<b>Linden Family</b>						
<i>Tilia</i>	<i>americana</i>	American Basswood	4	3		S5		C
<b>Ulmaceae</b>		<b>Elm Family</b>						
<i>Celtis</i>	<i>occidentalis</i>	Common Hackberry	8	1		S4		X
<i>Ulmus</i>	<i>americana</i>	White Elm	3	-2		S5		X
<b>Urticaceae</b>		<b>Nettle Family</b>						
<i>Urtica</i>	<i>dioica ssp. gracilis</i>	American Stinging Nettle	2	-1		S5		C

BOTANICAL NAME		COMMON NAME	COEFFICIENT OF CONSERVATISM	WETNESS INDEX	WEEDINESS INDEX	PROVINCIAL STATUS	COSEWIC STATUS	LOCAL STATUS MIDD
<i>Vitis</i>	<i>riparia</i>	Riverbank Grape	0	-2		S5		C
<b>MONOCOTYLEDONS</b>		<b>MONOCOTS</b>						
<b>Poaceae</b>		<b>Grass Family</b>						
<i>Bromus</i>	<i>inermis ssp. inermis</i>	Awnless Brome		5	-3	SE5		IC
<i>Dactylis</i>	<i>glomerata</i>	Orchard Grass		3	-1	SE5		IC
<i>Phalaris</i>	<i>arundinacea</i>	Reed Canary Grass	0	-4		S5		X
<i>Phragmites</i>	<i>australis</i>	Common Reed	0	-4		S5		X

**FLORISTIC SUMMARY & ASSESSMENT****Species Diversity**

Total Species:	31	
Native Species:	20	64.52%
Exotic Species	11	35.48%

**Co-efficient of Conservatism and Floral Quality Index**

Co-efficient of Conservatism (CC) (average)		3.05	
CC 0 to 3	lowest sensitivity	10	50.00%
CC 4 to 6	moderate sensitivity	7	35.00%
CC 7 to 8	high sensitivity	2	10.00%
CC 9 to 10	highest sensitivity	0	0.00%

**Floral Quality Index (FQI)** 13.64**Presence of Weedy & Invasive Species**

mean weediness		-2.09	
weediness = -1	low potential invasiveness	4	36.36%
weediness = -2	moderate potential invasiveness	2	18.18%
weediness = -3	high potential invasiveness	5	45.45%

**Presence of Wetland Species**

average wetness value	0.71	
upland	7	22.58%
facultative upland	7	22.58%
facultative	5	16.13%
facultative wetland	12	38.71%
obligate wetland	0	0.00%

# Attachment H

## Photo Log



**Photograph 1. East bank of the Sydenham River (FOD7)  
north of the Albert Street Bridge**



**Photograph 2. West bank of the Sydenham River (FOD7)  
north of the Albert Street Bridge**



**Photograph 3. Community park west of the Sydenham  
River north east of the Albert Street Bridge**



**Photograph 4. East bank of Sydenham River (FOD7) south  
of Albert Street Bridge**



**Photograph 5. Barn Swallow nest underneath Albert Street Bridge**



**Photograph 6. Barn Swallow nest underneath Albert Street Bridge**



**Photograph 7. Active barn swallow nest underneath Albert Street Bridge (June 1, 2007)**



**Photograph 8. West bank of Sydenham River (FOD7) south of Albert Street Bridge**



**Photograph 9. East bank of Sydenham River (FOD7) south of Albert Street Bridge with SWD community in background**



**Photograph 10. CUM1-1 community west of Sydenham River south east of Albert Street Bridge**



# Appendix E

## Hydraulic Analysis Preliminary Findings

## Memorandum

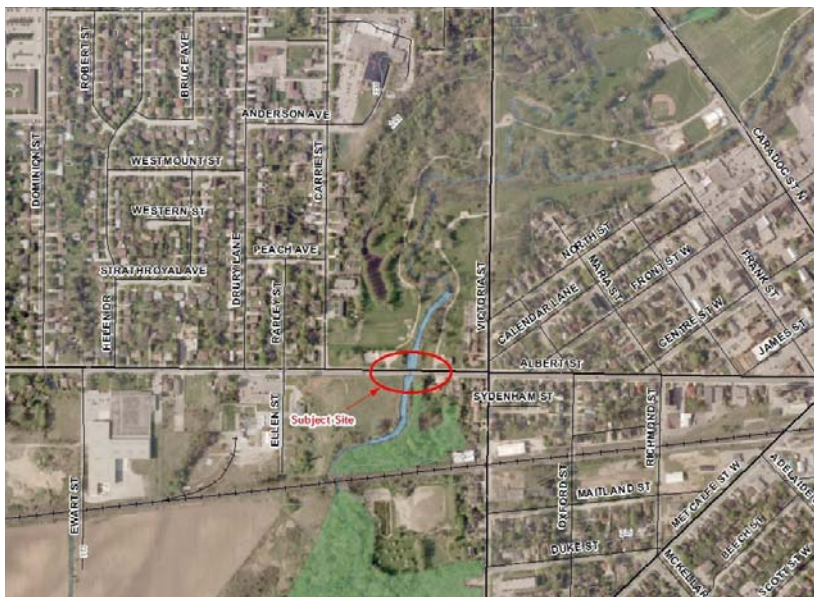
To	Chris Traini P.Eng. – County Engineer – (County of Middlesex) Girish Sankar P.Eng. – Water Resources Engineer – (St. Clair Region Conservation Authority)	Page 1
CC	Chris Moon P. Eng. (AECOM Water) John Pucchio P Eng. (AECOM Structures) Corri Marr (AECOM Planning)	
Subject	Albert Street Bridge Rehabilitation Hydraulic Analysis Preliminary Findings	
From	Robinson Puche – Intermediate Water Resources Tech. (AECOM Water)	
Date	March 25, 2013	Project Number 60275667

### 1. Background

AECOM has conducted a hydraulic analysis to assess the existing conditions as a baseline condition for the proposed rehabilitation of the Albert Street Bridge (bridge), Strathroy. The objective of the analysis is to update the Saint Clair Region Conservation Authority (Conservation Authority) model with additional topographic and bridge geometry detail to ensure that the bridge is accurately represented in the model and flood risks are adequately understood.

Albert Street (Middlesex County Road 39) is a two lane arterial road running east to west. The bridge crosses the Sydenham River approximately 150 m west of the Albert Street and Victoria Street intersection in the town of Strathroy. Plate 1 illustrates the location of the subject site.

#### Plate 1. Subject Site Location



## 2. Existing Conditions

Existing conditions at the bridge were determined through a review of background material, and the detail survey provided to AECOM by the County. The HEC-RAS model provided by the Conservation Authority was initially prepared to define regulatory flood extents on a watershed scale. The model did not include any crossings and only contained flows for the Regional Flood Event. The model's geometry was updated with the data from the detailed survey provided for both the Albert Street crossing and the rail crossing located approximately 250 m downstream. A new surveyed cross section between the two crossings was also added to the model and the low flow channel elevations updated to better match the detail survey provided. Flow data for the 2-year through 100-year event was added to the model as per the Saint Clair Region Conservation Authority Hydrology Study Technical Manual prepared by B.M. Ross and Associates Ltd. in 1997.

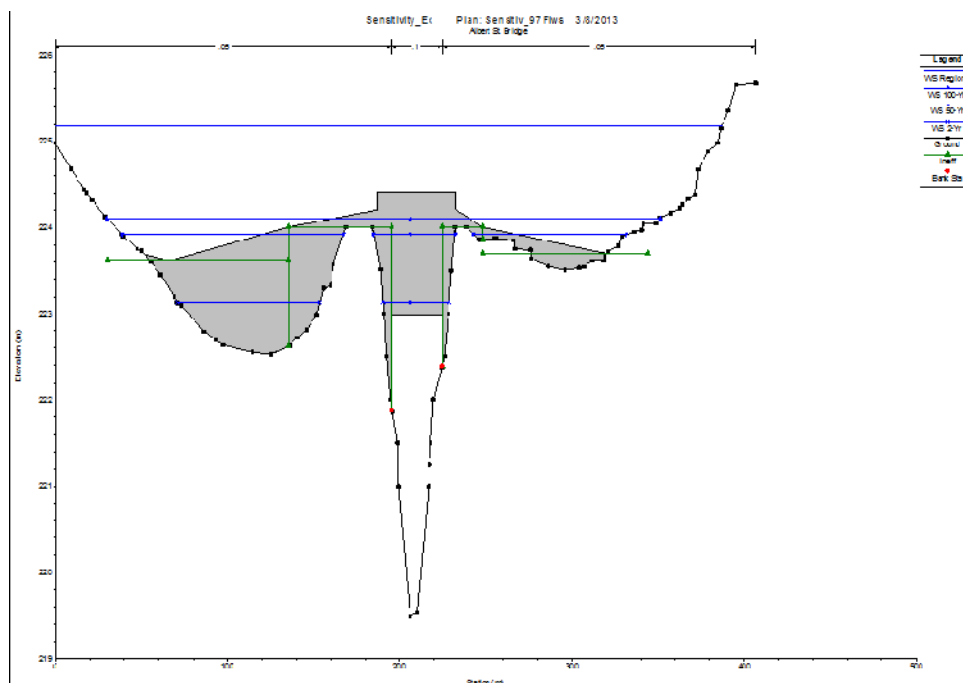
The details for the existing bridge crossing are:

Feature E	levation (m)
Bridge Soffit	222.98
Road Centerline at Crossing	224.30

The hydraulic results for the existing conditions are:

Flood Event	Elevation (m)	Bridge Soffit Clearance (m)	Road Centerline Clearance at Crossing(m)
2-year	223.13	-0.15	1.17
50-year	223.92 -0.94		0.38
100-year	224.10	-1.12	0.20
Regional	225.18 -2.2		-0.88

**Figure 1. Bridge Cross-Section**



### **3. Preliminary Findings**

The preliminary analysis has determined the following constraints for consideration:

1. Flood elevations at the crossing are controlled by downstream features, i.e. increasing hydraulic conveyance of the crossing with the proposed bridge will not lower flood elevations;
2. A proposed bridge replacement that does not reduce hydraulic conveyance will not adversely affect flood elevations at the crossing;
3. The existing crossing does not meet the Canadian Highway Bridge Design Code (CHBDC, Section 1.9.7.1) requirement of a 1.0 m soffit clearance for the 50-year event. However, the existing bridge will convey the 50-year event under a submerged condition (with no clearance);
4. An improvement to soffit clearance for the 50-year event could be achieved by raising the soffit in the proposed new bridge crossing. However, it is not likely possible to convey the entire flow under the bridge without considering an increase to the roadway grade. The CHBDC permits the owner of the structure to accept less clearance;
5. The preliminary General Arrangement of the proposed new bridge includes a soffit elevation of 223.15, which is sufficient to fully convey the 2-year event under the bridge (with no clearance);
6. The existing crossing does not overtop at the bridge under the 100-year flood event. However, the road does start to overtop approximately 25 m to the west and approximately 10 m to the east of the crossing under the 100-year flood event. Without raising the road it is not possible to convey the 100-year and 250-year flood events through the bridge opening alone.

Given the constraints associated with raising Albert Street and prior to advancing the design, AECOM is requesting acceptance from the County of Middlesex and the Conservation Authority for a bridge design that incorporates a soffit elevation suitable to convey the 2-year event under the bridge with no clearance. This arrangement will essentially match existing conditions with potentially a slight improvement to the existing bridge hydraulics.

## Martin, Nancy

---

**From:** Dallas Cundick [dcundick@scrca.on.ca]  
**Sent:** Tuesday, October 01, 2013 3:18 PM  
**To:** Martin, Nancy  
**Subject:** RE: Albert Street Bridge Replacement EA

**Categories:** Red Category

Hello Nancy,

Further to your message below, it is our understanding that AECOM is completing a Class EA for the Albert Street Bridge Replacement as they have been retained by the County, and further, that you are ready to finalize your screening report and make it available for public review in regard to the Albert Street Bridge Replacement EA.

The Authority has received and reviewed the following information;

---

Aecom sent a memo to the CA explaining the issues with flood levels and the existing / proposed new bridge. Below is a brief summary.

- Flood elevations at the crossing are controlled by downstream features. Increasing the hydraulic conveyance of the Albert Street crossing will not lower flood elevations.
- The proposed bridge replacement does not reduce hydraulic conveyance and will not adversely affect flood elevations at the crossing.
- The general arrangement of the new bridge provides a soffit elevation of 223.15 m, which is sufficient to fully convey the 2-year event under the bridge (with no clearance).
- The existing crossing does not meet the Canadian Highway Bridge Design Code (CHBDC, Section 1.9.7.1) requirement of a 1.0 m soffit clearance for the 50-year event. However, the existing bridge will convey the 50-year event under a submerged condition (with no clearance). It is not possible to raise the bridge without a significant increase to the roadway grade and considerable impacts to adjacent residential properties.
- The existing crossing does not overtop at the bridge under the 100-year flood event. However, the road does start to overtop approximately 25 m to the west and approximately 10 m to the east of the crossing under the 100-year flood event. Without raising the entire road it is not possible to convey the 100-year and 250-year flood events through the bridge opening alone.
- The County of Middlesex has accepted the structure with less clearance, as is permissible by the Canadian Highway Bridge Design Code.

The Authority also reviewed the following information;

---

To follow up on our latest conversation over the phone, here is a summary of the flood impacts associated with the rehabilitation of the Albert Street Bridge.

The existing bridge soffit seats at 222.98. Table 1 summarizes the existing flood elevations in the vicinity of the Albert Street bridge.

**Table 1. Existing Condition Flood Elevations in Vicinity of Albert Street Bridge**

Cross Section	Flood Elevation (m)			
	2-Year	50-Year	100-Year	Regional
4839.022	223.32 224.13	224.27		225.30
4735.462	223.31	224.11	224.25	225.27
4634.995	223.27 224.08	224.22		225.25

Cross Section	Flood Elevation (m)			
4527.152	223.25	224.07	224.20	225.23
4418.711	223.24 224.06	224.19		225.22
4326.084	223.21	224.04	224.17	225.20
4303.994	223.15 224.03	224.16		225.20
4292.600	Albert Street Bridge			
4278.724	223.04 223.69	223.85		225.17
4175.251	222.92	223.61	223.77	225.14
4071.778	222.84 223.51	223.67		225.01
4059.778	Rail Crossing			

AECOM proposes to raise the soffit from the existing 222.98m elevation to a proposed soffit elevation of 223.15m. Table 2 summarizes the flood elevations in the vicinity of the bridge associated with the proposed higher soffit.

**Table 2. Proposed Condition Flood Levels in Vicinity of Albert Street Bridge**

Cross Section	Flood Elevation (m)			
	2-Year	50-Year	100-Year	Regional
4839.022	223.28 224.10	224.24		225.30
4735.462	223.26	224.08	224.22	225.27
4634.995	223.22 224.05	224.19		225.25
4527.152	223.20	224.03	224.18	225.23
4418.711	223.19 224.02	224.16		225.22
4326.084	223.15	224.00	224.15	225.20
4303.994	223.09 223.98	224.13		225.20
4292.600	Albert Street Bridge			
4278.724	223.04 223.69	223.85		225.17
4175.251	222.92	223.61	223.77	225.14
4071.778	222.84 223.51	223.67		225.01
4059.778	Rail Crossing			

The proposed works result in a decrease in flood elevations upstream of the bridge from 0.02m to 0.06m for the 2-year through 100-year flood events. The flood elevations for the Regional event as well as the downstream flood conditions of the bridge remain unchanged. Table 3 summarizes these findings.

**Table 3. Comparison of Existing and Proposed Condition Flood Levels in Vicinity of Albert Street Bridge**

Cross Section	Flood Elevation (m)			
	2-Year	50-Year	100-Year	Regional
4839.022	0.04 0.03		0.03	0.00
4735.462	0.05	0.03	0.03	0.00
4634.995	0.05 0.03		0.03	0.00
4527.152	0.05	0.04	0.02	0.00
4418.711	0.05 0.04		0.03	0.00
4326.084	0.06	0.04	0.02	0.00
4303.994	0.06 0.05		0.03	0.00
4292.600	Albert Street Bridge			
4278.724	0.00 0.00		0.00	0.00
4175.251	0.00	0.00	0.00	0.00
4071.778	0.00 0.00		0.00	0.00
4059.778	Rail Crossing			

At the Albert Street Crossing (XS 4292.600 BR U), the proposed higher bridge soffit results in a decrease in flood elevations at the bridge from 0.04m to 0.05m for the 2-year through 100-year flood events. The Regional flood elevations remains unchanged. Table 4 summarizes these results.



**Table 4. Comparison of Existing and Proposed Condition Flood Levels at Albert Street Bridge (XS 4292.600 BR U)**

Flood Event	Water Surface Elevation Existing Soffit(m)	Water Surface Elevation Proposed Soffit(m)	Change(m)
2-year	223.13	223.08	0.05
50-year	223.92 223.87		0.05
100-year	224.10	224.06	0.04
Regional	225.18 225.18		0.00

This project is currently on hold until receipt of the Conservation Authority's buy-in. AECOM are requesting acceptance from the Conservation Authority for a bridge design that incorporates a soffit elevation suitable to convey the 2-year event under the bridge with no clearance (223.15m). This arrangement will essentially result in a slight improvement to the existing flood conditions at the bridge and upstream of it. A prompt response would be highly appreciated.

At this time, I would like to reiterate that I can confirm that the project is impacted by the Authority's "Development, Interference with Wetlands and Alterations to Shoreline and Watercourses" regulation implemented by the Authority pursuant to Section 28 of the *Conservation Authorities Act*. Written permission of the Authority is required prior to commencement of development activities within a regulated area. Development activities include: construction, reconstruction, or placement of a structure; placement or removal of fill; re-grading; altering a watercourse or shoreline; or interfering with the function of a wetland.

Our application form can be found on our website at:

[http://www.scrca.on.ca/Publications/Regs\\_DIWASW\\_Form.pdf](http://www.scrca.on.ca/Publications/Regs_DIWASW_Form.pdf)

The application form needs to be signed by the landowner, or alternatively our landowner authorization form can be completed to allow an agent to act on behalf of the landowner. Landowner Authorization Form can be found at the following link;

[http://www.scrca.on.ca/Publications/Regs\\_LandownerAuth\\_Form.pdf](http://www.scrca.on.ca/Publications/Regs_LandownerAuth_Form.pdf)

In support of an application for a Bridge Replacement, we generally require the following support information:

1. Site plan;
2. Drawings showing the existing crossing and proposed crossing, with dimensions;
3. Detailed design drawings;
4. Construction details, methods, etc.;
5. Hydraulic/Hydrologic analysis;
6. Proposed sediment and erosion control details;
7. Restoration/Rehabilitation Plan;
8. Timing of the Works;

The application fee for the bridge replacement is \$300.00. Cheques should be made payable to the St. Clair Region Conservation Authority. The above is not a complete list of permit application requirements but provides the general requirements at this preliminary stage. Once the EA has been completed and the preferred alternative selected more detailed requirements can be provided.

The Authority has an agreement with the Department of Fisheries and Oceans (DFO) to screen projects on their behalf for potential impacts to fish and fish habitat. It should be expected that any project proposing a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat would be referred to DFO for their review.

Provide a detailed application is submitted that addresses the natural hazard concerns to the satisfaction of the SCRC (i.e. application demonstrates that there are no adverse impacts to the control of flooding and erosion etc.), at this time I can confirm that the Authority has no preliminary objections to the proposed bridge rehabilitation/replacement as understood above.

If you have any questions regarding the above, do not hesitate to contact me.

Dallas Cundick  
Environmental Planner/Regulations Officer  
St. Clair Region Conservation Authority  
205 Mill Pond Crescent  
Strathroy, Ontario  
N7G 3P9

Phone: 519-245-3710  
Fax: 519-245-3348

# Appendix F

## Geotechnical Investigation



**April 2013**

## **GEOTECHNICAL INVESTIGATION**

### **Proposed Albert Street Bridge Replacement Albert Street Strathroy, Ontario**

**Submitted to:**

Mr. John Pucchio, P.Eng., Project Engineer  
AECOM Canada Ltd.  
Citi Plaza  
250 York Street, Suite 410  
London, Ontario  
N6A 6K2

REPORT



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## **GEOTECHNICAL INVESTIGATION PROPOSED ALBERT STREET BRIDGE REPLACEMENT**

---

April 9, 2013

Project No. 12-1132-0133-1000-R01

AECOM Canada Ltd.  
Citi Plaza  
250 York Street, Suite 410  
London, Ontario  
N6A 6K2

Attention: Mr. John Pucchio, P.Eng., Project Engineer

**GEOTECHNICAL INVESTIGATION  
PROPOSED ALBERT STREET BRIDGE REPLACEMENT  
ALBERT STREET  
STRATHROY, ONTARIO**

Dear Mr. Pucchio:

This report presents the results of the geotechnical exploration carried out for the design of the replacement of the Albert Street Bridge over the Sydenham River. The bridge is located in the southwest quadrant of Strathroy on Middlesex County Road 39 (Albert Street), in the Township of Strathroy-Caradoc, Ontario, as shown on the Key Plan, Figure 1.

### **1.0 INTRODUCTION**

The purpose of the investigation was to explore the subsurface soil and groundwater conditions at the site and to provide geotechnical engineering recommendations for the design of the proposed bridge replacement. Authorization to proceed with the work described in this report, carried out in accordance with our proposal dated July 30, 2012 and subsequent correspondence, was provided in an e-mail from Mr. David Carter, P.Eng. of AECOM Canada Ltd. (AECOM) on November 16, 2012.

Important information on the limitations of this report is attached.

### **2.0 SITE DESCRIPTION AND GEOLOGY**

The Albert Street Bridge crosses the Sydenham River between Carrie Street and Victoria Street in the southwest quadrant of Strathroy, Ontario. Alexandra Park is located to the north of the site on both sides of the river with a municipal pumping station located to the northeast of the bridge site (see Figure 1). Residential homes are located to the southeast of the site with undeveloped lands to the southwest.



## GEOTECHNICAL INVESTIGATION PROPOSED ALBERT STREET BRIDGE REPLACEMENT

A number of utilities cross the river on both sides of Albert Street such as watermains and forcemains based on the utility clearances carried out for the boreholes. The tableland ground surface at the site is relatively flat with ground surface elevations of 224.2 and 224.1 metres on the east and west sides of the river, respectively, based on the borehole elevations. The water level in the river was at elevation 220.6 metres at the time of the investigation.

The existing bridge is a steel truss, single-span structure with a sidewalk on the north side. The October 1937 drawings provided by AECOM indicate that the existing bridge is founded on about 70 piles per abutment in three parallel rows following the abutment and wingwall footprint. Details on the existing pile type or length are not provided on the drawing, though it is presumed that the piles may be timber. Based on the drawing, the underside of pile cap/abutments are at approximately elevation 217.8 metres.

The site is located in the physiographic region of Southwestern Ontario known as the Caradoc Sand Plains. The soils reportedly consist of waterlain fine sands and silts<sup>1</sup>. The bedrock reportedly consists of shale and limestone of the Hamilton Group Middle Devonian Age. Based on the Ontario Geological Survey Preliminary Map P.1564 Bedrock Topography Series Strathroy Area mapping, the bedrock surface is at about elevation 160 metres or about 64 metres below the ground surface at the site.

### 3.0 PROCEDURE

The field work for this investigation was carried out in two phases. The initial phase was carried out on December 19, 2012 at which time borehole 101 was drilled to a depth of about 21.8 metres below ground surface. In addition, four pavement boreholes, numbered 103 to 106, and six pavement cores, numbered 1 to 6, were drilled to determine the existing pavement structure and the presence of concrete pavement. Subsequently, on January 10 and 11, 2013, borehole 101 was deepened to about 35.5 metres below ground surface. Borehole 102 was drilled to a depth of about 25 metres. The drilling for this phase was carried out between January 8 and 11, 2013. The borehole and core locations are shown on the Plan, Figure 1.

Standard penetration testing and sampling was carried out in boreholes 101, 101A, and 102 using 38 millimetre inside diameter split spoon sampling equipment in accordance with the standard penetration test (SPT) procedures of ASTM D 1586 and an automatic hammer. The soil stratigraphy encountered in boreholes 101, 101A, and 102 is shown in detail on the Record of Borehole sheets following the text of this report. The stratigraphy encountered in the pavement boreholes and cores is summarized in Tables I and II, respectively.

Groundwater seepage levels were observed in the boreholes during drilling and a piezometer was installed in borehole 101 as detailed on the Record of Borehole sheets. Upon completion of sampling, in situ testing and standpipe and piezometer installation, the boreholes were loosely backfilled in accordance with the current regulations and the roadway surface restored with cold mix asphalt.

---

<sup>1</sup> L.J. Chapman and D.F. Putnam: The Physiography of Southern Ontario, Third Edition. Ontario Geological Survey, Special Volume 2, 1984.





## GEOTECHNICAL INVESTIGATION PROPOSED ALBERT STREET BRIDGE REPLACEMENT

All of the samples obtained during the investigation were brought to our laboratory for further examination and representative classification testing. The results of the field and laboratory testing are shown on the Record of Borehole sheets and on Figures 2 to 6.

The borehole and core locations were designated in the field by members of our engineering staff who also arranged for underground utility clearances, supervised the drilling, sampling and penetration testing, logged the boreholes, cared for the samples obtained, and provided temporary traffic control.

The ground surface elevations at the borehole locations were referenced to a benchmark provided by AECOM. The benchmark is described as a crosscut on the southerly corner of the concrete headwall, on the west side of Sydenham River, 19 metres north of the north limit of Albert Street, which is understood to have a geodetic elevation of 222.45 meters.

### 4.0 SUBSURFACE CONDITIONS

#### 4.1 General

The subsurface conditions encountered in the boreholes and cores advanced at the site are shown on the attached Record of Borehole sheets and Tables I and II. The following paragraphs have been simplified in terms of major soil strata for the purposes of geotechnical design. The soil boundaries indicated have been inferred from non-continuous samples and observations of sampling and drilling resistance and typically represent a transition from one soil type to another. They should not necessarily be interpreted to represent exact planes of geological change. Further, the subsurface conditions will vary between and beyond the borehole locations.

#### 4.2 Soil Conditions

The soil conditions encountered in the boreholes generally consisted of the pavement structure, topsoil and fill over complex interlayered strata of fine sand, silt and silty clay.

Materials designated as topsoil in this report were classified solely based on visual and textural evidence. Testing of organic content or for other nutrients was not carried out. Therefore, the use of materials classified as topsoil cannot be relied upon for support and growth of landscaping vegetation.



### 4.2.1 Fill

Boreholes 101 and 102 encountered fill at the ground surface to depths of about 5.2 and 4.6 metres, respectively. The fill generally consisted of fine sand with silt, topsoil and wood. The fill had measured N values as determined by the standard penetration testing from 2 to 9 blows per 0.3 metres. According to ASTM D1586, the SPT resistance, or N value, is defined as the number of blows required by a 63.5 kilogram hammer dropped from a height of 760 millimetres to drive a split-spoon sampler a distance of 300 millimetres, after an initial 150 millimetres of penetration.

The fill exhibited water contents ranging from 8 to 33 per cent with an average of about 19 per cent. A sample of the fill in borehole 101 had a water content of 67 per cent, likely due to the presence of wood and topsoil within the sample.

### 4.2.2 Pavement Structure

Boreholes 103, 104 and 106 and cores 1 through 6 were advanced through the asphaltic concrete pavement surface. The pavement ranged in thickness from about 80 to 170 millimetres with average thicknesses of about 135 and 145 millimetres on the west and east sides of the bridge, respectively.

Concrete was encountered beneath the pavement in cores 1, 4, 5 and 6 and beneath the granular fill in borehole 105. Cores 1, 4, 5 and 6 were terminated in the concrete. The concrete was about 170 millimetres thick in borehole 105.

Granular base and subbase materials were encountered in boreholes 103 and 104 and were about 0.42 to 0.53 thick.

### 4.2.3 Sand

Loose to compact sand was encountered below the fill in boreholes 101 and 102. The sand varied in grain size distribution from fine to medium sand to silty sand. The sand layers ranged from about 5.5 to 7.6 metres in thickness. The sand had measured N values ranging from 3 to 21 blows per 0.3 metres. The sand exhibited water contents ranging from 17 to 37 per cent with an average of about 23 per cent. The results of grain size analyses carried out on two standard penetration test samples of the sand are shown on Figures 2 and 3.



### 4.2.4 Upper Silt

Layers of silt and sandy silt were encountered beneath the upper sand in boreholes 101 and 102. The silt layers ranged in thickness from 6.4 to 7.6 metres. The silt and sandy silt had measured N values ranging from 5 to 25 blows per 0.3 metres. The silt had water contents ranging from 21 to 27 per cent with an average of about 24 per cent. The results of a grain size analysis carried out on a standard penetration test sample of the sandy silt are shown on Figure 4.

### 4.2.5 Silty Clay

Layers of silty clay were encountered in boreholes 101, 101A and 102. The silty clay layers were encountered beneath the upper and lower silt layers in boreholes 101, 101A and 102. The silty clay layers ranged in thickness from about 0.8 to 4.0 metres where fully penetrated. Boreholes 101, 101A and 102 were terminated in a silty clay layer.

The silty clay had measured N values ranging from 6 to 26 blows per 0.3 metres. The silty clay samples exhibited water contents ranging from 19 to 28 per cent with an average of about 22 per cent. The silty clay had corresponding average plastic and liquid limits of 17 and 33 per cent, respectively, based on three Atterberg limits determinations, the results of which are shown on Figure 6.

### 4.2.6 Lower Silt

Layers of silt were encountered within the silty clay in boreholes 101A and 102. The silt layers ranged in thickness from about 0.7 to 2.4 metres and varied in grain size distribution from silt, some clay, trace sand to sandy silt. The silt had measured N values ranging from 16 to 80 blows per 0.3 metres with the higher N values measured in borehole 102. The silt exhibited water contents ranging from about 18 to 24 per cent with an average of about 22 per cent. The results of a grain size analysis carried out on a standard penetration test sample of the silt are shown on Figure 5.

## 4.3 Groundwater

Groundwater conditions were observed in the boreholes during drilling and a piezometer was installed in borehole 101 as shown on the Record of Borehole sheets. The results of the observations and measured groundwater levels are shown on the Record of Borehole sheets and are summarized below.



## GEOTECHNICAL INVESTIGATION PROPOSED ALBERT STREET BRIDGE REPLACEMENT

Borehole	Ground Surface Elevation (m)	Installation	Groundwater Level Elevation (m)			
			Encountered	Jan. 10/13	Jan. 14/13	Mar. 21/13
101	224.06	Piezometer	219.9	221.0	222.1	221.3
101A	223.94	-	-	-	-	-
102	224.20	-	221.2	-	-	-

The water level in the Sydenham River was measured at elevation 220.6 metres on January 10, 2013.

It should be noted that the groundwater level will vary significantly in response to significant precipitation events.

## 5.0 DISCUSSION

The existing single-span bridge on Albert Street over the Sydenham River in Strathroy is to be replaced. Based on the preliminary information provided by AECOM, the proposed replacement structure will be a single span about 34 metres in length with integral abutments. The preliminary design indicates that the abutments will have their bases at about elevation 221.6 metres and will be up to about 1.8 metres wide and 14 metres in length. The preliminary total loads per metre length of abutment, as provided by AECOM, are 710 kilonewtons at Ultimate Limit States (ULS) and 550 kilonewtons at Serviceability Limit States (SLS). It is understood that the new abutments will be constructed outside the footprints of the existing abutments.

This section of the report provides our interpretation of the factual geotechnical data obtained during the investigation and it is intended for the guidance of the design engineer. Where comments are made on construction, they are provided only to highlight those aspects which could affect the design of the project. Contractors bidding on or undertaking the works should make their own interpretation of the subsurface information provided as it affects their proposed construction methods, equipment selection, scheduling and the like.

## 5.1 Foundations

Based on the results of this investigation, the near surface soils are not suitable for the support of shallow foundations. Consideration may be given to utilizing H-Piles or steel tube piles.

An integral abutment structure supported on HP 310x110 H-Piles or 305 millimetre diameter steel pipe piles is geotechnically feasible, however due to the subsurface conditions encountered in the boreholes, H-piles would be approximately 7 metres longer than pipe piles.



## GEOTECHNICAL INVESTIGATION PROPOSED ALBERT STREET BRIDGE REPLACEMENT

Based on the above, and in order to achieve the preliminary loads of 710 kilonewtons at ULS and 550 kilonewtons at SLS, a single row of either pile type would need to be driven to depths of greater than 35 metres. This is considered not to be geotechnically feasible and to be cost prohibitive.

Alternatively, the preliminary design loads may be achieved by driving two rows of steel tube or H-Piles to 15 or 22 metres, respectively.

Closed-end steel tube or H-Piles driven in rows to the elevations indicated may be designed using the geotechnical resistances noted in the table below. The nature of the soils at the site renders impractical the use of a single row of piles because of the extensive and inefficient pile lengths that would be required. The SLS values correspond to a maximum of 25 millimetres of total settlement for new abutment construction. The geotechnical resistance values and pile lengths provided below are also consistent with previous projects in the area<sup>2</sup>.

Pile Type	Assumed Cut-off Elevation (m)	Recommended Tip Elevation (m)	Proposed Pile Length (m)	Factored Geotechnical Resistance at ULS (kN)	Geotechnical Reaction at SLS (kN)
305 mm dia. Steel Tube Piles	221.6	206.6	15	360	240
HP 310 x 110 H-Piles	221.6	199.6	22	360	240

For steel tube piles up to a maximum length of 22 metres, an increase in the factored geotechnical resistance at ULS of 26 kilonewtons per metre of additional driven pile length with a corresponding increase in geotechnical reaction at SLS of 17 kilonewtons per metre of additional driven pile length may be used for design of piles driven deeper than indicated in the table above. The HP 310x110 H piles may be extended to a maximum length of 34 metres resulting in an increase in the factored geotechnical resistance at ULS of 20 kilonewtons per metre of additional driven pile length and a corresponding increase of the geotechnical reaction at SLS of 13 kilonewtons per metre.

Piles should be installed and monitored in accordance with Ontario Provincial Standard Specification (OPSS) 903. The maximum ultimate resistance of two times the factored ULS value shown in the above table should also be noted on the foundation drawing.

The actual pile penetration and pile set characteristics will be dependent, to some extent, upon the driving equipment selected by the contractor, the pile type and the design loads. It is recommended that, following the selection of the driving equipment, the piling contractor submit for review to the geotechnical engineer the proposed pile driving criteria based on the characteristics of the hammer and equipment intended for use. The pile driving operations should be carefully monitored by this office to confirm that the design pile capacities are being achieved and that appropriate pile re-tapping is carried out.

<sup>2</sup> "Pile Foundations, Sydenham River Bridge at Strathroy, Bridge Site: 19-205, Highway 81, District 2, W.P. 326-61, W.J. 64-F-86," letter report, Department of Highways Ontario, dated February 19, 1965; and "Foundation Investigation Report, Highway #81 and Sydenham River, County of Middlesex, Town of Strathroy, District #2, W.J. 64-F-86, W.P. 326-61," report, Department of Highways Ontario, dated October 27, 1964.



## **5.2 Excavations**

Based on the results of this investigation, the excavations will encounter the existing pavement structure, topsoil, sand fill materials, sand and silty sand. Information provided by AECOM indicates that the excavations for the pile caps and abutments will extend to about elevation 221.6 metres and will be terminated in the very loose sand fill some 2.5 metres below ground surface and about 0.3 metres above the groundwater level and 1.0 metres above the river water level. Based on the information provided, the existing abutments may remain in place and the upper portion of the piles will not be isolated from the existing abutment or fill materials. Thus, it is considered that sufficient groundwater control may be achieved by pumping from properly filtered and constructed sumps in the base of the excavation.

Care will be required to ensure that all fill, concrete, and otherwise unsuitable material associated with the existing bridge is removed from the excavations. To provide a working platform, the base of the foundation excavation should be provided with a 150 millimetre thick layer of crushed stone placed on a geotextile. Depending on the time of year and weather, it may be necessary to pump from properly filtered sumps in the base of the excavation. It is understood that the existing abutments may remain in place.

Care should be taken to direct all surface water away from open excavations.

## **5.3 Backfill**

Backfill adjacent to the abutments should consist of free draining Granular B Type I material. Lateral earth pressures against the abutments may be estimated using parameters outlined in the Canadian Highway Bridge Design Code. For design purposes, a coefficient of lateral earth pressure of 0.5 and a total unit weight of 2.2 megagrams per cubic metre (or 22 kilonewtons per metre cubed) may be used for analysis. The Granular B backfill should be placed in loose lift thicknesses not exceeding 200 millimetres and be uniformly compacted to at least 98 per cent of standard Proctor maximum dry density. Effective drainage of the backfill should be provided using properly filtered weep holes and drains.

It is understood that the road grade will not be changed. However, should an embankment be required, some settlement of the new fill is expected as a result of compression of the underlying very loose soils. Any new fills should be placed as early as possible in the construction schedule to minimize the effects of these settlements on the completed roadway.





### 5.4 Erosion and Scour Protection

It is considered that erosion and scour protection adjacent to, as well as both upstream and downstream of the abutments will be required. Suitably sized rip rap or an appropriate commercially available erosion control product may be used depending on the results of hydraulic analyses carried out by others. Based on the nature of the soils, the provision of a robust, non-woven separation geotextile beneath any rip rap is required.

### 5.5 Pavements

Recommended thicknesses and types of materials for new pavement reconstruction associated with the proposed bridge replacement are provided in the table below.

Component	Thickness (mm)
HL 3 Surface Asphalt	50
HL 8 Binder Asphalt	100 (2@50)
Granular A Base	150
Granular B Subbase	400

The Granular A base and Granular B subbase material should be uniformly compacted to at least 98 per cent of the standard Proctor maximum dry density. The asphaltic materials should be produced, placed and compacted in accordance with Ontario Provincial Standard Specifications (OPSS) requirements for medium duty pavements.

Transitions will be required where the new pavement abuts the existing pavements. Milled notches 50 millimetres deep and 300 millimetres wide should be provided at these locations and care should be taken to properly tack coat all butt joints and milled surfaces.

To minimize the potential detrimental effects of differential settlements of the new abutment backfill and approach fills, it would be prudent to defer the placement of the final surface wearing/riding course one year after placement of all other pavement structure.

### 5.6 Geotechnical Inspection and Testing

It is recommended that geotechnical involvement continues throughout the design, tender and construction phases of this project. In addition to a review of the geotechnical aspects of the contractor's work plans, a regular program of geotechnical inspections and materials testing should be carried out during construction to confirm that the subsurface conditions encountered are consistent with those encountered during the investigation, that the intent of this report is met, and that the various material and project specifications are



## GEOTECHNICAL INVESTIGATION PROPOSED ALBERT STREET BRIDGE REPLACEMENT

being achieved. Geotechnical inspections should be carried out during the pile driving to confirm the set criteria and pile performance during retapping of piles.

We trust that this report provides sufficient geotechnical information presently required. Should any point require further clarification, or when we can be of additional assistance, please contact this office.

**GOLDER ASSOCIATES LTD.**

**ORIGINAL SIGNED**

David J. Mitchell

DJM/SJB/cr

Attachments:

- Limitations
- Tables I and II
- Method of Soil Classification
- Symbols and Terms Used on Records of Boreholes and Test Pits
- List of Symbols
- Records of Boreholes
- Figures 1 to 6

**ORIGINAL SIGNED**

Storer J. Boone, Ph.D., P.Eng.  
Associate

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## **IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT**

**Standard of Care:** Golder Associates Ltd. (Golder) has prepared this report in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this report. No other warranty, expressed or implied is made.

**Basis and Use of the Report:** This report has been prepared for the specific site, design objective, development and purpose described to Golder by the Client. The factual data, interpretations and recommendations pertain to a specific project as described in this report and are not applicable to any other project or site location. Any change of site conditions, purpose, development plans or if the project is not initiated within eighteen months of the date of the report may alter the validity of the report. Golder can not be responsible for use of this report, or portions thereof, unless Golder is requested to review and, if necessary, revise the report.

The information, recommendations and opinions expressed in this report are for the sole benefit of the Client. No other party may use or rely on this report or any portion thereof without Golder's express written consent. If the report was prepared to be included for a specific permit application process, then upon the reasonable request of the client, Golder may authorize in writing the use of this report by the regulatory agency as an Approved User for the specific and identified purpose of the applicable permit review process. Any other use of this report by others is prohibited and is without responsibility to Golder. The report, all plans, data, drawings and other documents as well as all electronic media prepared by Golder are considered its professional work product and shall remain the copyright property of Golder, who authorizes only the Client and Approved Users to make copies of the report, but only in such quantities as are reasonably necessary for the use of the report by those parties. The Client and Approved Users may not give, lend, sell, or otherwise make available the report or any portion thereof to any other party without the express written permission of Golder. The Client acknowledges that electronic media is susceptible to unauthorized modification, deterioration and incompatibility and therefore the Client can not rely upon the electronic media versions of Golder's report or other work products.

The report is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report. In order to properly understand the suggestions, recommendations and opinions expressed in this report, reference must be made to the whole of the report. Golder can not be responsible for use of portions of the report without reference to the entire report.

Unless otherwise stated, the suggestions, recommendations and opinions given in this report are intended only for the guidance of the Client in the design of the specific project. The extent and detail of investigations, including the number of test holes, necessary to determine all of the relevant conditions which may affect construction costs would normally be greater than has been carried out for design purposes. Contractors bidding on, or undertaking the work, should rely on their own investigations, as well as their own interpretations of the factual data presented in the report, as to how subsurface conditions may affect their work, including but not limited to proposed construction techniques, schedule, safety and equipment capabilities.

**Soil, Rock and Groundwater Conditions:** Classification and identification of soils, rocks, and geologic units have been based on commonly accepted methods employed in the practice of geotechnical engineering and related disciplines. Classification and identification of the type and condition of these materials or units involves judgment, and boundaries between different soil, rock or geologic types or units may be transitional rather than abrupt. Accordingly, Golder does not warrant or guarantee the exactness of the descriptions.

## **IMPORTANT INFORMATION AND LIMITATIONS OF THIS REPORT (cont'd)**

Special risks occur whenever engineering or related disciplines are applied to identify subsurface conditions and even a comprehensive investigation, sampling and testing program may fail to detect all or certain subsurface conditions. The environmental, geologic, geotechnical, geochemical and hydrogeologic conditions that Golder interprets to exist between and beyond sampling points may differ from those that actually exist. In addition to soil variability, fill of variable physical and chemical composition can be present over portions of the site or on adjacent properties. **The professional services retained for this project include only the geotechnical aspects of the subsurface conditions at the site, unless otherwise specifically stated and identified in the report.** The presence or implication(s) of possible surface and/or subsurface contamination resulting from previous activities or uses of the site and/or resulting from the introduction onto the site of materials from off-site sources are outside the terms of reference for this project and have not been investigated or addressed.

Soil and groundwater conditions shown in the factual data and described in the report are the observed conditions at the time of their determination or measurement. Unless otherwise noted, those conditions form the basis of the recommendations in the report. Groundwater conditions may vary between and beyond reported locations and can be affected by annual, seasonal and meteorological conditions. The condition of the soil, rock and groundwater may be significantly altered by construction activities (traffic, excavation, groundwater level lowering, pile driving, blasting, etc.) on the site or on adjacent sites. Excavation may expose the soils to changes due to wetting, drying or frost. Unless otherwise indicated the soil must be protected from these changes during construction.

**Sample Disposal:** Golder will dispose of all uncontaminated soil and/or rock samples 90 days following issue of this report or, upon written request of the Client, will store uncontaminated samples and materials at the Client's expense. In the event that actual contaminated soils, fills or groundwater are encountered or are inferred to be present, all contaminated samples shall remain the property and responsibility of the Client for proper disposal.

**Follow-Up and Construction Services:** All details of the design were not known at the time of submission of Golder's report. Golder should be retained to review the final design, project plans and documents prior to construction, to confirm that they are consistent with the intent of Golder's report.

During construction, Golder should be retained to perform sufficient and timely observations of encountered conditions to confirm and document that the subsurface conditions do not materially differ from those interpreted conditions considered in the preparation of Golder's report and to confirm and document that construction activities do not adversely affect the suggestions, recommendations and opinions contained in Golder's report. Adequate field review, observation and testing during construction are necessary for Golder to be able to provide letters of assurance, in accordance with the requirements of many regulatory authorities. In cases where this recommendation is not followed, Golder's responsibility is limited to interpreting accurately the information encountered at the borehole locations, at the time of their initial determination or measurement during the preparation of the Report.

**Changed Conditions and Drainage:** Where conditions encountered at the site differ significantly from those anticipated in this report, either due to natural variability of subsurface conditions or construction activities, it is a condition of this report that Golder be notified of any changes and be provided with an opportunity to review or revise the recommendations within this report. Recognition of changed soil and rock conditions requires experience and it is recommended that Golder be employed to visit the site with sufficient frequency to detect if conditions have changed significantly.

Drainage of subsurface water is commonly required either for temporary or permanent installations for the project. Improper design or construction of drainage or dewatering can have serious consequences. Golder takes no responsibility for the effects of drainage unless specifically involved in the detailed design and construction monitoring of the system.

TABLE I  
**SUMMARY OF PAVEMENT BOREHOLES**

Proposed Albert Street Bridge Replacement  
Albert Street  
Strathroy, Ontario

<u>BOREHOLE</u>	<u>DEPTH</u> (m)	<u>STRATIGRAPHY</u>	<u>REMARKS</u>
103	0.00 to 0.17 0.17 to 0.35 0.35 to 0.70 0.70 to 1.52	<b>ASPHALT</b> <b>GRANULAR BASE</b> , trace to some silt <b>GRANULAR SUBBASE</b> , some silt, brown <b>SAND</b> fine to medium, some silt, <b>(FILL)</b> , brown	
104	0.00 to 0.08 0.08 to 0.50 0.50 to 1.22 1.22 to 1.52	<b>ASPHALT</b> <b>GRANULAR BASE</b> , some silt, brown <b>SAND</b> fine to medium, some silt, topsoil, trace gravel, <b>(FILL)</b> , brown <b>SAND</b> fine to medium, some silt, brown	
105	0.00 to 0.43 0.43 to 0.50 0.50 to 1.52	Sand and gravel, some silt <b>(FILL)</b> , brown <b>CONCRETE</b> <b>SAND</b> fine to medium, some silt, trace topsoil, gravel <b>(FILL)</b> , brown	
106	0.00 to 0.16 0.16 to 0.60 0.60 to 1.52	<b>ASPHALT</b> <b>SAND AND GRAVEL</b> , trace to some silt, brown <b>SAND</b> fine to medium, some silt, trace gravel, <b>(FILL)</b> , brown	

- NOTES:
1. See Plan, Figure 1, for pavement borehole locations.
  2. All of the pavement boreholes remained dry during drilling.
  3. Table to be read in conjunction with accompanying report.

Prepared By: DJM  
Checked By: DB

TABLE II

**SUMMARY OF PAVEMENT CORES**

Proposed Albert Street Bridge Replacement  
 Albert Street  
 Strathroy, Ontario

---

<u>CORE</u>	<u>PAVEMENT COMPONENT THICKNESS (m)</u>		<u>REMARKS</u>
	<u>Asphalt</u>	<u>Concrete</u>	
1	120	Yes	
2	120	-	Sand and gravel below asphalt.
3	125	-	Sand and gravel below asphalt.
4	150	Yes	
5	140	Yes	
6	150	Yes	

## NOTES:

1. See Plan, Figure 1 for core locations.
2. Concrete below asphalt in Cores 1, 4, 5 and 6, not fully penetrated.
3. Table to be read in conjunction with accompanying report.

Prepared By: DJM  
 Checked By: DB

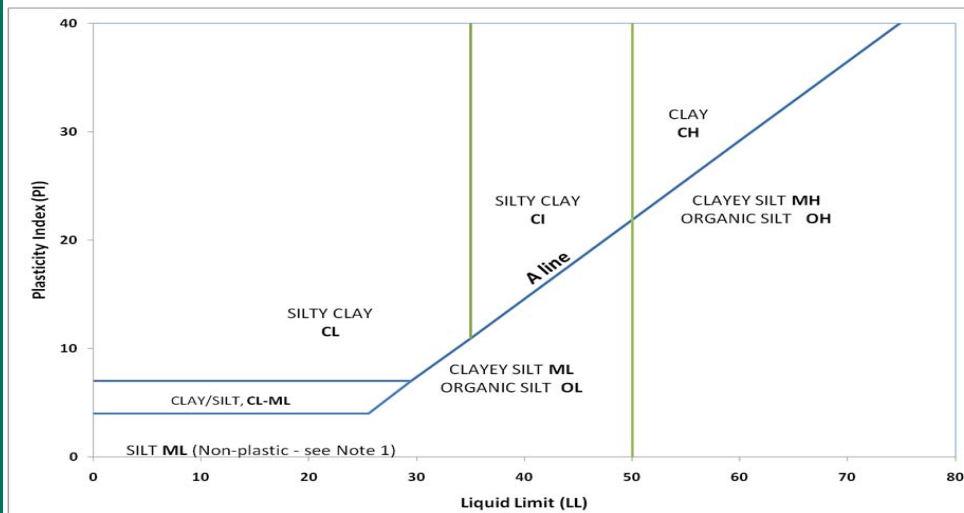




## METHOD OF SOIL CLASSIFICATION

Organic or Inorganic	Soil Group	Type of Soil		Gradation or Plasticity	$C_u = \frac{D_{60}}{D_{10}}$		$C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$		Organic Content	USCS Group Symbol	Group Name			
INORGANIC (Organic Content <30% by mass)	COARSE GRAINED SOILS (>50% by mass is larger than 0.075 mm)	GRAVELS (>50% by mass is larger than 4.75 mm)	Gravels with <12% fines (by mass)	Poorly Graded	<4		≤1 or ≥3		<30%	GP	GRAVEL			
				Well Graded	≥4		1 to 3			GW	GRAVEL			
			Gravels with >12% fines (by mass)	Below A Line	n/a					GM	SILTY GRAVEL			
				Above A Line	n/a					GC	CLAYEY GRAVEL			
		SANDS (>50% by mass is smaller than 4.75 mm)	Sands with <12% fines (by mass)	Poorly Graded	<6		≤1 or ≥3			SP	SAND			
				Well Graded	≥6		1 to 3			SW	SAND			
			Sands with >12% fines (by mass)	Below A Line	n/a					SM	SILTY SAND			
				Above A Line	n/a					SC	CLAYEY SAND			
			Organic or Inorganic	Soil Group	Type of Soil	Laboratory Tests	Field Indicators				Organic Content	USCS Group Symbol	Group Name	
							Dilatancy	Dry Strength		Thread Diameter	Toughness (of 3 mm thread)			
INORGANIC (Organic Content <30% by mass)	FINE GRAINED SOILS (>50% by mass is smaller than 0.075 mm)	SILTS (PI and LL plot below A-Line on Plasticity Chart)	Liquid Limit <50	Rapid	None	>6 mm	N/A (can't roll 3 mm thread)	<5%	ML	SILT				
				Slow	None to Low	3mm to 6 mm	None to low	<5%	ML	CLAYEY SILT				
				Slow to very slow	Low to medium	3mm to 6 mm	Low	5% to 30%	OL	ORGANIC SILT				
			Liquid Limit >50	Slow to very slow	Low to medium	3mm to 6 mm	Low to medium	<5%	MH	CLAYEY SILT				
				None	Medium to High	1 mm to 3 mm	Medium to High	5% to 30%	OH	ORGANIC SILT				
		CLAYS (PI and LL plot above A-Line on Plasticity Chart)	Liquid Limit <35	None	Low to medium	~ 3 mm	Low to medium	0% to 30%	CL	SILTY CLAY				
			Liquid Limit 35 to 50	None	Medium to High	1 mm to 3 mm	Medium		CI	SILTY CLAY				
			Liquid Limit >50	None	High	<1 mm	High		CH	CLAY				
HIGHLY ORGANIC SOILS (Organic Content >30% by mass)		Peat and mineral soil mixtures					30% to 75%	PT	SILTY PEAT, SANDY PEAT					
		Predominantly peat, may contain some mineral soil, fibrous or amorphous peat					>75%		PEAT					

PLASTICITY CHART



Note 1 – Fine grained materials which are Non-plastic (i.e. a PL cannot be measured) are named SILT.

**Dual Symbol** — A dual symbol is two symbols separated by a hyphen, for example, GP-GM, SW-SC, CL-ML used when the soil has between 5 and 12% fines (i.e. between "clean" sand and "dirty" sand) or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart.

**Borderline Symbol** — A borderline symbol is two symbols separated by a slash, for example, CL/CI, GM/SM, CL/ML.



## SYMBOLS AND TERMS USED ON RECORDS OF BOREHOLES AND TEST PITS

### PARTICLE SIZES OF CONSTITUENTS

Soil Constituent	Particle Size Description	Millimetres	Inches (US Std. Sieve Size)
BOULDERS	Not Applicable	>300	>12
COBBLES	Not Applicable	75 to 300	3 to 12
GRAVEL	Coarse Fine	19 to 75 4.75 to 19	0.75 to 3 (4) to 0.75
SAND	Coarse Medium Fine	2.00 to 4.75 0.425 to 2.00 0.075 to 0.425	(10) to (4) (40) to (10) (200) to (40)
SILT/CLAY	Classified by plasticity	<0.075	< (200)

### MODIFIERS FOR SECONDARY AND MINOR CONSTITUENTS

Percentage by Mass	Modifier
≤ 5	trace
5 to 12	some
12 to 35	Primary soil name prefixed with "gravelly, sandy, SILTY, CLAYEY" as applicable
>35	Use 'and' to combine major constituents (i.e., SAND and GRAVEL, SAND and CLAY)

### PENETRATION RESISTANCE

#### Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) required to drive a 50 mm (2 in.) drive open sampler for a distance of 300 mm (12 in.).

#### Piezo-Cone Penetration Test (CPT)

An electronic cone penetrometer with a 60° conical tip and a project end area of 10 cm<sup>2</sup> pushed through ground at a penetration rate of 2 cm/s. Measurements of tip resistance ( $q_t$ ), porewater pressure ( $u$ ) and sleeve frictions are recorded electronically at 25 mm penetration intervals.

#### Dynamic Cone Penetration Resistance; $N_d$ :

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in.) to drive uncased a 50 mm (2 in.) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in.).

**PH:** Sampler advanced by hydraulic pressure  
**PM:** Sampler advanced by manual pressure  
**WH:** Sampler advanced by static weight of hammer  
**WR:** Sampler advanced by weight of sampler and rod

### SAMPLES

AS	Auger sample
BS	Block sample
CS	Chunk sample
SS	Split-spoon
DS	Denison type sample
FS	Foil sample
RC	Rock core
SC	Soil core
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

### SOIL TESTS

w	water content
PL	plastic limit
LL	liquid limit
C	consolidation (oedometer) test
CHEM	chemical analysis (refer to text)
CID	consolidated isotropically drained triaxial test <sup>1</sup>
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement <sup>1</sup>
$D_R$	relative density (specific gravity, $G_s$ )
DS	direct shear test
GS	specific gravity
M	sieve analysis for particle size
MH	combined sieve and hydrometer (H) analysis
MPC	Modified Proctor compaction test
SPC	Standard Proctor compaction test
OC	organic content test
SO <sub>4</sub>	concentration of water-soluble sulphates
UC	unconfined compression test
UU	unconsolidated undrained triaxial test
V (FV)	field vane (LV-laboratory vane test)
$\gamma$	unit weight

**Note:** <sup>1</sup> Tests which are anisotropically consolidated prior to shear are shown as CAD, CAU.

### NON-COHESIVE (COHESIONLESS) SOILS

#### Compactness

Term	SPT 'N' (blows/0.3m) *
Very Loose	0 - 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	>50

1. SPT 'N' in accordance with ASTM D 1586, uncorrected for overburden pressure effects or energy transfer.
2. Definition of compactness descriptions based on SPT 'N' ranges from Terzaghi and Peck (1967) and correspond to typical average  $N_{60}$  values.

#### Field Moisture Condition

Term	Description
Dry	Soil flows freely through fingers.
Moist	Soils are darker than in the dry condition and may feel cool.
Wet	As moist, but with free water forming on hands when handled.

### COHESIVE SOILS

#### Consistency

Term	Undrained Shear Strength (kPa)	SPT 'N' (blows/0.3m)
Very Soft	<12	0 to 2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 200	15 to 30
Hard	>200	>30

1. SPT 'N' in accordance with ASTM D 1586, uncorrected for overburden pressure effects or energy transfer.

#### Water Content

Term	Description
$w < PL$	Material is estimated to be drier than the Plastic Limit.
$w \sim PL$	Material is estimated to be close to the Plastic Limit.
$w > PL$	Material is estimated to be wetter than the Plastic Limit.



## LIST OF SYMBOLS

Unless otherwise stated, the symbols employed in the report are as follows:

### I. GENERAL

$\pi$	3.1416
$\ln x$ ,	natural logarithm of x
$\log_{10}$	x or log x, logarithm of x to base 10
g	acceleration due to gravity
t	time
F	factor of safety
V	volume
W	weight

### II. STRESS AND STRAIN

$\gamma$	shear strain
$\Delta$	change in, e.g. in stress: $\Delta \sigma$
$\epsilon$	linear strain
$\epsilon_v$	volumetric strain
$\eta$	coefficient of viscosity
$\nu$	poisson's ratio
$\sigma$	total stress
$\sigma'$	effective stress ( $\sigma' = \sigma - \mu$ )
$\sigma'_{vo}$	initial effective overburden stress
$\sigma_1, \sigma_2, \sigma_3$	principal stress (major, intermediate, minor)
$\sigma_{oct}$	mean stress or octahedral stress $= (\sigma_1 + \sigma_2 + \sigma_3)/3$
$\tau$	shear stress
$\mu$	porewater pressure
E	modulus of deformation
G	shear modulus of deformation
K	bulk modulus of compressibility

### III. SOIL PROPERTIES

#### (a) Index Properties

$\rho(\gamma)$	bulk density (bulk unit weight*)
$\rho_d(\gamma_d)$	dry density (dry unit weight)
$\rho_w(\gamma_w)$	density (unit weight) of water
$\rho_s(\gamma_s)$	density (unit weight) of solid particles
$\gamma'$	unit weight of submerged soil ( $\gamma' = \gamma - \gamma_w$ )
$D_R$	relative density (specific gravity) of solid particles ( $D_R = \rho_s / \rho_w$ ) (formerly $G_s$ )
e	void ratio
n	porosity
S	degree of saturation

#### (a) Index Properties (continued)

w	water content
$w_l$	liquid limit
$w_p$	plastic limit
$I_p$	plasticity index $= (w_l - w_p)$
$w_s$	shrinkage limit
$I_L$	liquidity index $= (w - w_p) / I_p$
$I_C$	consistency index $= (w_l - w) / I_p$
$e_{max}$	void ratio in loosest state
$e_{min}$	void ratio in densest state
$I_D$	density index $= (e_{max} - e) / (e_{max} - e_{min})$ (formerly relative density)

#### (b) Hydraulic Properties

h	hydraulic head or potential
q	rate of flow
v	velocity of flow
i	hydraulic gradient
k	hydraulic conductivity (coefficient of permeability)
j	seepage force per unit volume

#### (c) Consolidation (one-dimensional)

$C_c$	compression index (normally consolidated range)
$C_r$	recompression index (over-consolidated range)
$C_s$	swelling index
$C_a$	coefficient of secondary consolidation
$m_v$	coefficient of volume change
$c_v$	coefficient of consolidation
$T_v$	time factor (vertical direction)
U	degree of consolidation
$\sigma'_p$	pre-consolidation stress
OCR	over-consolidation ratio $= \sigma'_p / \sigma'_{vo}$

#### (d) Shear Strength

$T_p, T_r$	peak and residual shear strength
$\phi'$	effective angle of internal friction
$\delta$	angle of interface friction
$\mu$	coefficient of friction $= \tan \delta$
$c'$	effective cohesion
$c_u, S_u$	undrained shear strength ( $\phi = 0$ analysis)
p	mean total stress $(\sigma_1 + \sigma_3)/2$
$p'$	mean effective stress $(\sigma'_1 + \sigma'_3)/2$
q	$(\sigma_1 + \sigma_3)/2$ or $(\sigma'_1 + \sigma'_3)/2$
$q_u$	compressive strength $(\sigma_1 + \sigma_3)$
$S_t$	sensitivity

\* Density symbol is  $\rho$ . Unit weight symbol is  $\gamma$  where  $\gamma = \rho g$  (i.e. mass density multiplied by acceleration due to gravity)

Notes: 1  $\tau = c' + \sigma' \tan \phi'$   
2 shear strength = (compressive strength)/2

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

# RECORD OF BOREHOLE BH-101

BORING DATE: Dec. 19, 2012.

SHEET 1 OF 2

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

[illegible]

.DN\_BHS\_07 1211320133.GPJ GLDR\_LON.GDT 25/03/13 DATA INPUT: WDF

DEPTH SCALE

1 : 75

LOGGED: BT

CHECKED:

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

# RECORD OF BOREHOLE BH-101

BORING DATE: Dec. 19, 2012.

SHEET 2 OF 2

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

[illegible]

LDN\_BHS\_07 1211320133.GPJ GLDR\_LON.GDT 25/03/13 DATA INPUT: WDF

DEPTH SCALE

1 : 75

LOGGED: BT

CHECKED:

PROJECT: 12-1132-0133

## RECORD OF BOREHOLE BH-101A

SHEET 1 OF 3

LOCATION: REFER TO LOCATION PLAN

BORING DATE: Jan. 10-11, 2013.

DATUM: GEODETIC

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				HYDRAULIC CONDUCTIVITY, k, cm/s				ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE		BLOWS/0.3m	SHEAR STRENGTH Cu, kPa				WATER CONTENT PERCENT					
									20	40	60	80	10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>			10 <sup>-3</sup>
0	POWER AUGER HOLLOW STEM	GROUND SURFACE		223.94 0.00														
1																		
2																		
3																		
4																		
5																		
6																		
7			( Borehole continued - See Record of Borehole 101 )															
8																		
9																		
10																		
11																		
12																		
13																		
14																		
		--- CONTINUED NEXT PAGE ---																

DEPTH SCALE

1 : 75



LOGGED: BT

CHECKED:



PROJECT: 12-1132-0133

## RECORD OF BOREHOLE BH-101A

SHEET 2 OF 3

LOCATION: REFER TO LOCATION PLAN

BORING DATE: Jan. 10-11, 2013.

DATUM: GEODETIC

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES		ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m					HYDRAULIC CONDUCTIVITY, k, cm/s					ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS														
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE		BLOWS/0.3m																									
									SHEAR STRENGTH Cu, kPa		nat V. + Q - rem V. ⊕ U - ⊙		WATER CONTENT PERCENT Wp — W — WI																				
								20	40	60	80		10 <sup>-6</sup>	10 <sup>-5</sup>	10 <sup>-4</sup>	10 <sup>-3</sup>																	
14	MUD ROTARY DRILLING UNCASED	--- CONTINUED FROM PREVIOUS PAGE ---																															
15		(Borehole continued - See Record of Borehole 101 )																															
16																																	
17																																	
18																																	
19																																	
20		(CL) <b>SILTY CLAY</b> , trace sand, with silt layers; grey; very stiff																															
21																																	
22																																	
23		(CI) <b>SILTY CLAY</b> , trace sand, with silt seams; grey; firm to very stiff																															
24																																	
25																																	
26		(ML) <b>SILT</b> , some clay; grey; loose																															
27																																	
28																																	
29		--- CONTINUED NEXT PAGE ---																															

DEPTH SCALE

1 : 75



LOGGED: BT

CHECKED:

LDN\_BHS\_07 1211320133.GPJ GLDR\_LON.GDT 22/02/13 DATA INPUT: WDF

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

## BORING DATE: Jan. 10-11, 2013.

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

DN\_BHS\_07 1211320133.GPJ GLDR\_LON.GDT 22/02/13 DATA INPUT: WDF

1 : 75



CHECKED:

PROJECT: 12-1132-0133

## RECORD OF BOREHOLE BH-102

SHEET 1 OF 2

LOCATION: REFER TO LOCATION PLAN

BORING DATE: Jan. 8-9, 2013.

DATUM: GEODETIC

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			ELEVATION	DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m					HYDRAULIC CONDUCTIVITY, k, cm/s					ADDITIONAL LAB. TESTING	INSTALLATION AND GROUNDWATER OBSERVATIONS
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m		SHEAR STRENGTH Cu, kPa					WATER CONTENT PERCENT						
									20	40	60	80	nat V. rem V.	+ ⊕	Q - U -	● ○	10 <sup>-6</sup>	10 <sup>-5</sup>		
									20	40	60	80	10	20	30	40				
0	POWER AUGER HOLLOW STEM	GROUND SURFACE		224.20				225												
		Topsoil, sandy; brown, (FILL)		0.00				224												
				223.74																
				0.46																
1	MUD ROTARY CASED	(SP) Sand, fine, some silt, trace topsoil; brown, (FILL); loose to very loose			1	SS	6	223						○						
					2	SS	2					○								
2						3	SS	2	222							○				
						4	SS	2	221								○			
3	MUD ROTARY DRILLING UNCASED	(SW) SAND, fine to medium, trace to some silt; layered grey and brown; very loose to compact																		
4					5	SS	9	220								○				
						6	SS	3	219									○		
5						7	SS	6									○			
6					8	SS	19	218							○			MH		
7						9	SS	19	217							○				
8						10	SS	19	216							○				
9																				
10						11	SS	16	215							○				
										</										

Groundwater  
encountered at about  
elev. 221.15m during  
drilling on  
January 8, 2012.

MH

MH

DEPTH SCALE

1 : 75



LOGGED: BT

CHECKED:

LDN\_BHS\_07 1211320133.GPJ GLDR\_LON.GDT 22/02/13 DATA INPUT: WDF

SAMPLER HAMMER, 63.5 kg; DROP, 760 mm

## BORING DATE: Jan. 8-9, 2013.

DATUM: GEODETIC

PENETRATION TEST HAMMER, 63.5 kg; DROP, 760 mm

DN\_BHS\_07 1211320133.GPJ GLDR\_LON.GDT 22/02/13 DATA INPUT: WDF

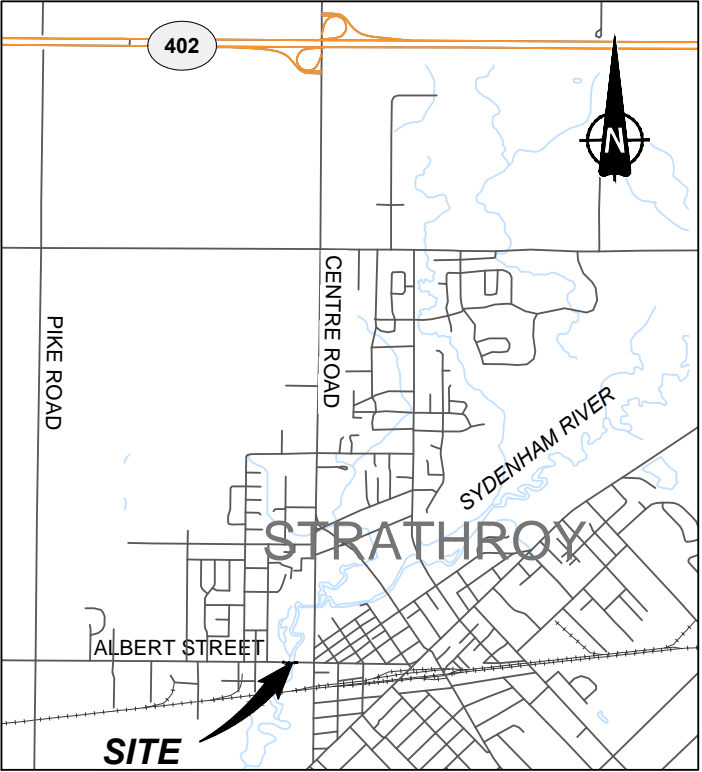
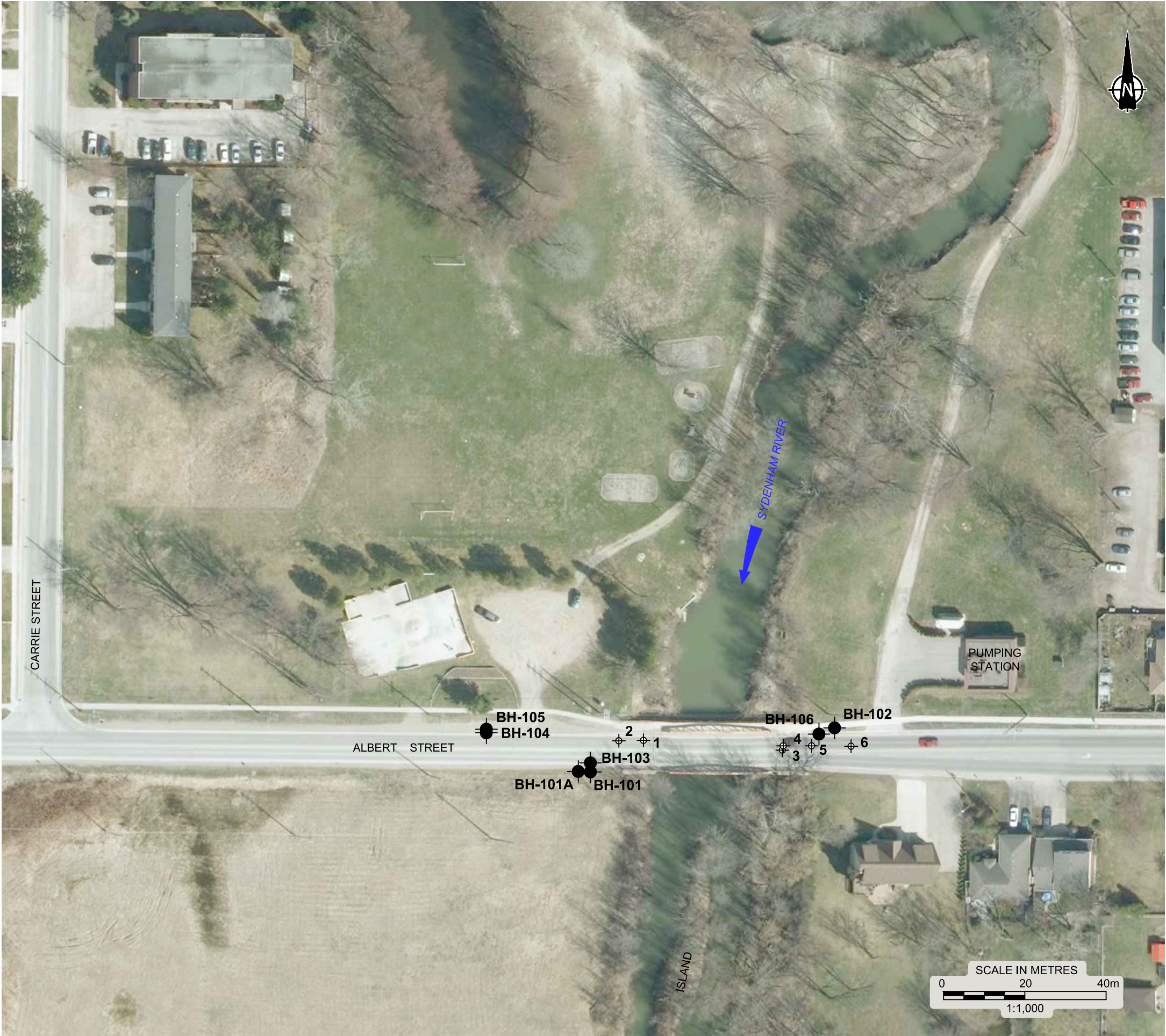
1 : 75



CHECKED:



Drawing file: 1211320133-1000-R01001.dwg    Feb 22, 2013 - 9:14am



KEY PLAN

LEGEND

- BOREHOLE
- CORE (ASPHALT)


REFERENCE

PLAN BASED ON ORTHOGRAPHIC PHOTOGRAPH BY FIRST BASE SOLUTIONS, 2010; AND CANMAP STREETFILES V2008.5.

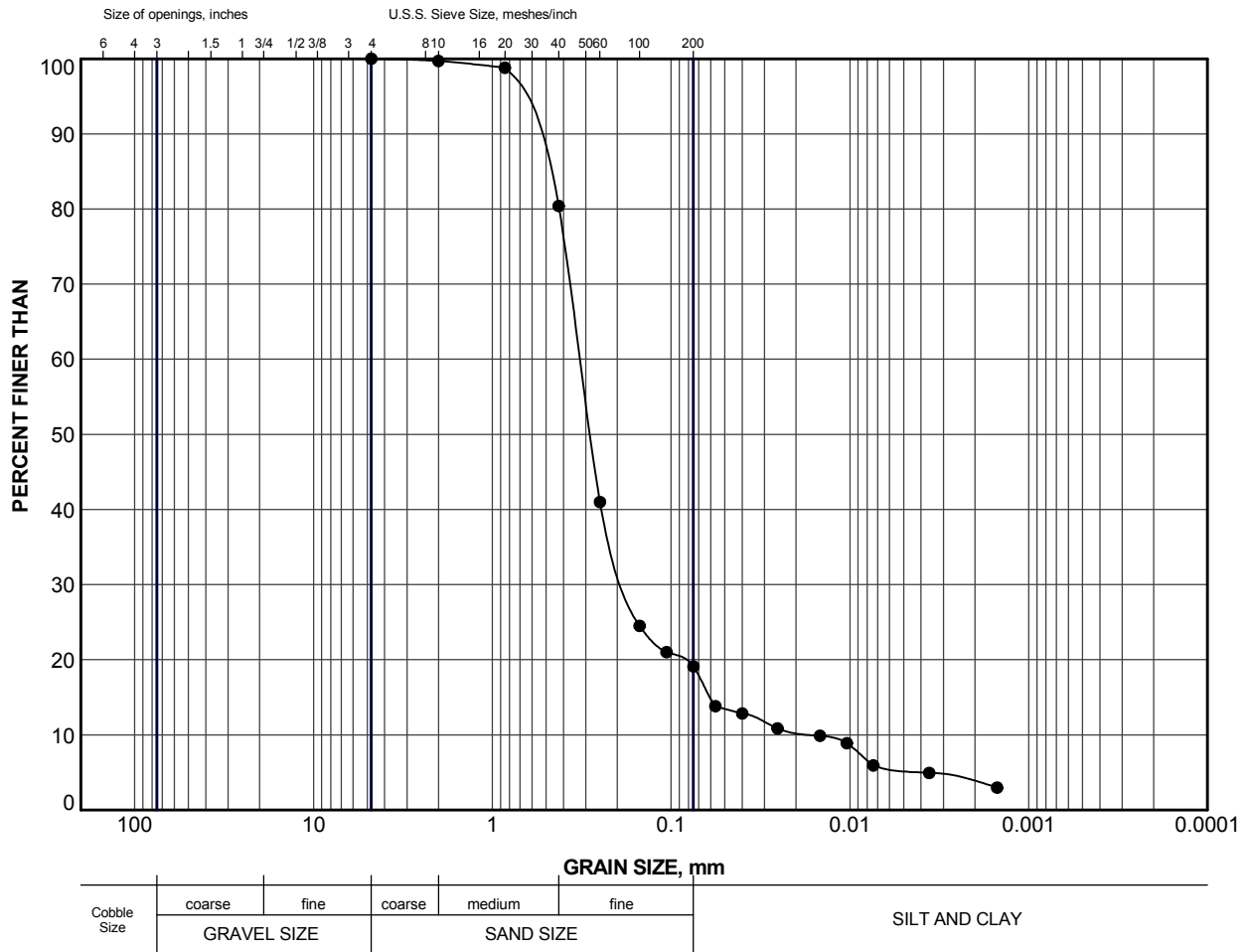
NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE ONLY.

PROJECT		GEOTECHNICAL INVESTIGATION ALBERT STREET BRIDGE STRATHROY, ONTARIO			
TITLE		LOCATION PLAN			
 <b>Golder Associates</b> LONDON, ONTARIO		PROJECT No. 12-1132-0133		FILE No. 1211320133-1000-R01001	
		CADD	WDF	Feb. 12/13	SCALE AS SHOWN
		CHECK			REV.
FIGURE 1					



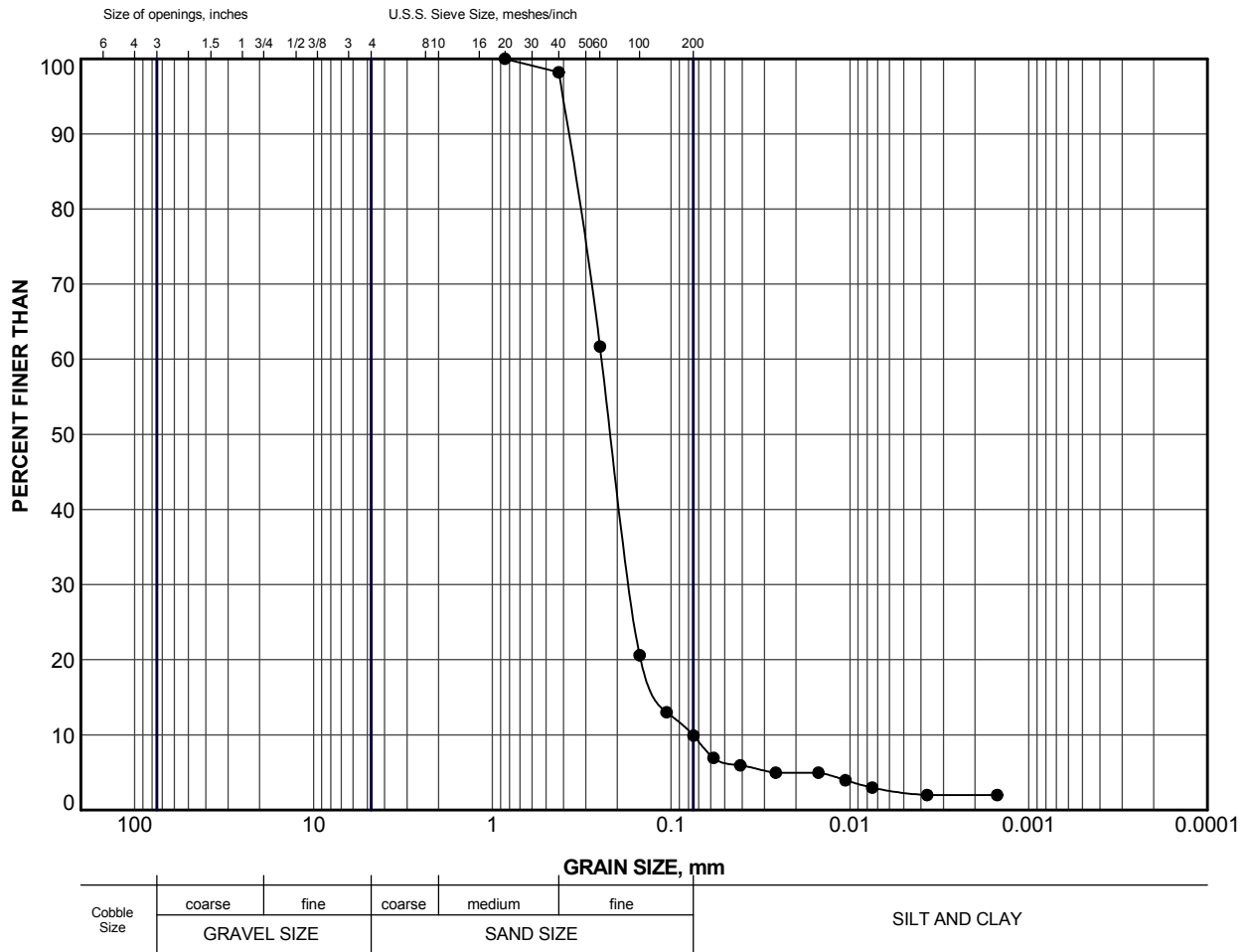


### LEGEND


SYMBOL	BOREHOLE	SAMPLE	ELEV (m)
●	BH-101	8	217.7

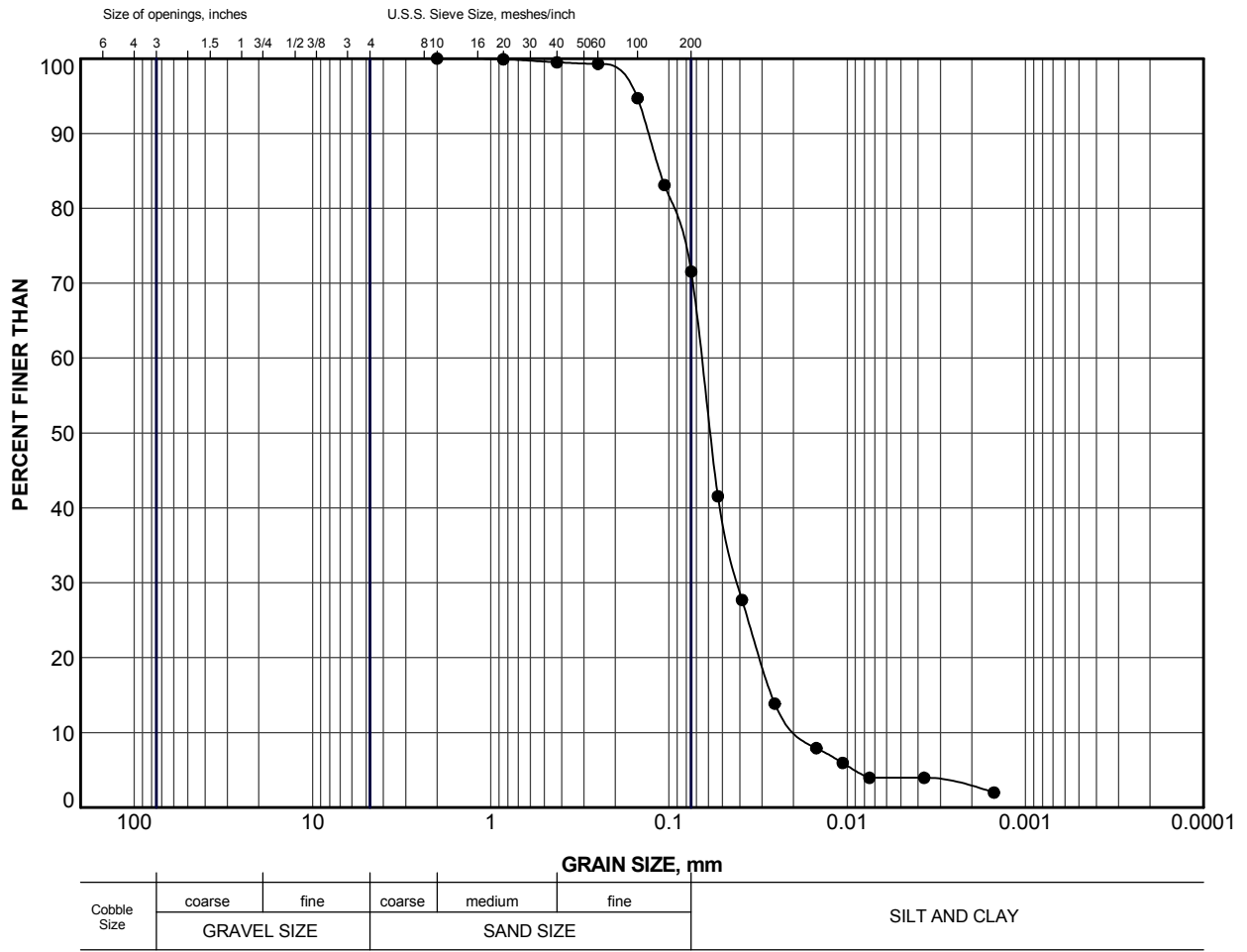
PROJECT					GEOTECHNICAL INVESTIGATION ALBERT STREET BRIDGE STRATHROY, ONTARIO				
TITLE					GRAIN SIZE DISTRIBUTION SILTY SAND				
PROJECT No.		12-1132-0133			FILE No.		1211320133-1000-R01002		
DRAWN		WDF		Feb 12/13		SCALE		N/A	
CHECK						REV.			
 <b>Golder Associates</b> LONDON, ONTARIO					<b>FIGURE 2</b>				





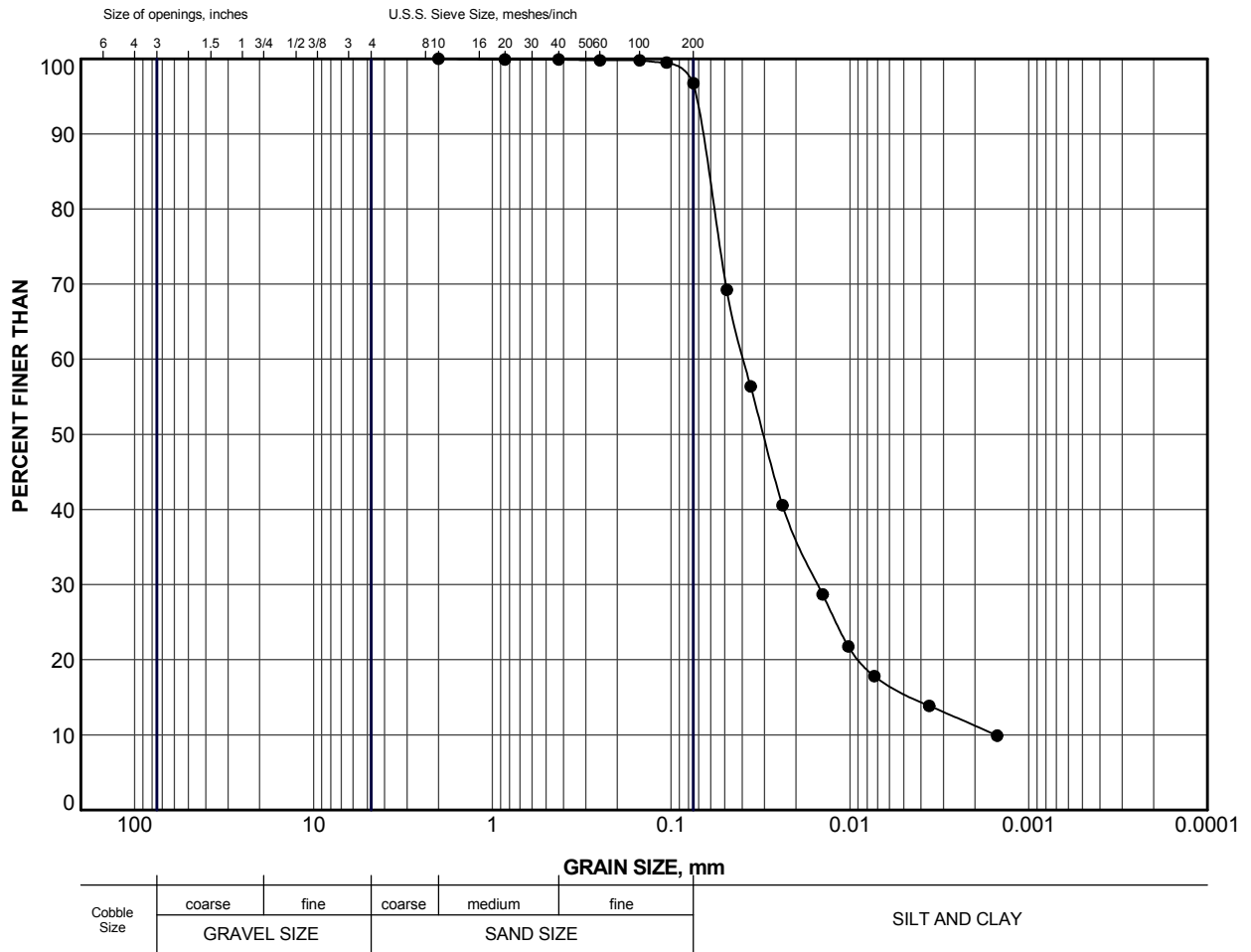
LEGEND			
SYMBOL	BOREHOLE	SAMPLE	ELEV (m)
●	BH-102	8	217.9

PROJECT					GEOTECHNICAL INVESTIGATION ALBERT STREET BRIDGE STRATHROY, ONTARIO				
TITLE					GRAIN SIZE DISTRIBUTION SAND				
PROJECT No.		12-1132-0133			FILE No.		1211320133-1000-R01003		
DRAWN		WDF		Feb 12/13		SCALE		N/A	
CHECK						FIGURE		3	
 <b>Golder Associates</b> LONDON, ONTARIO									



LEGEND			
SYMBOL	BOREHOLE	SAMPLE	ELEV (m)
●	BH-102	13	211.8

PROJECT		GEOTECHNICAL INVESTIGATION ALBERT STREET BRIDGE STRATHROY, ONTARIO					
TITLE							
GRAIN SIZE DISTRIBUTION  SANDY SILT							
 <b>Golder Associates</b> LONDON, ONTARIO		PROJECT No.		12-1132-0133	FILE No. 1211320133-1000-R01004		
					SCALE	N/A	REV.
		DRAWN	WDF	Feb 12/13	<b>FIGURE 4</b>		
		CHECK					

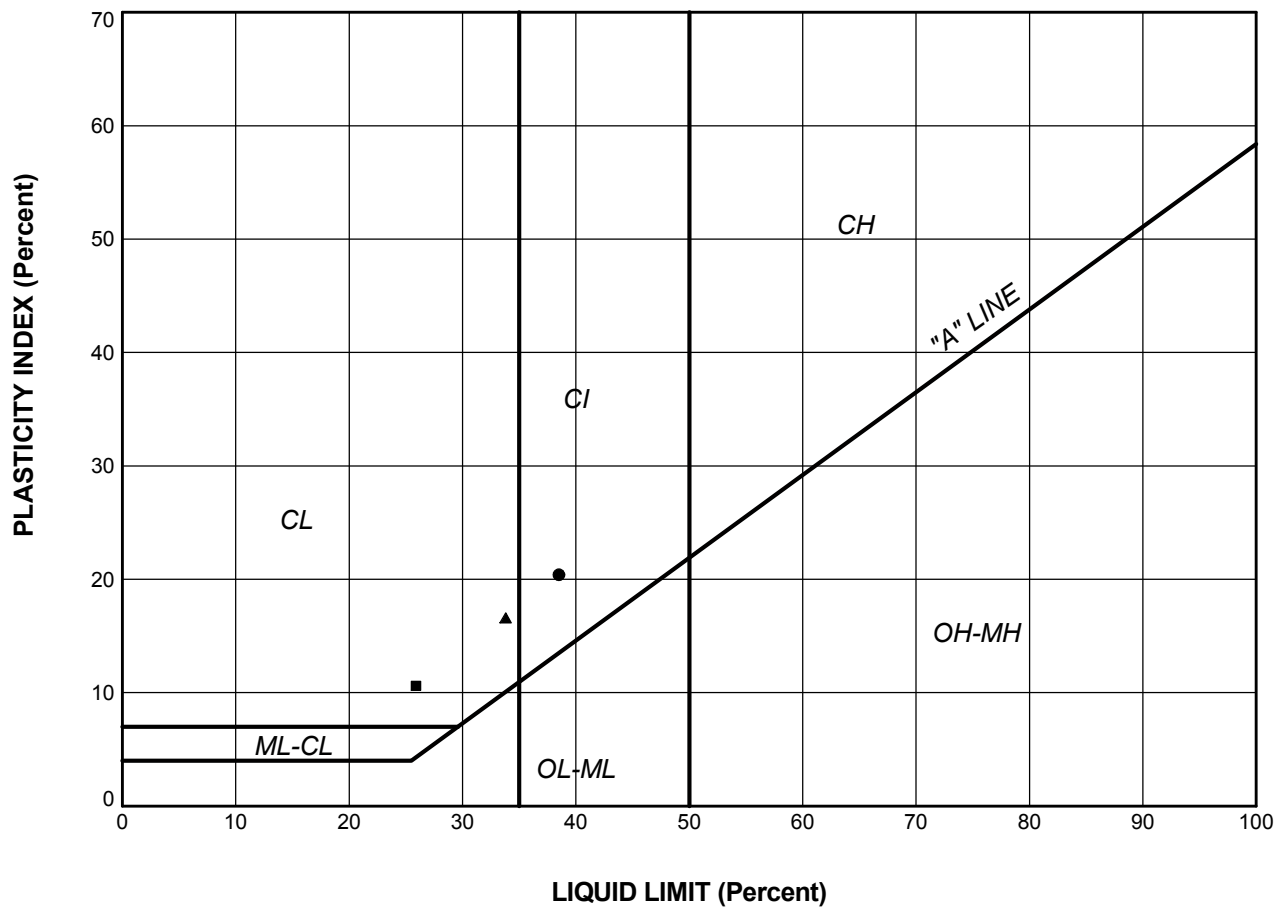


### LEGEND

SYMBOL	BOREHOLE	SAMPLE	ELEV (m)
●	BH-102	20	201.1

PROJECT					GEOTECHNICAL INVESTIGATION ALBERT STREET BRIDGE STRATHROY, ONTARIO				
TITLE					GRAIN SIZE DISTRIBUTION SILT				
PROJECT No.		12-1132-0133			FILE No.		1211320133-1000-R01005		
DRAWN		WDF		Feb 12/13		SCALE		N/A	
CHECK						FIGURE		5	





### LEGEND

SYMBOL	BOREHOLE	SAMPLE	LL(%)	PL(%)	PI
●	BH-101A	2	38.5	18.1	20.4
■	BH-101A	5	25.9	15.3	10.6
▲	BH-101A	8	33.8	17.2	16.6

PROJECT				GEOTECHNICAL INVESTIGATION ALBERT STREET BRIDGE STRATHROY, ONTARIO			
TITLE				PLASTICITY CHART			
PROJECT No.		12-1132-0133		FILE No. 1211320133-1000-R01006			
DRAWN	WDF	Feb 15/13		SCALE	N/A	REV.	
CHECK				FIGURE 6			



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**T: +1 (519) 652 0099**



# Appendix G

## Consultation

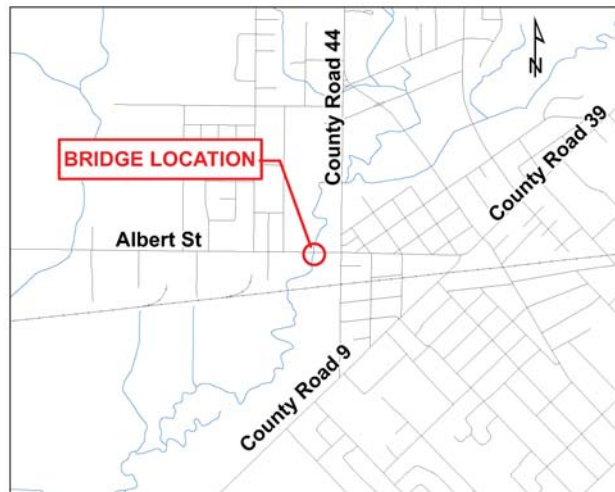




**ALBERT STREET BRIDGE REPLACEMENT  
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT  
NOTICE OF PROJECT COMMENCEMENT**

### **The Study**

The County of Middlesex has retained AECOM to undertake a study to determine the feasibility of replacing the Albert Street Bridge, located west of the Albert Street/Victoria Road intersection, in Strathroy. This study will be completed in accordance with the Municipal Class Environmental Assessment requirements for Schedule B projects (as amended in 2007 & 2011) under Ontario's Environmental Assessment Act (EA Act). This process serves as a mechanism to understand environmental, social, technical and economic issues prior to implementing improvements or changes to the structure.



### **Background**

The structure is a steel truss bridge consisting of 2 through lanes (one east and one west bound) with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

The intent of this study is to investigate the opportunity and evaluate feasible solutions to replace the structure such that a wider cross section can be continued across the river, further to the west. The wider structure will provide additional capacity for vehicular traffic, cyclists and pedestrians.

A preferred solution will be selected based on the evaluation of alternative solutions, taking into consideration the natural, social, technical and economic environments.

### **Public Involvement**

Public involvement is an important part of the study process. A Public Information Centre will take place during this study for residents, agencies, community organizations and interested parties to provide input ask questions and identify issues or concerns they have. Once the preferred solution has been selected, a Screening Report will be prepared to document the project. The public will be notified of the date, time and location of the Public Meeting and completion of the Screening Report through newspaper notices, letters mailed to those on the project's mailing list and through the County's website. <http://www.middlesex.ca>

### **Comments**

Comments and information regarding this project are being collected to assist in meeting the requirements of the EA Act. This material will be maintained on file for use during the project and will become part of the public record, with the exception of personal information. If you would like more information related to the study or to be included on the mailing list for direct notification please contact:

Ms. Corri Marr, H.B.Sc.,  
Environmental Planner  
AECOM Canada  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519-963-5872  
Email: [Corri.Marr@aecom.com](mailto:Corri.Marr@aecom.com)

Mr. Chris Traini, P.Eng.,  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London ON, N6A 2P1  
Tel: 519- 474-7321  
Email: [ctraini@county.middlesex.on.ca](mailto:ctraini@county.middlesex.on.ca)

## **Provincial Departments & Agencies**

Ministry of Natural Resources  
Southwestern Region  
615 John Street  
Alymer ON, N5H 2S8  
Attention: Amanda McCloskey

Ministry of Municipal Affairs & Housing  
Southwestern Municipal Services Office  
659 Exeter Road, 2<sup>nd</sup> Floor  
London ON, N6E 1L3  
Attention: Ms. T. Ryall - Planner

Ministry of Tourism, Culture & Sport  
Southwest Archaeological Field Office  
900 Highbury Ave  
London ON, N5Y 1A4  
Attention: Shari Prowse

Ministry of Environment – EAB  
2 St. Clair Ave. West, 12<sup>th</sup> Floor  
Toronto ON, M4V 1L5

Ministry of Environment  
Southwest Region Office  
733 Exeter Road  
London ON, N6E 1L3  
Attention: Mr. Bill Armstrong

## **Municipal/County Depts, Agencies & Utilities**

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Mark Harris – Director of Environmental Services

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Paul Hicks - Planner

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Laurie Hayman – Chief of Police Services

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Tom Gibson – Chief of Fire Services

Albert Street Bridge EA Distribution List (Notice of Commencement)

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Brad Dausett – Roads Manager

Middlesex County – Planning Office  
399 Ridout Street N  
London ON, N6A 2P1  
Attn: Durk Vanderwerff – Manager of Planning

Middlesex County – Emergency Services  
399 Ridout Street N  
London ON, N6A 2P1  
Attn: Neal Roberts – Director of Emergency Services

Middlesex County – Engineers Office  
399 Ridout Street N  
London ON, N6A 2P1  
Attn: Chris Traini – County Engineer

Entegrus Powerlines  
351 Frances Street  
Strathroy ON, N7G 2L7  
Attn: Community Services

SCRCA  
205 Mill Pond Crescent  
Strathroy ON, N7G 3P9  
Attn: Dallas Cundick – Environmental Planner

Bell Canada  
370 Albert St  
Strathroy ON, N7G 4B2  
Attn: Richard Penney  
Project Coordinator Access Network

Union Gas Limited  
PO Box 2001  
Chatham ON, N7M 5M1

Rogers Cable  
Design Department  
800 York Street  
London ON, N6A 5B1

Strathroy Middlesex General Hospital  
395 Carrie Street  
Strathroy ON, N7G 3J4  
Attn: Cheryl Waters – Board Chair

TVDSB  
1250 Dundas Street  
PO Box 5888  
London ON, N6A 5L1

LDCSB  
108 Fairlane Avenue  
London ON, N6K 3E6

Thames Emergency Medical Services  
61 Albert Street  
Strathroy ON, N7G 1V4

Strathroy District Collegiate Institute  
361 Second Street  
Strathroy ON, N7G 4J8

Albert Street Bridge EA Distribution List (Notice of Commencement)

Holy Cross Catholic Secondary School  
367 Second Street  
Strathroy ON, N7G 4K6

Middlesex-London EMS  
61 Albert Street  
Strathroy ON, N7G 1V4

**Community Groups**

Strathroy Lions Club  
432 Albert Street  
PO Box 56  
Strathroy ON, N7G 3J1

Strathmere Lodge  
599 Albert Street  
Strathroy ON, N7G 1X1

St. Andrew's Presbyterian Church  
152 Albert Street  
Strathroy ON, N7G 1V5

**Commercial**

Columbia Sportswear Canada Ltd.  
456 Albert Street  
Strathroy ON, N7G 1W7

Soul Mind Body Spa  
440 Albert Street  
Strathroy ON, N7G 1W7

Dustins Gas Bar  
380 Albert Street  
Strathroy ON, N7G 1W7

Footworx  
380 Albert Street  
Strathroy ON, N7G 1W7

Albert Street Bridge EA Distribution List (Notice of Commencement)

Dairy Case Food Mart  
380 Albert Street  
Strathroy ON, N7G 1W7

Bev Shipley, MPP  
380 Albert Street  
Strathroy ON, N7G 1W7

Coin Laundry/Car Wash  
380 Albert Street  
Strathroy ON, N7G 1W7

R. Divic  
96 Albert Street  
Strathroy ON, N7G 1V5

Bell  
370 Albert Street  
Strathroy ON,

Museum Strathroy Caradoc  
34 Frank Street  
Strathroy ON, N7G 2R4

Strathroy Monuments Ltd.  
40 Thomas Street  
Strathroy ON, N7G 2S8

ADM Mills Ltd  
PO Box 280  
Stn Main  
Strathroy ON, N7G 3J2

## First Nations

Chippewas of the Thames  
320 Chippewa Road  
R.R. #1  
Muncey ON, N0L 1Y0  
Attention: Chief Richard "Joe" Miskokomon

Munsee-Delaware Nation  
R. R. #1  
Muncey ON, N0L 1Y0  
Attention: Chief Patrick Waddilove

Oneida Nation of the Thames  
2212 Elm Avenue  
Southwold ON, N0L 2G0  
Attention: Chief Joel Abram

Bkejwanong Territory (Walpole Island)  
R.R. #3  
Wallaceburg ON, N8A 4K9  
Attention: Chief Burton Kewayosh Jr.

Aamjiwnaang  
978 Tashmoo Avenue  
Sarnia ON, N7T 7H5  
Attn: Chief Chris Plain

Delaware Nation  
14760 School House Line  
R.R. #3  
Thamesville ON, N0P 2K0  
Attn: Chief Greg Peters

Caldwell First Nation  
PO Box 388  
Leamington ON, N8H 3W3  
Attn: Chief Louise Hillier

Chippewas of Kettle & Stony Point  
6247 Indian Lane  
RR#2  
Forest ON, N0N 1J1  
Attn: Chief Tom Bressette

AANDC  
Consultation & Accommodation Unit  
UCA-CAU@aadnc-aandc.gc.ca

Send email requesting **Aboriginal consultation information response**.  
Provide project description and project location.

Ministry of Aboriginal Affairs  
Consultation Unit  
160 Bloor Street E, 9<sup>th</sup> Floor  
Toronto ON, M7A 2E6

Send letter explaining reason for inquiry, project description and key map, list of Aboriginal communities already contacted.



Albert Street Bridge EA Distribution List (Notice of Commencement)

Aamjiwnaang  
978 Tashmoo Avenue  
Sarnia ON, N7T 7H5  
Attn: Sharilyn Johnston

Bkejwanong Territory (Walpole Island)  
R.R. #3  
Wallaceburg ON, N8A 4K9  
Attention: Jared Macbeth

Chippewas of Kettle & Stony Point  
6247 Indian Lane  
RR#2  
Forest ON, N0N 1J1  
Attention: Suzanne Bressette

Oneida Nation of the Thames  
2706 Nicholas Road  
Southwold ON, N0L 2G0  
Attention: April Varewyck

Chippewas of the Thames  
320 Chippewa Road  
R.R. #1  
Muncey ON, N0L 1Y0  
Attention: Rolanda Elijah

Munsee-Delaware Nation  
R. R. #1  
Muncey ON, N0L 1Y0  
Attention: Dan Miskokoman

Delaware Nation  
14979 School House Line  
R.R. #3  
Thamesville ON, N0P 2K0  
Attn: Tina Jacobs

Chiefs of Ontario  
111 Peter Street, Suite 804  
Toronto ON, M5V 2H1

Union of Ontario Indians  
Regional Office  
300 Anemki Place  
Thunder Bay ON, P7J 1H9

Southern First Nations Secretariat  
22361 Austin Line  
Bothwell ON, N0P 1C0

Association of Iroquois & Allied Indians  
387 Princess Avenue  
London ON, N6B 2A7

## Martin, Nancy

---

**From:** Marr, Corri  
**Sent:** Thursday, December 06, 2012 7:56 AM  
**To:** Blevins, Ian; Pucchio, John; Martin, Nancy  
**Subject:** Fw: Albert Street Bridge Replacement - Strathroy

**Importance:** High

Fyi

---

**From:** Titus, Steve [<mailto:Steve.Titus@mha.tvh.ca>]  
**Sent:** Thursday, December 06, 2012 04:18 AM  
**To:** Marr, Corri; 'ctraini@county.middlesex.on.ca' <[ctraini@county.middlesex.on.ca](mailto:ctraini@county.middlesex.on.ca)>  
**Cc:** Titus, Steve <[Steve.Titus@mha.tvh.ca](mailto:Steve.Titus@mha.tvh.ca)>  
**Subject:** Albert Street Bridge Replacement - Strathroy

Good morning,

Although slightly premature, with the study just commencing, I would like to inquire about the future plans regarding construction, road closures etc. if the project moves ahead as this will affect access to the hospital and the emergency services we provide. We are very concerned about our ability to provide timely emergency care and need to be completely accessible for our community.

I look forward to hearing more about the project and the plans moving forward.


Regards,

**Steve Titus**

Director, Facilities Management  
Middlesex Hospital Alliance  
395 Carrie Street  
Strathroy, ON N7G 3J4  
T: 519 245 1550 x.5525 | F: 519 246-5931

[Steve.Titus@mha.tvh.ca](mailto:Steve.Titus@mha.tvh.ca)


*"Keep it green, read from the screen"*




## Albert Street Bridge Replacement

### Municipal Class EA Stakeholder Presentation


(February 6, 2013)






## AGENDA

- Project Overview
- Existing Conditions
  - Existing Structure
  - Natural/Cultural Environment
- Issues and Considerations Identified to date
  - Traffic Management;
  - Pedestrian Linkages;
  - Disruption During Construction;
- Alternative Solutions / Evaluation Methodology/
- Public Consultation
- Agency Approvals
- Project Schedule



Albert Street Bridge Replacement Municipal Class EA

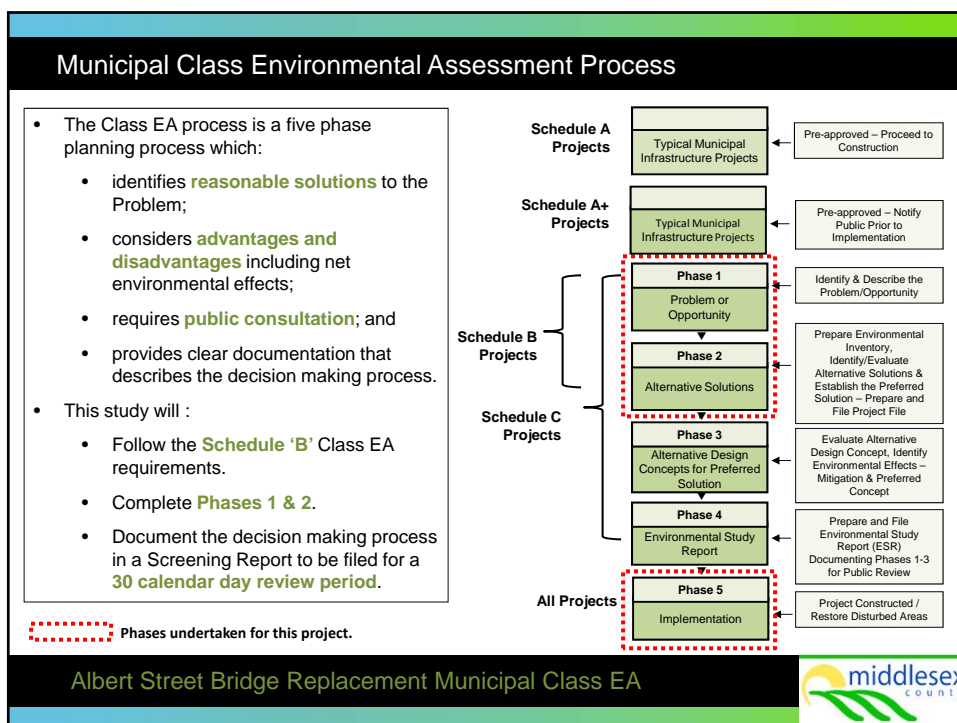


## PROJECT OVERVIEW

- AECOM was retained by the County of Middlesex to undertake a Municipal Class Environmental Assessment to determine the feasibility of, and provide the framework for the replacement of the Albert Street bridge in order to address existing deficiencies and increase capacity.
- The project will be carried out as a Class EA Schedule B activity including completion of phases 1, 2 & 5 of the Class EA process.
- The study will incorporate key planning principles including: public consultation, assessment of a reasonable range of solutions, consideration for the natural, social, economic and technical environments, and provide clear documentation.


Albert Street Bridge Replacement Municipal Class EA





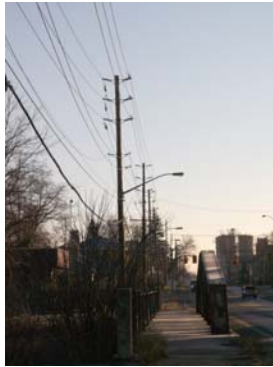
### BACKGROUND

- The Albert Street Bridge is a pony truss constructed in 1937.
- The bridge is located on an arterial road crossing the Sydenham River.
- It carries over 5,000 vehicles per day, is a vital link to the downtown area and is a heavily used pedestrian link due to its location to nearby residential areas and parks.
- The bridge is located in close proximity to the Middlesex General Hospital, Seniors Centre, recreational facilities, the sanitary pumping station, and residential and commercial properties.
- The existing structure consists of 2 through lanes (one east and one west bound) and a sidewalk on the north side.
- The structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.
- The last Bridge Condition Report was completed in 2007.



Albert Street Bridge Replacement Municipal Class EA

## BACKGROUND



Albert Street Bridge Replacement Municipal Class EA



## EXISTING STRUCTURE

- The existing structure is 76 years old (and approaching the end of its functional service life).
- Rehabilitation history includes a deck replacement in 1977 and bearing replacement in 1996.
- There is medium to severe localized corrosion of existing structural steel, with some steel section loss (impacting load carrying capacity).
- There is some deterioration of the concrete abutments with medium delamination's and cracking, some areas with efflorescence staining.
- The pedestrian railing system is substandard and does not meet current code requirements.
- The main truss is unprotected from impact loading from traffic.



Albert Street Bridge Replacement Municipal Class EA





## NATURAL ENVIRONMENT

- According to the St. Clair Region Conservation Authority the site is located in an area that is affected by Conservation Authority regulations.
- The Provincially Significant Sydenham River Wetland Complex is approximately 120 m to the north and 200 m to the south of the site.
- Habitat for five species designated as Threatened under the Endangered Species Act (ESA, 2007) was identified as potentially being present at the site. Three have not been documented in over twenty years therefore it is unlikely that they are present at the site.
- Habitat for a total of four species of Special Concern was also identified as potentially being present at the site.

Common Name	Scientific Name	Species At Risk in Ontario (SARO) Status	Last Observed Date
Colicroot	<i>Aletis farinosa</i>	THR	June 7, 1891
Spiny Softshell	<i>Apalone spinifera</i>	THR	June 20, 2008
Barn Swallow	<i>Hirundo rustica</i>	THR	2007
Silver Shiner	<i>Notropis photogenis</i>	THR	August 9, 1989
Willowleaf Aster	<i>Symphoricarpos praecox</i>	THR	September 2, 1992
Snapping Turtle	<i>Chelydra serpentina</i>	SC	Unknown
Monarch Butterfly	<i>Danaus plexippus</i>	SC	Unknown
Blue Ash	<i>Fraxinus quadrangula</i>	SC	July 25, 1954
Northern Map Turtle	<i>Graptemys geographica</i>	SC	August 17, 1987

Albert Street Bridge Replacement Municipal Class EA



## NATURAL ENVIRONMENT

- Due to the disturbed nature of the habitat present within the study area and its close proximity to human settlement there is limited potential for Significant Wildlife Habitat. Turtle nesting habitat may be present south of the bridge as exposed soil along the west bank of the river appear to be somewhat sandy.
- There are no aquatic species at risk in the immediate vicinity of the bridge. Protected mussel species are found downstream, but with no in-water works and suitable erosion and sediment control, no impacts are anticipated to downstream reaches.
- The area provides fish habitat for a range of commonly-occurring species, although the quality of the habitat at the bridge is reduced due to the accumulation of sediment from upstream and localized erosion.
- A structural assessment of the bridge in 2007 confirmed that Barn Swallows do nest underneath this bridge.

Albert Street Bridge Replacement Municipal Class EA



## ARCHAEOLOGICAL ASSESSMENT

- An Archaeological Assessment is being completed by Golder Associates.
- There are no known (registered) archaeological sites in the study area or within close proximity.
- There is potential for pre-contact Aboriginal resources given the proximity of the study area to the Sydenham River.
- There is potential for historic Euro-Canadian resources due to the location of the study area in an established community settled from 1832 onward and due to the proximity to a major roadway (Concession Street in the 19th century – now Albert Street).



Albert Street Bridge Replacement Municipal Class EA



## ISSUES AND CONSIDERATIONS

### Traffic Management

- Vehicles and pedestrians will not have access to the bridge during construction.
- Consideration will be given to providing local detours and bypass detours for vehicular traffic during construction. Consideration for the selection of detour routes will consider the levels of anticipated truck traffic, current road traffic volumes, existing traffic signals, emergency services
- Appropriate signage will be located in advance of the detours.

### Pedestrian Link

- The bridge has frequent pedestrian usage due to its location in the community and recreational facilities.
- Consideration of a temporary pedestrian link will be considered as part of this project.
- The ideal location for a temporary pedestrian link would be on the north side of the bridge in a location where minimal disturbance will occur and will require the shortest span.

Albert Street Bridge Replacement Municipal Class EA



## ISSUES AND CONSIDERATIONS

### Disruption During Construction

- Complete bridge closure will be required during construction.
- To reduce construction duration, AECOM will be considering rapid bridge construction of the substructure and superstructure.
- Rapid bridge construction has the potential to reduce bridge closure to an 8 week period (approximately) through:
  - Use of precast concrete substructure and superstructure elements. Fabrication of the bridge components can be completed off site.
  - Potential re-use of the existing abutments.
  - Inclusion of Contractor Incentive/Disincentive clauses.
  - Longer Contractor working times to potentially include Saturday work, and extended hours for certain operations.
- Any remaining activities would then be completed with temporary lane closures.

Albert Street Bridge Replacement Municipal Class EA



## ISSUES AND CONSIDERATIONS

### Bridge Aesthetics

- Bridge aesthetics is an important aspect of bridge construction. The Albert Street Bridge is situated in a highly visible location and is in close proximity to the community facilities and residential neighbourhoods.
- Incorporation of various aesthetic treatments to the new bridge structure will be considered at this location.
- AECOM is very familiar with the use of aesthetic enhancements to bridge construction. Successful strategies that we have employed on previous projects include the use of pigmented concrete, surface textures), decorative approach work and railings, viewing platform areas, ornamentation, accent lighting and landscaping.



## ALTERNATIVE SOLUTIONS

The following alternative solutions have been identified.

### DO NOTHING

This alternative has been included to provide a base to which the other alternatives can be compared. Under this alternative, no measures to improve the condition of the structure are considered and the bridge remains in its present condition.

### ABANDON EXISTING BRIDGE

The existing bridge will be abandoned with no repairs occurring. Vehicular and pedestrian traffic would be re-routed.

### REHABILITATE EXISTING BRIDGE

Rehabilitation of sections of the bridge including deck replacement, structural steel strengthening and coating, expansion joint replacement and substructure rehabilitation.

### REPLACE EXISTING BRIDGE

This alternative involves the removal of all substructure and super-structure elements and replacement of all features with a new bridge.

Albert Street Bridge Replacement Municipal Class EA



MC8

## EVALUATION CRITERIA

- The intent is to provide an impartial, traceable and consistent evaluation.



- The evaluation criteria is applied to each of the alternatives to determine a preferred solution based on the least negative impact.

Albert Street Bridge Replacement Municipal Class EA



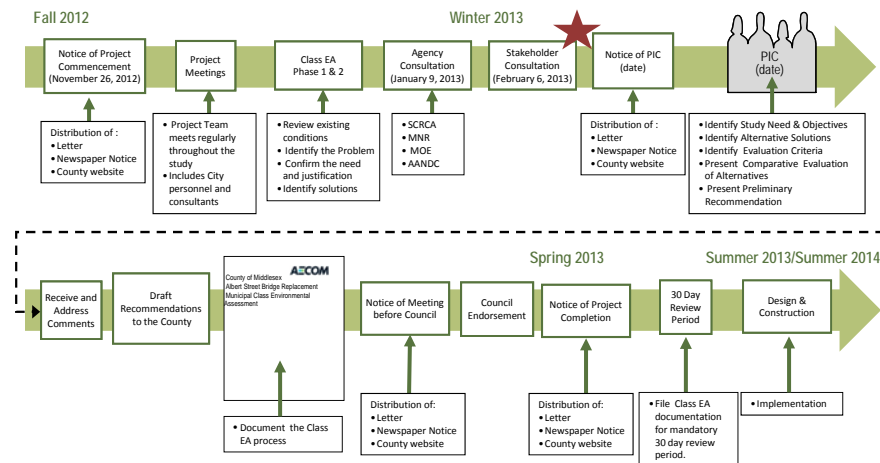
## DESIGN CONSIDERSTIONS

- Single span bridge (approximately 34 m long)
- Asphalt and waterproofing of top surface
- 2 through lanes and one middle turn lane (roadway width similar to east of bridge)
- Concrete sidewalk each side of road with parapet wall and railing
- It is the intent to implement an alternative such that no in-water works are required. It is also our intent that all physical work will be contained in the right-of-way limits.
- We will ensure that the assessment and mitigation measures are of sufficient scope and detail to gain all required approvals and authorizations as required.

Albert Street Bridge Replacement Municipal Class EA



## PUBLIC CONSULTATION



★ Indicates where we are in the process.

Albert Street Bridge Replacement Municipal Class EA



## APPROVAL REQUIREMENTS

- St. Clair Region Conservation Authority - the structure falls within the SCRCA regulated area therefore approval under Ontario Regulation 171/06 is required.
- Ministry of the Environment – Permit to Take Water permit may be required; approvals to relocate an existing storm outlet may be required; approvals to relocate an existing sanitary sewer may be required.
- Department of Fisheries and Oceans – It is the intent of this project that the work will be completed such that no in-water work will be required. Once further details are determined for the bridge and construction impacts, discussions will be held with SCRCA to determine the extent of documentation required (if necessary).
- Ontario Ministry of Natural Resources – may require a letter of advice issued by the OMNR provided that, the design of the bridge would allow/promote the continued use of the bridge for Barn Swallow nesting and the completion of the works outside of the nesting period for this species (typically late May to Mid-August (Brown et al. 1999). OMNR indicated that further details regarding the project would be required prior to determining the appropriate course of action.

Albert Street Bridge Replacement Municipal Class EA



## PROJECT SCHEDULE

Spring 2013	• Completion of the Municipal Class EA
Summer/Fall 2013	• Detailed Design & Approvals
Winter/Spring 2014	• Tendering & Contract Award
June 2014	• Start of Construction
July/August 2014	• Bridge Closure (8 weeks)
October 2014	• End of Construction

Albert Street Bridge Replacement Municipal Class EA





## NEXT STEPS

- Confirm Evaluation Criteria
- Complete Comparative Evaluation of Alternative Solutions
- Hold a Public Information Centre to Present Preliminary Solution

Albert Street Bridge Replacement Municipal Class EA



**Albert Street  
Bridge Replacement**

**Municipal Class EA  
Stakeholder Presentation**

Questions



**AECOM**

**Barrier / Parapet Walls**



**Deck slabs - precast**



**Superstructure**



**Parapet walls fabricated with box girders / no cast in place deck**



**Abutment / Wingwalls**



## Issues Summary



Albert Street Bridge Replacement Municipal Class EA

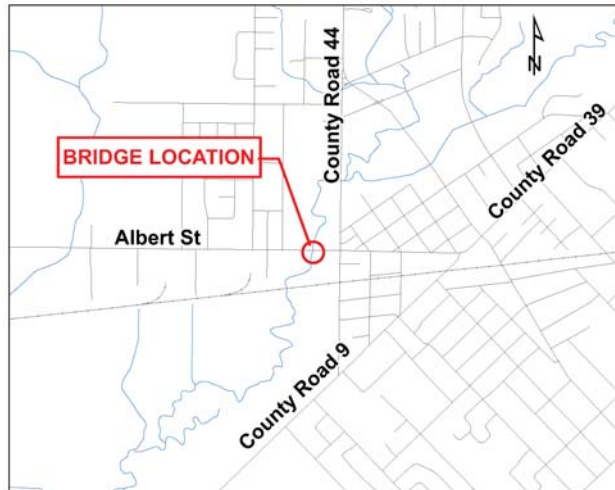




**ALBERT STREET BRIDGE REPLACEMENT  
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT  
NOTICE OF PUBLIC INFORMATION CENTRE**

### **The Study**

The County of Middlesex has retained AECOM to undertake a study to address structural deficiencies and determine the feasibility of replacing the Albert Street Bridge. This bridge is located west of the Albert Street/Victoria Road intersection, in Strathroy.



This study will be completed in accordance with the Municipal Class Environmental Assessment requirements for Schedule B projects (as amended in 2007 & 2011) under Ontario's Environmental Assessment Act (EA Act). This process serves as a mechanism to understand environmental, social, technical and economic issues prior to implementing improvements or changes to the structure.

### **Public Information Centre**

A Public Information Centre (PIC) is scheduled for Thursday May 2, 2013 at the Strathroy-Caradoc Town Hall, 52 Frank Street, Strathroy 2nd Floor Conference Room, from 5:00pm to 7:00pm.

This meeting has been arranged to allow local residents and interested members of the public an opportunity to review and comment on the alternatives under consideration for the replacement of the Albert Street Bridge. This will be an informal "open house", and representatives from the County of Middlesex and AECOM will be available to answer questions and provide information related to

existing conditions, environmental issues, alternative methodologies considered, the comparative evaluation and preliminary recommendations. The information presented at the PIC will be available on the County website at <http://www.middlesex.ca> on Thursday May 2, 2013.

Subject to comments received and receipt of necessary approvals, the County of Middlesex may proceed with the design and construction of the project. Any works regarding this project will be subject to further approval by Middlesex County Council.

In the meantime, if you have any questions or concerns, or would like to be added to the study mailing list, please contact one of the study representatives listed below:

Ms. Corri Marr, H.B.Sc.,  
Environmental Planner  
AECOM Canada  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519-963-5872  
Email: [corri.marr@aecom.com](mailto:corri.marr@aecom.com)

Mr. Chris Traini, P.Eng.,  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London ON, N6A 2P1  
Tel: 519- 474-7321  
Email: [ctraini@middlesex.ca](mailto:ctraini@middlesex.ca)

## **Provincial Departments & Agencies**

Ministry of Natural Resources  
Southwestern Region  
615 John Street  
Alymer ON, N5H 2S8  
Attention: Amanda McCloskey

Ministry of Municipal Affairs & Housing  
Southwestern Municipal Services Office  
659 Exeter Road, 2<sup>nd</sup> Floor  
London ON, N6E 1L3  
Attention: Ms. T. Ryall - Planner

Ministry of Tourism, Culture & Sport  
Southwest Archaeological Field Office  
900 Highbury Ave  
London ON, N5Y 1A4  
Attention: Shari Prowse

Ministry of Environment  
Southwest Region Office  
733 Exeter Road  
London ON, N6E 1L3  
Attention: Mr. Bill Armstrong

## **Municipal/County Depts, Agencies & Utilities**

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Mark Harris – Director of Environmental Services

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Debbie Walsh, Planning Coordinator

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Laurie Hayman – Chief of Police Services

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Tom Gibson – Chief of Fire Services

Albert Street Bridge EA Distribution List (Notice of PIC)

Municipality of Strathroy – Caradoc  
52 Frank Sreet  
Strathroy ON, N7G 2R4  
Attn: Brad Dausett – Roads Manager

Middlesex County – Planning Office  
399 Ridout Street N  
London ON, N6A 2P1  
Attn: Durk Vanderwerff – Manager of Planning

Middlesex County – Emergency Services  
399 Ridout Street N  
London ON, N6A 2P1  
Attn: Neal Roberts – Director of Emergency Services

Middlesex County – Engineers Office  
399 Ridout Street N  
London ON, N6A 2P1  
Attn: Chris Traini – County Engineer

Entegrus Powerlines  
351 Frances Street  
Strathroy ON, N7G 2L7  
Attn: Community Services

SCRCA  
205 Mill Pond Crescent  
Strathroy ON, N7G 3P9  
Attn: Dallas Cundick – Environmental Planner

Bell Canada  
370 Albert St  
Strathroy ON, N7G 4B2  
Attn: Richard Penney  
Project Coordinator Access Network

Union Gas Limited  
PO Box 2001  
Chatham ON, N7M 5M1

Rogers Cable  
Design Department  
800 York Street  
London ON, N6A 5B1

Strathroy Middlesex General Hospital  
395 Carrie Street  
Strathroy ON, N7G 3J4  
Attn: Cheryl Waters – Board Chair

TVDSB  
1250 Dundas Street  
PO Box 588  
London ON, N6A 5L1

LDCSB  
5200 Wellington Road South  
London ON, N6E 3X8

Thames Emergency Medical Services  
61 Albert Street  
Strathroy ON, N7G 1V4

Strathroy District Collegiate Institute  
361 Second Street  
Strathroy ON, N7G 4J8



Albert Street Bridge EA Distribution List (Notice of PIC)

Holy Cross Catholic Secondary School  
367 Second Street  
Strathroy ON, N7G 4K6

Middlesex-London EMS  
61 Albert Street  
Strathroy ON, N7G 1V4

**Community Groups**

Strathroy Lions Club  
432 Albert Street  
PO Box 56  
Strathroy ON, N7G 3J1

Strathmere Lodge  
599 Albert Street  
Strathroy ON, N7G 1X1

St. Andrew's Presbyterian Church  
152 Albert Street  
Strathroy ON, N7G 1V5

**Commercial**

Columbia Sportswear Canada Ltd.  
456 Albert Street  
Strathroy ON, N7G 1W7

Soul Mind Body Spa  
440 Albert Street  
Strathroy ON, N7G 1W7

Goco Gas  
380 Albert Street  
Strathroy ON, N7G 1W7

Footworx  
380 Albert Street  
Strathroy ON, N7G 1W7

Albert Street Bridge EA Distribution List (Notice of PIC)

Dairy Case Food Mart  
380 Albert Street  
Strathroy ON, N7G 1W7

R. Divic  
96 Albert Street  
Strathroy ON, N7G 1V5

Coin Laundry/Car Wash  
380 Albert Street  
Strathroy ON, N7G 1W7

Bev Shipley, MPP  
Box 141  
380 Albert Street  
Strathroy ON, N7G 1W7

Bell  
370 Albert Street  
Strathroy ON,

Museum Strathroy Caradoc  
34 Frank Street  
Strathroy ON, N7G 2R4

Strathroy Monuments Ltd.  
40 Thomas Street  
Strathroy ON, N7G 2S8

**Added Contacts**

Middlesex Hospital Alliance  
395 Carrie Street  
Strathroy, ON N7G 3J4  
Attention: Steve Titus  
Director - Facilities Management

**First Nations**

Chippewas of the Thames  
320 Chippewa Road  
R.R. #1  
Muncey ON, N0L 1Y0  
Attention: Chief Richard "Joe" Miskokomon

Munsee-Delaware Nation  
R. R. #1  
Muncey ON, N0L 1Y0  
Attention: Chief Patrick Waddilove

Oneida Nation of the Thames  
2212 Elm Avenue  
Southwold ON, N0L 2G0  
Attention: Chief Joel Abram

Bkejwanong Territory (Walpole Island)  
R.R. #3  
Wallaceburg ON, N8A 4K9  
Attention: Chief Burton Kewayosh Jr.

Aamjiwnaang  
978 Tashmoo Avenue  
Sarnia ON, N7T 7H5  
Attn: Chief Chris Plain

Delaware Nation  
14760 School House Line  
R.R. #3  
Thamesville ON, N0P 2K0  
Attn: Chief Greg Peters

Caldwell First Nation  
PO Box 388  
Leamington ON, N8H 3W3  
Attn: Chief Louise Hillier

Chippewas of Kettle & Stony Point  
6247 Indian Lane  
RR#2  
Forest ON, N0N 1J1  
Attn: Chief Tom Bressette

Aamjiwnaang  
978 Tashmoo Avenue  
Sarnia ON, N7T 7H5  
Attn: Sharilyn Johnston

Bkejwanong Territory (Walpole Island)  
R.R. #3  
Wallaceburg ON, N8A 4K9  
Attention: Jared Macbeth

Chippewas of Kettle & Stony Point  
6247 Indian Lane  
RR#2  
Forest ON, N0N 1J1  
Attention: Suzanne Bressette

Oneida Nation of the Thames  
2706 Nicholas Road  
Southwold ON, N0L 2G0  
Attention: April Varewyck

Albert Street Bridge EA Distribution List (Notice of PIC)

Chippewas of the Thames  
320 Chippewa Road  
R.R. #1  
Muncey ON, N0L 1Y0  
Attention: Rolanda Elijah

Munsee-Delaware Nation  
R. R. #1  
Muncey ON, N0L 1Y0  
Attention: Dan Miskokoman

Delaware Nation  
14979 School House Line  
R.R. #3  
Thamesville ON, N0P 2K0  
Attn: Tina Jacobs

Chiefs of Ontario  
111 Peter Street, Suite 804  
Toronto ON, M5V 2H1

Union of Ontario Indians  
Regional Office  
300 Anemki Place  
Thunder Bay ON, P7J 1H9

Southern First Nations Secretariat  
22361 Austin Line  
Bothwell ON, N0P 1C0

Association of Iroquois & Allied Indians  
387 Princess Avenue  
London ON, N6B 2A7



## Albert Street Bridge Replacement

### Municipal Class Environmental Assessment

(May 2, 2013)



**AECOM**

## Welcome

Your comments are important to us. Following your review of the information, please complete one of the comment forms and place it in the box provided or send it back to the address on the form prior to May 17, 2013.

If you have any questions our representatives will be pleased to assist you.

**Ms. Corri Marr, H.B.Sc.**  
Project Manager  
AECOM  
Phone: (519) 963-5872  
Fax: (519) 673-5975  
Email: corri.marr@aecom.com

**Mr. Chris Traini, P.Eng.**  
County Engineer  
County of Middlesex  
Phone: (519) 474-7321 ext. 2264  
Fax: (519) 434-0638  
Email: ctraini@middlesex.ca

Albert Street Bridge Replacement Municipal Class EA



## PROJECT OVERVIEW

The Albert Street Bridge is a pony truss structure constructed in 1937 consisting of 2 through lanes and a sidewalk on the north side. The structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

The bridge is located on an arterial road crossing the Sydenham River. It carries over 5,000 vehicles per day, is a vital link to the downtown area and is a heavily used pedestrian link due to its location to nearby residential areas, community facilities and parks.

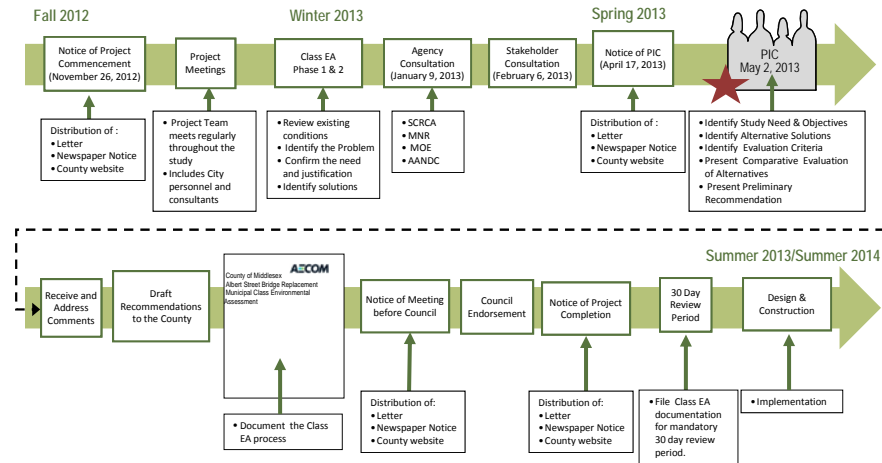
Given the current age, condition and spatial constraints of the existing bridge the County of Middlesex has retained AECOM to conduct a review of and confirm the feasibility of replacing the Albert Street Bridge.

The project will be a Schedule B activity under the Municipal Class Environmental Assessment Process incorporating key planning principles including: public consultation, assessment of a reasonable range of solutions, consideration for the natural, social, economic and technical environments, and provide clear documentation.

Albert Street Bridge Replacement Municipal Class EA



## PUBLIC CONSULTATION & CLASS EA PROCESS



★ Indicates where we are in the process.

Albert Street Bridge Replacement Municipal Class EA





## EXISTING CONDITIONS



Existing utilities



Existing outlet



Existing sidewalk – looking west

Albert Street Bridge Replacement Municipal Class EA



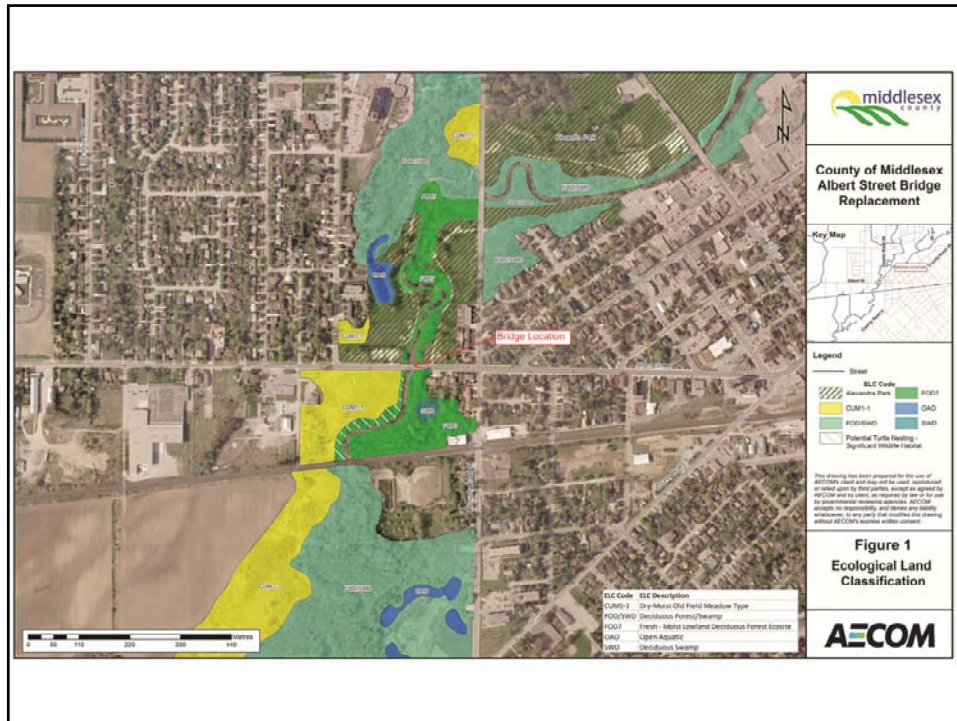
## EXISTING STRUCTURE

- The existing structure is 76 years old (and approaching the end of its functional service life).
- Rehabilitation history includes a deck replacement in 1977 and bearing replacement in 1996.
- There is medium to severe localized corrosion of existing structural steel, with some steel section loss (impacting load carrying capacity).
- There is some deterioration of the concrete abutments with medium delamination's and cracking, some areas with efflorescence staining.
- The pedestrian railing system is substandard and does not meet current code requirements.
- The main truss is unprotected from impact loading from traffic.



Albert Street Bridge Replacement Municipal Class EA





## NATURAL ENVIRONMENT

- The Provincially Significant Sydenham River Wetland Complex is approximately 120 m to the north and 200 m to the south of the site.
- Habitat for five species designated under the Endangered Species Act (ESA, 2007) was identified as potentially being present at the site. Three have not been documented in over twenty years therefore it is unlikely that they are present at the site.
- Habitat for a total of four species of Special Concern was also identified as potentially being present at the site.
- Due to the disturbed nature of the habitat present within the study area and its close proximity to human settlement there is limited potential for Significant Wildlife Habitat. Turtle nesting habitat may be present south of the bridge.
- There are no aquatic species at risk in the immediate vicinity of the bridge. Protected mussel species are found downstream, but with no in-water works and suitable erosion and sediment control, no impacts are anticipated to downstream reaches.
- The area provides fish habitat for a range of commonly-occurring species, although the quality of the habitat at the bridge is reduced due to the accumulation of sediment from upstream and localized erosion.
- A structural assessment of the bridge in 2007 confirmed that Barn Swallows do nest underneath this bridge.

Albert Street Bridge Replacement Municipal Class EA





## WHAT TO EXPECT DURING CONSTRUCTION

### Construction Duration

- Total construction duration estimated to be 16 weeks and consisting of:
  - 8 weeks of full bridge and road closure to remove the existing bridge and replace the main components of the bridge using "rapid bridge construction methods"
  - 8 weeks of temporary lane closures and traffic staging to complete construction of the remaining bridge components.
- Incorporate Contractor Incentive clauses into the Contract to reduce construction duration and/or eliminate extra time requirements.
- Incorporate into the Contract extended working hours (daily) and extended working days (potentially to include Saturday work for certain operations).

### Traffic Management

- Vehicles will not have access to the bridge during closure & pedestrians will not have access during the entire duration of construction.
- Local detours and bypass detours for vehicular traffic during construction will be provided. Detour routes considered the levels of anticipated truck traffic, current road traffic volumes, existing traffic signals, emergency services.
- Appropriate signage will be located in advance of the detours.

Albert Street Bridge Replacement Municipal Class EA



## DETOUR DURING CONSTRUCTION



Albert Street Bridge Replacement Municipal Class EA



## WHAT TO EXPECT DURING CONSTRUCTION

### Pedestrian Link

- The bridge has frequent pedestrian usage due to its location in the community and recreational facilities.
- Consideration of a temporary pedestrian link will be considered as part of this project.
- The ideal location for a temporary pedestrian link would be on the north side of the bridge in a location where minimal disturbance will occur and will require the shortest span.

### Natural Environment

- Sediment control barriers will be implemented along the River.
- Permit from St. Clair Region Conservation Authority is required prior to construction.
- Vegetation removal will be kept to the minimum amount required and not permitted during bird breeding season
- Soil testing, including appropriate disposal if contaminated will be undertaken.
- In-water work will be restricted from March to July, however no in water work is anticipated.

Albert Street Bridge Replacement Municipal Class EA



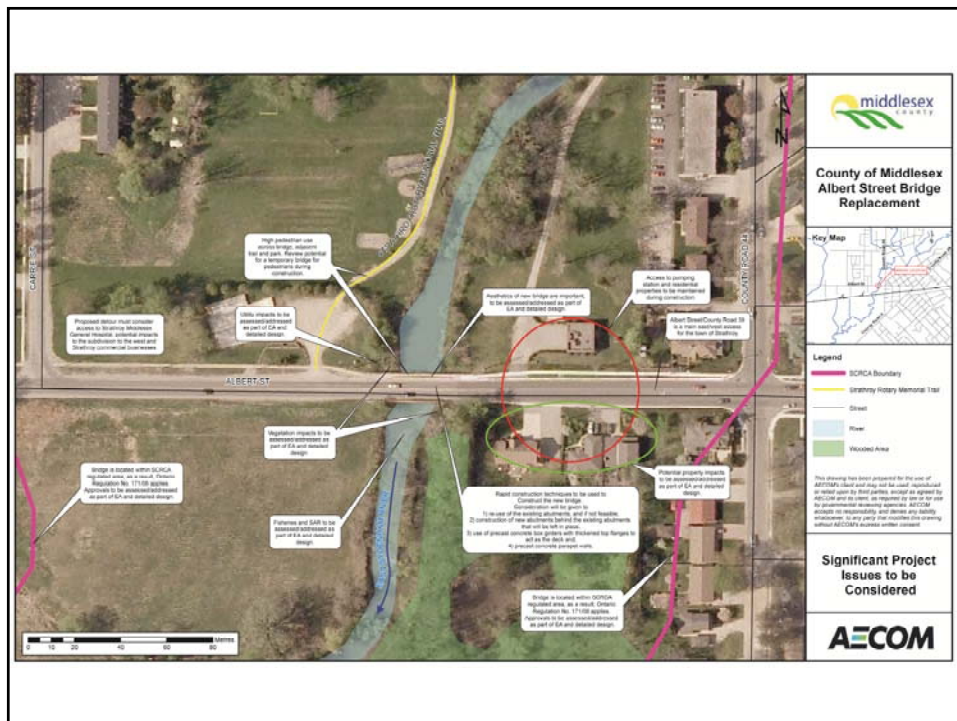
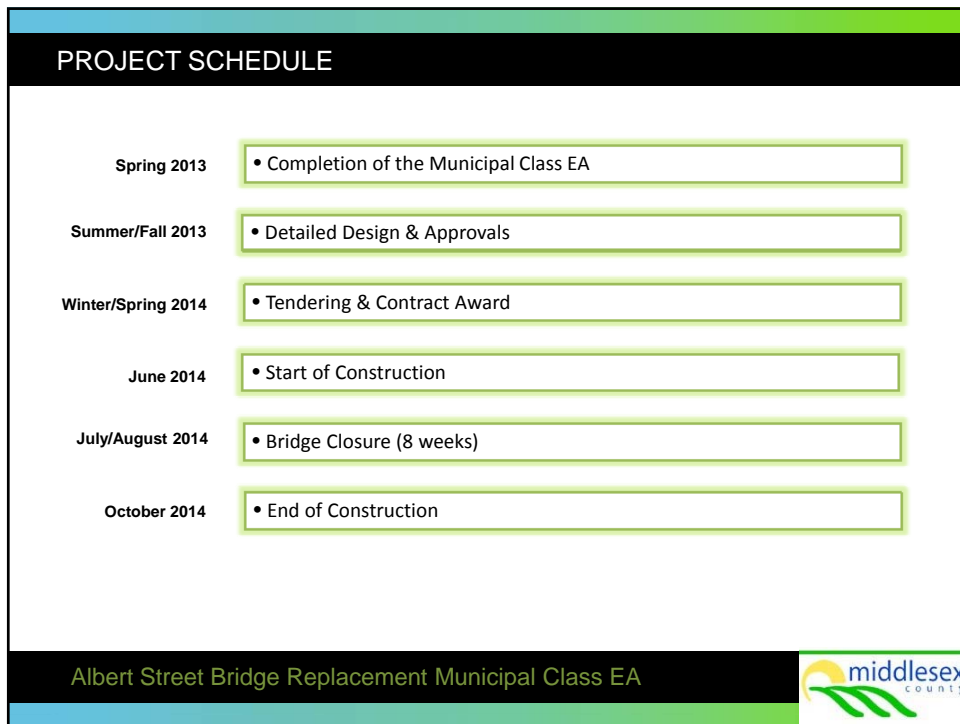
## DESIGN CONSIDERATIONS

- Single span bridge (approximately 34 m long).
- Asphalt paving and waterproofing of top surface .
- Total roadway width between the curbs is 10.5m. Initial configuration will have 2 through lanes. Future configuration will have 2 through lanes and one middle turn lane (with roadway width similar to east of bridge).
- Concrete sidewalk (1.5m wide) each side of road with parapet wall and railing.
- It is the intent to implement an alternative such that no in-water works are required. It is also our intent that all physical work will be contained in the right-of-way limits.
- We will ensure that the assessment and mitigation measures are of sufficient scope and detail to gain all required approvals and authorizations as required.

Albert Street Bridge Replacement Municipal Class EA











**Albert Street Bridge Replacement  
Municipal Class Environmental Assessment -  
Schedule 'B'**

**Comments:** Please use this form to provide any written comments. Your comments can be handed in at the Public Meeting on **May 2, 2013** or mailed, faxed or emailed to any one of the following addresses no later than **May 17, 2013**.

Corri Marr  
Project Manager  
AECOM (Canada) Inc.  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519.963.5872  
Fax: 519.673.5975  
corri.marr@aecom.com

Chris Traini, P.Eng.,  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London ON, N6A 2P1  
Tel: 519.474.7321 ext 2264  
Fax: 519.434.0638  
ctraini@middlesex.ca

Name:

Address:

Telephone:

Comments:

SIGHT LINE OF THE NEW RAILING VS.  
THE EXISTING - IMPROVE.

(HOUSE IMMEDIATELY SE OF BRIDGE) -

## TOWNSHIP OF ADELAIDE METCALFE NOTICE TO RESIDENTS AND PROPERTY OWNERS REGARDING NOXIOUS WEEDS

The main purpose of the Weed Control Act, R.S.O. 1990, is to reduce the impact of noxious weeds on the industries of agriculture and horticulture. Primarily this Act applies to agricultural and horticultural lands that generate income or other benefits to agriculture; this excludes lawns, gardens and private areas for personal enjoyment and leisure.

Under the Weed Control Act, R.S.O. 1990, Chapter W.5, Sections 3, 16 and 23, you are requested to destroy all noxious weeds on your property.

### In Urban Areas

Section 3, 13, 16 and 18 do not apply to noxious weeds or weed seeds that are far enough away from any land used for agricultural or horticultural purposes, as they do not interfere with that use.

All properties within the Township of Adelaide Metcalfe are hereby requested to be in compliance with the Weed Control Act by the 7th day of June, 2013 and throughout the growing season.

**John Trott**  
Weed Inspector  
County of Middlesex  
519-434-7321 Ext. #2258

**Fran I. Urishoti, AMCT**  
Administrator/Clerk  
Township of Adelaide Metcalfe  
519-247-3687 Ext. #102



## NOTICE TO RESIDENTS OF STRATHROY-CARADOC

Residents of the Municipality are reminded that burning of prohibited materials and yard waste are not allowed under any circumstance within the urban areas of the Municipality.

The Municipal Open Air-Burn By-law allows the Fire Department to invoice the property owner when the Fire Department is dispatched to violations of the By-Law.

The Minimum fee for the dispatch of the Fire Department resources is \$410.00 for each fire department apparatus that is required to respond.

Residents are reminded that leaves, grass clippings and garden waste are accepted at no charge at the Strathroy and Mount Brydges Transfer Stations.

Recreational fires are allowed provided that the conditions of the bylaw are followed as to the size of an approved recreational fire, the fuels used and the times that a recreational fire is conducted.

Burning of brush or dry seasoned wood is permitted in the rural areas of the Municipality for the purpose of land clearing provided that the District Fire Chief of the designated response area is notified before commencing any burning and that all provisions of the By-Law are met.

A copy of the By-law is posted on the Fire Department web site or a copy can be obtained at the Strathroy Fire Station during regular business hours.

Strathroy-Caradoc Fire Department  
23 Zimmerman Street, Strathroy, Ontario  
(519) 245-1990

## AUCTION OF VEHICLES, RV'S, CAMPERS & HEAVY EQUIP.

\*\*\*\*\*

**SATURDAY, APRIL 27TH AT 12:00 NOON**  
309 EXETER ROAD, LONDON

ONLINE BIDDING AT [www.bidspotter.com](http://www.bidspotter.com)

PICTURES, VIEWINGS & LISTING AT [www.gardnerauctions.com](http://www.gardnerauctions.com)

\*\*\*\*\*  
'14 Sun-Park 19 toy hauler  
'09 Pontiac G6  
'08 Bobcat 435 mini ex.  
'08 Saturn Vue AWD  
'07 Isuzu Horizon 40' RV  
'06 Sellick S120 forklift  
'05 Isuzu Meridian 36' RV  
'05 Jeep G-Cherokee  
Genie S-45 boom  
(4) Forklifts  
Chris Craft 28' boat  
\*\*\*\*\*

**LONDON PH. (519) 685-2929 FAX (519) 689-9817**



"ACTION BY AUCTION SINCE 1927"

### Public Notices

## ATTENTION

WATER USERS IN THE MUNICIPALITY OF  
SOUTHWEST MIDDLESEX

The Municipality's water system operator OCWA will be flushing the hydrants throughout the Municipal Water System from April 22 - May 3, 2013

### Schedule

April 22 - 26, 2013 - Villages of Appin,  
Melbourne, Wardsville

and all rural extension routes

April 29 - May 3, 2013 - Village of Glencoe

This hydrant flushing will occur daily

between the hours of 8:00 a.m. and 6:00 p.m.

While the hydrants are being flushed in your area you may notice a discolouring or cloudiness of the water supply. You may also experience a slight drop in water pressure.

If your water appears to be discoloured or cloudy, please run your water for several minutes until the water clears.

If you require additional information or have concerns,

please call 519-287-2015 during office hours,

Monday - Friday 8:30 a.m. to 4:30 p.m.



Municipality of Southwest Middlesex  
153 McKellar Street, P.O. Box 218  
Glencoe ON N0L 1M0  
Phone: 519-287-2015/Fax: 519-287-2359  
Email: [francisco@southwestmiddlesex.ca](mailto:francisco@southwestmiddlesex.ca)

### Public Notices

### Real Estate Services

### Real Estate Services

### Real Estate Services

**Kettlewell**  
Insurance & Real Estate Ltd  
65 Frank St., STRATHROY  
519-245-1400  
REALTOR

**14 Stonefield Gate, Ilford, ON**  
\$339,900  
Quality built 3 bdrm, 3 bath home with main level laundry and powder room. A bright and spacious open concept main level with solid facing the large deck, looking onto green haven park. A great place to live. Call John Koolen 519-245-1400

**2440 Alexis Rd., Windsor**  
\$129,900  
Sweet well maintained 1 1/2 storey home, partly fenced with 1 1/2 car garage, many replacement windows & doors. Call Marlies Koolen 519-245-1400

**267 Rapley St. Strathroy**  
\$163,900  
Excellent 3 bedroom home located near hospital and park. Large kitchen, spacious rooms and potential for granny suite. Located on a large lot with a private porch. Don't miss out! No condo fees! Call John Pacheco 519-245-1400

**95 English St. Strathroy**  
Why even think about renting when you can own this townhouse for less than \$400.00 a month mortgage payment. Move-in condition. Great potential for starter or investment opportunity. No condo fees! Call John Pacheco 519-245-1400

TRUST IN US - OVER 65 YEARS OF EXPERIENCE  
- Free Marketing Evaluation

**RE/MAX**  
Centre City Realty Inc., Brokerage  
Independently Owned & Operated  
11 Metcalfe Street West, Strathroy  
519-246-1900

**See More Homes!**  
[johnrogan.ca](http://johnrogan.ca)

**21 KITTRIDGE AVE. WEST**  
\$139,900 3 bedroom,  
2 Story Semi

**194 FROM STE**  
\$214,900 4 Bedroom  
Victorian Style Semi

**580 ALBERT ST.**  
\$229,900 3 + 1 Bedroom  
Ranch. Inground Pool!

**39 QUEENSWAY DR.**  
\$239,900 New All Brick  
Ranch. Quality Built By  
Ward Homes

**251 BURNS ST.**  
\$264,900 3 Bedroom  
Bungalow 2.42 Acres

**153 CARROLL ST. E.**  
\$379,900... Exceptional  
over 3500 sqft. raised  
ranch. On 81' x 218' lot

**FREE... Market Evaluation!**

### Public Notices

### Public Notices

### Public Notices

## NOTICE TO CREDITORS & OTHERS

Anyone having a claim against the Estate of **TAMMY LYNN MARGARET CARTER** late of the Township of Strathroy-Caradoc, in the County of Middlesex, who died on the 10th day of November, 2012, is required, on or before the 24th day of May, 2013, to file with the undersigned solicitors particulars of their claim duly verified, after which date the Estate will be distributed having regard only to those claims of which Notice shall then have been given.

Attention: Judy M. Rich  
376 Richmond Street  
London, ON N6A 3C7

Subject to comments received and receipt of necessary approvals, the County of Middlesex may proceed with the design and construction of the project.

Any works regarding this project will be subject to further approval by Middlesex County Council.

In the meantime, if you have any questions or concerns, or would like to be added to the study mailing list, please contact one of the study representatives listed below:

Ms. Corri Marr, H.B.Sc.,  
Environmental Planner  
AECOM Canada  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519-963-5872  
Email: [corri.marr@aecom.com](mailto:corri.marr@aecom.com)

### Public Information Centre

A Public Information Centre (PIC) is scheduled for Thursday May 2, 2013 at the Strathroy-Caradoc Town Hall, 52 Frank Street, Strathroy 2nd Floor Conference Room, from 5:00pm to 7:00pm.

## Step Up Your Selling Power!

Albert Street Bridge Replacement  
Municipal Class Environmental Assessment  
Notice of Public Information Centre

This meeting has been arranged to allow local residents and interested members of the public an opportunity to review and comment on the alternatives under consideration for the replacement of the Albert Street Bridge. This will be an informal "open house" and representatives from the County of Middlesex and AECOM will be available to answer questions and provide information related to existing conditions, environmental issues, alternative methodologies considered, the comparative evaluation and preliminary recommendations. The information presented at the PIC will be available on the County website at <http://www.middlesex.ca> on Thursday May 2, 2013.

Subject to comments received and receipt of necessary approvals, the County of Middlesex may proceed with the design and construction of the project.

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**WELCOME TO WAGON**  
New to the community? New baby in your home? Call Mariette Desjardine, Strathroy rep 519-205-0437, or email: [mariedes@rogers.com](mailto:mariedes@rogers.com); [www.welcomewagon.ca](http://www.welcomewagon.ca)

**Advertise your garage sale in the classifieds!**

### Auction Sales

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**RE/MAX**  
Centre City Realty Inc., Brokerage  
Independently Owned & Operated  
11 Metcalfe Street West, Brantford  
**519-246-1900**  
**FREE... Market Evaluation!**  
**See More Homes!**  
john.grogan.ca

**SOLD**  
615 ERIE ST. WATFORD  
\$159,900... Investment  
Opportunity, 1 1/2 Storey 5 Plex

**SOLD**  
29 KATIE LANE  
\$169,900... 3+2 bedroom  
raised ranch

**SOLD**  
171 MAITLAND  
\$172,900 LIKE NEW!  
3 Bedroom Ranch

**SOLD**  
8827 PETROLIA LINE  
\$385,000... RR#2  
Alvinston  
74.6 Acre Farm

**SOLD**  
387 METCALFE ST. W.  
\$395,000... Exceptional  
2800 sq ft ranch on .82 acre  
lot. In ground salt water pool.

**SOLD**  
153 CARROLL ST. E.  
\$398,000... Exceptional  
over 3500 sqft. raised  
ranch. On 81' x 218' lot

## Real Estate Services

**Century 21**  
First Canadian Corp.  
SELLING? Call RON\* or CAM\* TYLER for FREE Evaluation  
and View Their Proven Marketing Program

**RON TYLER** - BA  
Member  
C21 Hall of Fame  
519-673-3390  
519-671-0776

**CAM TYLER** - BA  
Member  
C21 Hall of Fame  
519-673-3390  
519-280-4200

**NEW LISTING**  
256 PARK ST.  
\$189,900  
• 3+1 beds, 2 baths, 4 levels  
• 21' x 22' Garage/Shop  
• Backs to 100' lot, 2nd floor  
• Newer Windows, Shingles  
• Newer Furnace/Air  
• Oversized garage (Numerous Updates)

**NEW LISTING**  
OPEN HOUSE SAT & SUN 2-4pm  
33 NEW CONDOS  
• Construction starting  
• 2 beds, 2 baths  
• Central Air, garages  
• MF laundry, pick your lot

**NEW LISTING**  
51 WILLOW CRES.  
\$244,900  
• 3+2 Beds, 2 Baths,  
Double garage  
• Fin lower level, Fenced lot, Deck  
• Backs to Farm land, Vaulted ceilings

**NEW LISTING**  
48 HICKORY BLVD  
\$174,900  
• 3+1 beds, 2 baths, 1.5 car garage  
• Hardwood floors, central air  
• Fence lot, Parkview Estates

**NEW LISTING**  
503 DARCY  
\$299,900  
• 3+1 beds, 4 baths  
• Hardwood/Ceramic, Fin. L.L.  
• Main floor family/gas fireplace  
• Large kitchen, Island

**NEW LISTING**  
167 MAITLAND  
\$174,900  
• 3+1 beds, 2 baths, 1.5 car garage  
• Hardwood floors, central air  
• 5 Years Young

**NEW LISTING**  
120 ABAGAIL  
\$379,900  
• 4 beds, 4 baths, 2 fireplaces  
• Finished top to bottom, finished lot  
• Hardwood/ceramic floors, Granite  
• Price of ownership, Fabulous location

**NEW LISTING**  
6849 OLDE DRIVE  
\$349,900  
• 2.25 ACRES, Fenced Road, Gas Heat  
• 4 beds, 2 baths, Updated throughout  
• C.A. Baths, Floors, Windows, Linoleum,  
• 30'x50' Barn, Shop, Dog, Kennel

## Real Estate Services

**SHANAHAN**  
REAL ESTATE BROKERAGE  
7963 Egremont Rd., Watford N6M 2S0  
WWW.ShanahanRealty.com  
519-849-6684 519-849-6783

**Paul Shanahan**  
519-849-6783

**Leo Shanahan**  
519-849-6783

**\*3% DOWN, INTEREST CALCULATED AT 3% AMORTIZED FOR 25 YRS**

10 UNION ST., ARKONA "ONLY \$495 A MONTH!"	9 WELLINGTON ST., ARKONA "ONLY \$889 A MONTH!"	4591 EDYS MILLS LN., EDYS MILLS "ONLY \$427 A MONTH!"
325 WALL ST., WATFORD "ONLY \$315 A MONTH!"	610 HURON ST., WATFORD "ONLY \$450 A MONTH!"	385 ST. CLAIR ST., WATFORD "ONLY \$540 A MONTH!"

**EXTRA...  
EXTRA...  
CLASSIFIED VALUE!**

**Public Notices**

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# **ALBERT STREET BRIDGE REPLACEMENT MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT NOTICE OF PROJECT COMMENCEMENT**

**The Study**  
The County of Middlesex has retained AECOM to undertake a study to determine the feasibility of replacing the Albert Street Bridge, located west of the Albert Street/Victoria Road intersection, in Strathroy. This study will be completed in accordance with the Municipal Class Environmental Assessment Act (MCEAA) and the requirements for Schedule B projects (as amended in 2007 & 2011) under Ontario's Environmental Assessment Act (EAA). This process serves as a mechanism to understand environmental, social, technical and economic issues prior to implementing improvements or changes to the structure.

**Public Involvement**  
Public involvement is an important part of the study process. A Public Information Centre will take place during this study for residents, agencies, community organizations and interested parties to provide input and ask questions and identify issues or concerns they have. Once the preferred solution has been selected, a Screening Report will be prepared to document the project. The public will be notified of the date, time and location of the Public Meeting and completion of the Screening Report through newspaper notices, letters mailed to those on the project's mailing list and through the County's website: <http://www.middlesex.ca>

**Comments**  
Comments and information regarding this project are being collected to assist in meeting the requirements of the EAA. This material will be maintained on file for use during the project and will become part of the public record. If you would like more information related to the study or to be included on the mailing list for direct notification please contact:

Ms. Cori Marr, H.B.Sc.  
Environmental Planner  
AECOM Canada  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519-963-5872  
Email: Cori.Marr@aecom.com

Mr. Chris Traini, P.Eng.,  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London ON, N6A 2P1  
Tel: 519-474-7321  
Email: ctraini@middlesex.ca

**Background**  
The structure is a steel truss bridge consisting of 2 through lanes (one east and one west bound) with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

The intent of this study is to investigate the opportunity and evaluate feasible solutions to replace the structure such that a wider cross section can be achieved across the river, further to the west. This wider structure will provide additional capacity for vehicular, cyclists and pedestrians.

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## **NOTICE OF ROAD CLOSURE**

Notice is hereby given under Southwest Middlesex By-law No. 5/2003 of the intent to close, stop up and sell:

That portion of the unopened Trillium Drive road allowance in Lots 19 and 20 (former Township of Ekfrid).

A map showing the location of the above properties is available for viewing on the Southwest Middlesex website – [www.southwestmiddlesex.ca](http://www.southwestmiddlesex.ca) OR at the municipal office during regular office hours of 8:30 a.m. and 4:30 p.m.

The Council for the Corporation of the Municipality of Southwest Middlesex will consider the above action at the regular meeting held at 153 McKellar Street in Glencoe on:

**Wednesday, December 19, 2012 at 7:05 p.m.**

Anyone wishing to make a submission with respect to the intended action may do so in one of the following ways:

1. Make a verbal presentation to Council at the above date and time.
2. Written submission addressed to: Administrator/Clerk  
Municipality of Southwest Middlesex  
P.O. Box 218, 153 McKellar Street  
Glencoe, ON N0L 1M0  
Email: [jnwitt@southwestmiddlesex.ca](mailto:jnwitt@southwestmiddlesex.ca)

Deadline for written and e-mail submissions - 12:00 p.m. on Wednesday, December 19, 2012.

Janneke Newitt, B.A., AMCT  
Administrator/Clerk  
Municipality of Southwest Middlesex  
519-287-2015, ext. 109

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**2012/2013 HOLIDAY SEASON WASTE COLLECTION SCHEDULE**

Residents of Southwest Middlesex who normally have waste collection pick up on Tuesday, December 25, 2012 and Tuesday, January 1, 2013 will have their waste collected on Saturday, December 29, 2012 instead. The regular Tuesday collection will resume on Tuesday, January 8, 2013 following the holidays.

Please ensure that your waste is out at the roadside before 7 a.m. on December 29, 2012.

Collections that are normally held on Thursday remain as scheduled during the holiday season.

Thank you for your cooperation.

Any questions may be directed to:

Jaime Francisco, Public Works Manager  
153 McKellar Street, P.O. Box 218, Glencoe, ON, N0L 1M0  
Phone: (519)287-2015/Fax: (519)287-2359  
Email: [francisco@southwestmiddlesex.ca](mailto:francisco@southwestmiddlesex.ca)

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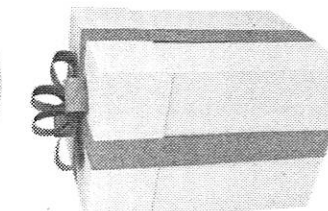
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**NOTICE TO CREDITORS & OTHERS**  
Anyone having a claim against the Estate of **GERHARD (GARY) WARNER REITKNECHT**, late of the Township of Stratford-Caradoc, in the County of Middlesex, who died on the 10th day of March, 2013, is required on or before the 7th day of June, 2013, to file with the undersigned solicitors particulars of their claim duly verified, after which date the Estate will be distributed having regard only to those claims of which Notice shall then have been given.  
Szemenyei MacKenzie Group LLP  
Attention: Judy M. Rich  
376 Richmond Street  
London, ON N6A 3C7

**Public Notices**

**NOTICE TO CREDITORS & OTHERS**  
Anyone having a claim against the Estate of **TAMMY LYNN MARGARET CARTER**, late of the Township of Stratford-Caradoc, in the County of Middlesex, who died on the 10th day of November, 2012, is required, on or before the 24th day of May, 2013, to file with the undersigned solicitors particulars of their claim duly verified, after which date the Estate will be distributed having regard only to those claims of which Notice shall then have been given.  
Szemenyei MacKenzie Group LLP  
Attention: Judy M. Rich  
376 Richmond Street  
London, ON N6A 3C7

**NOTICE TO CREDITORS AND OTHERS**  
In the Estate of **Jerome Helaire Catrysse**, deceased. Notice is hereby given that all persons having claims against the Estate of Jerome Helaire Catrysse, who died on or about the 5th day of November, 2012, are required to submit full particulars of such claims to the undersigned Solicitor for the Estate Trustee, on or before the 22nd day of May, 2013, after which date the assets of the estate will be distributed, having regard only to such claims which have been received.  
**ROBERT G. WATERS**  
Barristers & Solicitors  
72 Frank Street  
Stratford, ON N7G 2H6  
Solicitor for the Estate Trustee



## NOTICE OF PUBLIC MEETINGS WATER SYSTEM CUSTOMERS

(Including all SWM customers in Newbury, Bothwell, Stratford-Caradoc, and West Elgin)

Tuesday, May 14, 2013  
5:00 p.m. to 7:00 p.m.  
Wardsville Community Centre  
21996 Hagerly Rd. Wardsville

Thursday May 23, 2013  
6:00 p.m. to 8:00 p.m.  
Glencoe arena auditorium  
138 Mill Street, Glencoe

The Municipality of Southwest Middlesex, with the aid of funding obtained through the Ontario Showcasing Water Innovation Program (SWI), has embarked on a project to improve the quality and safety of its drinking water supply.

Through the assistance of the Ontario Clean Water Agency (OCWA), we will be incorporating the AWE Water Treatment system, which uses a stabilized hydrogen peroxide disinfectant, at the Glencoe Reservoir to provide secondary disinfection and eliminate the use of chlorine within the distribution system.

The AWE system is currently in use in Killaloe Ontario, which shows very encouraging results and key learning we can implement here.

We anticipate that we will be in a position to commence using AWE within a few months once all the preparatory work is in place. We will inform you of the exact implementation date when it is known. You are invited to attend either or both of the public meetings to find out more about this project.

A brochure with more details on the AWE system will be available at the public meeting and at the municipal office. As well, you may contact your municipal office or representatives of OCWA or SanEcoTec®, the owner of AWE, should you require more information.

OCWA  
Holly Wirth  
hwirth@ocwa.com  
905-491-3051

Southwest Middlesex  
Janneke Newitt  
jnewitt@southwestmiddlesex.ca  
519-287-2015 x.109

SanEcoTec®  
Jim Shubat  
jim.shubat@sanecotec.com  
613-491-0525

MUNICIPALITY OF SOUTHWEST MIDDLESEX  
153 McKellar Street, P.O. Box 218, GLENCOE, ONTARIO, N0L 1M0  
PHONE: 519-287-2015/FAX: 519-287-2359/EMAIL: info@southwestmiddlesex.ca  
WEB SITE: www.southwestmiddlesex.ca

**middlesex**  
ALBERT STREET BRIDGE REPLACEMENT  
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT  
NOTICE OF PUBLIC INFORMATION CENTRE

**The Study**  
The County of Middlesex has retained AECOM to undertake a study to address structural deficiencies and determine the feasibility of replacing the Albert Street Bridge. This bridge is located west of the Albert Street/Victoria Road intersection, in Stratford.

This meeting has been arranged to allow local residents and interested members of the public an opportunity to review and comment on the alternatives under consideration for the replacement of the Albert Street Bridge. This will be an informal "open house" and representatives from the County of Middlesex and AECOM will be available to answer questions and provide information related to existing conditions, environmental issues, alternative methodologies considered, the comparative evaluation and preliminary recommendations. The information presented at the PIC will be available on the County website at <http://www.middlesex.ca> on Thursday May 2, 2013.

Subject to comments received and receipt of necessary approvals, the County of Middlesex may proceed with the design and construction of the project. Any works regarding this project will be subject to further approval by Middlesex County Council.

In the meantime, if you have any questions or concerns, or would like to be added to the study mailing list, please contact one of the study representatives listed below:

Ms. Corri Marr, H.B.Sc.,  
Environmental Planner  
AECOM Canada  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519-963-5872  
Email: corri.marr@aecom.com

Mr. Chris Traini, P.Eng.,  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London ON, N6A 2P1  
Tel: 519-474-7321  
Email: ctraini@middlesex.ca

**Public Information Centre**  
A Public Information Centre (PIC) is scheduled for Thursday May 2, 2013 at the Stratford-Caradoc Town Hall, 52 Frank Street, Stratford 2nd Floor Conference Room, from 5:00pm to 7:00pm.

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BROKERAGE  
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**14 Stonefield Gate, Iderton, ON**  
\$399,900  
Quality built 3 am.3 bed, room. A bright and spacious open concept main level with ceramic and hardwood flooring, bright kitchen with island facing the large deck backing onto a beautiful yard. Call Jim Koolen 519-245-1400

**2440 Alexis Rd., Windsor**  
\$129,900  
Sweet well maintained 1½ storey home partly fenced with 1½ car garage, many replacement windows & doors. Call Marlies Koolen 519-245-1400

**267 Rapley St. Stratford**  
\$163,900  
Excellent 3 bedroom home located near hospital and park. Large kitchen, spacious rooms and potential for granny suite. Located on a large lot with a private porch. Don't miss out! No condo fees! Call Jim Koolen 519-245-1400

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**21 KITTRIDGE AVE. WEST**  
\$139,900 3 bedroom,  
2 Story Semi

**194 FROM STE**  
\$214,900 4 Bedroom  
Victorian Style Semi

**580 ALBERT ST.**  
\$229,900 3 + 1 Bedroom  
Ranch. Inground Pool!

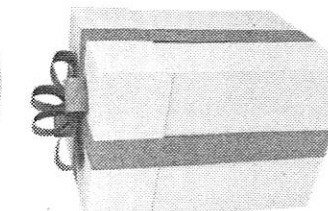
**39 QUEENSWAY DR.**  
\$239,900 New All Brick  
Ranch. Quality Built By  
Ward Homes

**251 BURNS ST.**  
\$264,900 3 Bedroom  
Bungalow 2.42 Acres

**153 CARROLL ST. E.**  
\$379,900... Exceptional  
over 3500 sqft. raised  
ranch. On 81' x 218' lot

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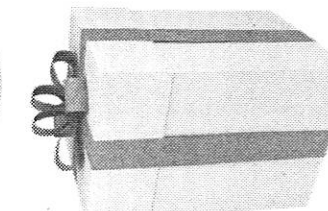
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# Appendix H

## Aboriginal Consultation

November 26, 2012

Chief Tom Bressette  
Chippewas of Kettle & Stony Point  
6247 Indian Lane  
RR#2  
Forest ON, N0N 1J1

Dear Chief Bressette:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**


AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy. The existing bridge is a steel truss bridge consisting of 2 through lanes with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

The intent of this study is to investigate the opportunity and evaluate feasible solutions to replace the structure such that a wider cross section can be continued across the river, further to the west. The wider structure will provide additional capacity for vehicular traffic, cyclists and pedestrians.

The Class EA will consider Phases 1 and 2 of the planning process including: identification of the problem and or opportunity to be addressed; identification of solutions; an assessment of potential impacts the proposed solution may have on the surrounding environment; identification of measures to mitigate any adverse impacts; identification of the preferred solution; preparation of a Screening Report; and public, stakeholder, Aboriginal and review agency consultation.

I have attached the Notice of Project Initiation for your information. Should you have any questions or comments about this project or wish to be further engaged in the Class EA process please do not hesitate to contact us at the phone number or e-mail listed below.

Sincerely,  
**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)



November 26, 2012

Chief Chris Plain  
Aamjiwnaang  
978 Tashmoo Avenue  
Sarnia ON, N7T 7H5

Dear Chief Plain:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

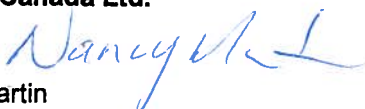
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**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chief Burton Kewayosh Jr.  
Bkejwanong Territory  
RR#3  
Wallaceburg ON, N8A 4K9

Dear Chief Kewayosh:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

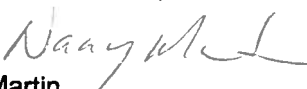
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**AECOM Canada Ltd.**

  
Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chief Joel Abram  
Oneida Nation of the Thames  
2212 Elm Avenue  
Southwold ON, N0L 2G0

Dear Chief Abram:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

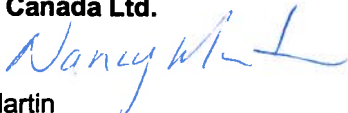
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**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chief Patrick Waddilove  
Munsee-Delaware First Nation  
RR#1  
Munsey ON, N0L 1Y0

Dear Chief Waddilove:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy. The existing bridge is a steel truss bridge consisting of 2 through lanes with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

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Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chief Greg Peters  
Delaware Nation  
14760 School House Line  
RR#3  
Thamesville ON, N0P 2K0

Dear Chief Peters:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

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Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chief Louise Hillier  
Caldwell First Nation  
PO Box 388  
Leamington ON, N8H 3W3

Dear Chief Hillier:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

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Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)



November 26, 2012

Association of Iroquois & Allied Indians  
387 Princess Avenue  
London ON, N6B 2A7

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

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November 26, 2012

Southern First Nations Secretariat  
22361 Austin Line  
Bothwell ON, N0P 1C0

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy. The existing bridge is a steel truss bridge consisting of 2 through lanes with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

The intent of this study is to investigate the opportunity and evaluate feasible solutions to replace the structure such that a wider cross section can be continued across the river, further to the west. The wider structure will provide additional capacity for vehicular traffic, cyclists and pedestrians.

The Class EA will consider Phases 1 and 2 of the planning process including: identification of the problem and or opportunity to be addressed; identification of solutions; an assessment of potential impacts the proposed solution may have on the surrounding environment; identification of measures to mitigate any adverse impacts; identification of the preferred solution; preparation of a Screening Report; and public, stakeholder, Aboriginal and review agency consultation.

I have attached the Notice of Project Initiation for your information. Should you have any questions or comments about this project or wish to be further engaged in the Class EA process please do not hesitate to contact us at the phone number or e-mail listed below.

Sincerely,  
**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chiefs of Ontario  
111 Peter Street, Suite 804  
Toronto ON, M5V 2H1

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy. The existing bridge is a steel truss bridge consisting of 2 through lanes with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

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[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Chief Joe Miskokomon  
Chippewas of the Thames First Nation  
320 Chippewa Road  
Muncey ON, N0L 1Y0

Dear Chief Miskokomon:

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy. The existing bridge is a steel truss bridge consisting of 2 through lanes with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

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Sincerely,  
**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Union of Ontario Indians  
Regional Office  
300 Anemki Place  
Thunder Bay ON, P7J 1H9

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy. The existing bridge is a steel truss bridge consisting of 2 through lanes with a sidewalk on the north side. It was constructed in 1937 and the last major rehabilitation was completed in 1996. In its present condition the structure is a geometric bottleneck on Albert Street, which consists of a wider cross section to the east of the structure.

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Sincerely,  
**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

November 26, 2012

Ministry of Aboriginal Affairs  
160 Bloor Street E., 9<sup>th</sup> Floor  
Toronto ON, M7A 2E6  
Attention: Ms. Heather Levecque  
Consultation Unit Manager

**Regarding: Albert Street Bridge Replacement  
Strathroy ON  
Municipal Class Environmental Assessment**

AECOM is working on behalf of Middlesex County to undertake a Schedule 'B' Municipal Class Environmental Assessment (Class EA) for the replacement of the Albert Street bridge between Carrie Street and County Road 44 in Strathroy.

We are requesting confirmation from the Ministry on our proposed list of Aboriginal communities 'likely to be affected' or that may have an interest in the lands and resources 'potentially' affected' by this project.

We have included the following Aboriginal communities/representatives in our distribution list:

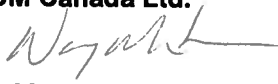
- Chippewas of the Thames;
- Aamjiwnaang First Nation;
- Caldwell First Nation;
- Munsee-Delaware Nation;
- Bkejwanong Territory;
- Delaware Nation
- Oneida Nation of the Thames;
- Chippewas of Kettle & Stony Point;
- Union of Ontario Indians;
- Association of Iroquois & Allied Indians;
- Southern First Nations Secretariat; and
- Chiefs of Ontario.



Please provide us with any additional communities we should be contacting. In addition, can you inform us of any Aboriginal or treaty rights, or active claims in the area relevant to this project?

If you have any questions or require additional information please do not hesitate to contact us.

Sincerely,  
**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

December 3, 2012

Nancy Martin  
Project Coordinator  
AECOM  
City Plaza  
250 York Street, Suite 410  
London, Ontario N6A 6K2  
[Nancy.martin@aecom.com](mailto:Nancy.martin@aecom.com)

Dear Ms. Martin,

Thank you for your e-mail of November 26, 2012 regarding your request for information held by Aboriginal Affairs and Northern Development Canada (AANDC) on established or potential Aboriginal and treaty rights in the vicinity of the Albert Street bridge replacement project in Strathroy, Ontario.

Consulting with Canadians on matters of interest or concern to them is an important part of good governance, sound policy development and decision-making. In addition to good governance objectives, there may be statutory or contractual reasons for consulting, as well as the common law duty to consult with First Nations, Métis and Inuit when conduct that might adversely impact rights Aboriginal or treaty rights (established or potential) is contemplated.

It is important to note that the information held by AANDC is provided as contextual information and may or may not pertain directly to Aboriginal or treaty rights. In most cases, the Aboriginal community remains best positioned to explain their traditional use of land, their practices or claims that may fall under section 35, including claims they may have put before the courts.

AANDC has developed the Aboriginal and Treaty Rights Information System (ATRIS), which brings together information regarding Aboriginal groups such as their location, related treaty information, claims (specific, comprehensive and special) and litigation data.

**The Consultation Information Service (CIS) response**

The CIS of the Consultation and Accommodation Unit responds to requests sent to AANDC for information on established or potential Aboriginal and treaty rights known to the Department. The CIS has prepared the attached response which combines the resources of ATRIS and the support of sectors and regions within the AANDC. Using a 100 km radius surrounding the project location, information regarding potentially affected Aboriginal communities is presented in the attached report in the following sections for each community:

**Aboriginal Community Information** includes key contact information and any other information such as Tribal Council affiliation.

**Treaties** includes information on historic and modern treaties.

**Claims** includes specific, comprehensive and special claims.

**Self-Government Agreements and other negotiations** may be part of comprehensive claims or stand-alone negotiations.

**Litigation** usually refers to litigation between the Aboriginal Group and the Crown, often pertaining to section 35 rights assertions or consultation matters.

Also included, where available, is a section entitled **Other Considerations**. This may include information on Métis rights or information on the assertions of other Aboriginal groups, consultation-related protocols or agreements and other relevant information.

Should you require further assistance regarding the information provided, or if you have any questions and/or comments about the enclosed response, please do not hesitate to contact me.

Regards,

Allison Berman  
Regional Subject Expert for Ontario  
Consultation and Accommodation Unit  
Aboriginal Affairs and Northern Development Canada  
5H- 5th Floor,  
Gatineau, QC K1A 0H4  
Tel: 819-934-5267

**Disclaimer**

*This information is provided as a public service by the Government of Canada. All of the information is provided "as is" without warranty of any kind, whether express or implied, including, without limitation, implied warranties as to the accuracy or reliability of any of the information provided, its fitness for a particular purpose or use, or non-infringement, which implied warranties are hereby expressly disclaimed. References to any website are provided for information only shall not be taken as endorsement of any kind. The Government of Canada is not responsible for the content or reliability of any referenced website and does not endorse the content, products, services or views expressed within them.*

**Limitation of Liabilities**

*Under no circumstances will the Government of Canada be liable to any person or business entity for any reliance on the completeness or accuracy of this information or for any direct, indirect, special, incidental, consequential, or other damages based on any use of this information including, without limitation, any lost profits, business interruption, or loss of programs or information, even if the Government of Canada has been specifically advised of the possibility of such damages.*

Within a 100 km radius of your project there are 8 First Nation communities. The following information should assist you in planning any consultation that may be required.



In general, where historic treaties have been signed, the rights of signatory First Nation's are defined by the terms of the Treaty. In many cases, however, there are divergent views between First Nations and the Crown as to what the treaty provisions imply or signify. For each First Nation below, the relevant treaty area is provided.

In areas where no historic treaty exists or where such treaties were limited in scope (i.e. where only certain rights were addressed by the treaty, such as the Peace and Friendship Treaties), there may be comprehensive claims that are asserted or being negotiated. Comprehensive claim negotiations are the means by which modern treaties are achieved.

Specific claims refer to claims made by a First Nation against the federal government related to outstanding lawful obligations, such as the administration of land and other First Nation assets, and to the fulfillment of Indian treaties, although the treaties themselves are not open to re-negotiation. The below response provides summaries of relevant claims that are current to the date of the response. Claims that have been settled or closed may also be included to give a sense of the First Nation's claims history with the Crown.

As the claims progress regularly, it is recommended that the status of each claim be reviewed through the Reporting Centre on Specific Claims at:

[http://pse5-esd5.ainc-inac.gc.ca/SCBRI\\_E/Main/ReportingCentre/External/externalreporting.aspx](http://pse5-esd5.ainc-inac.gc.ca/SCBRI_E/Main/ReportingCentre/External/externalreporting.aspx)

Self-government agreements set out arrangements for Aboriginal groups to govern their internal affairs and assume greater responsibility and control over the decision making that affects their

communities. Many comprehensive claims settlements also include various self-government arrangements. Self-government agreements address: the structure and accountability of Aboriginal governments, their law-making powers, financial arrangements and their responsibilities for providing programs and services to their members. Self-government enables Aboriginal governments to work in partnership with other governments and the private sector to promote economic development and improve social conditions.

## **First Nation/Aboriginal Communities**

### **Aamjiwnaang**

Chief Christopher Plain  
978 Tashmoo Avenue  
Sarnia, Ontario, N7T 7H5  
Phone: (519) 336-8410      Fax: (519) 336-0382  
[www.aamjiwnaang.ca](http://www.aamjiwnaang.ca)

**Treaty Area** - Southern Ontario Treaties to open the Interior: 1815 to 1862  
For more information on the treaties, see "Other Considerations" below.

### **Membership**

Union of Ontario Indians  
Chiefs of Ontario  
Southern First Nations Secretariat (London District Chiefs Council)  
For more information, see "Other Considerations" below.

### **Specific Claims**

Name: Clench Defalcation

Status: in negotiations

Description: The Plaintiffs claim a misappropriation of sale proceeds.

Name: Enniskillen (Split #01) Aamjiwnaang

Status: settled through negotiation

Description: Alleged that certain lands in Enniskillen Township were sold without surrender between 1866 and 1918.

### **Agreement negotiations**

Anishinabek Nation (UOI) negotiations on Governance and Education  
Please see "Other Considerations" below for more details.

### **Litigation**

Name: Ada Lockridge v. Ministry of the Environment, HMTQ in Right of Ontario, Suncor Energy Products Inc., Attorney General of Ontario, Minister of the Environment Ontario

Status: active

Court File No.: 528/10

Description: The Plaintiffs allege that the Ministry of the Environment has granted permits and licenses resulting in the release of pollutants in an area south of Sarnia which surrounds the territory around the Applicants' reserve.

Name: Chippewas of Sarnia v. Attorney General of Canada et al, Attorney General of Canada, CN Realities, Great Western Railway

Status: active

Court File No.: not available

Description: In 1995 the Sarnia First Nation launched a lawsuit against Canada, Ontario, several thousand property owners, and business and industries, regarding an 1839 sale of 1/3 of the Sarnia reserve to Malcolm Cameron. On Dec 21, 2000, the Ontario Court of Appeal found that although there was no formal surrender, the actions of the First Nation indicated their intent to surrender the land. In these exceptional circumstances, the Court ruled that the rights of the innocent third parties who have relied on the patent must prevail. The patent was therefore found to be valid. The Court left open the right of the Chippewas to proceed with a claim for damages against the Crown.

### **Community background**

In September of 2011, the First Nation launched the above lawsuit (*Ada Lockridge v. Ministry of the Environment et al*) against Ontario's Ministry of the Environment. Two members of the First Nation assert that by permitting a recent 25 % increase in production at a Suncor refinery, the government has violated Section 7 of the Canadian Charter of Rights and Freedoms: the right to life, liberty and the security of the person. Lawyers also cite a violation of equality rights under Section 15 of the Charter, saying the First Nation bears a disproportionate environmental burden. Within 25 kms of the Aamjiwnaang reserve, there are more than 60 industrial facilities, about 46 of them on the Canadian side of the border. These concerns are of great importance to the Aamjiwnaang First Nation, and should be taken in to consideration when contacting the community.

### **Caldwell First Nation**

Chief Louise Hillier

P.O. Box 388

Leamington, Ontario, N8H 3W3

Phone: 519-322-1766 Fax: 519-322-1533

### **Treaty area – Southern Ontario Treaties for Settlement: 1783 to 1815**

In the early part of the 20<sup>th</sup> century, the Department of Indian Affairs took some preliminary steps to provide a reserve for this First Nation. None of these attempts were completed, and the First Nation remained without a land base and other benefits under Treaty 2 of 1790. The Caldwell land claim is being settled through the Specific Claims process. For more information on the treaties, see "Other Considerations" below.

### **Membership**

Association of Iroquois and Allied Indians

Southern First Nations Secretariat (London District Chiefs Council)

Chiefs of Ontario

For more information, see "Other Considerations" below.

### **Specific Claims**

Name: Land Entitlement

Status: settling through negotiations as of 2011



Description: The First Nation alleged that their members are the original inhabitants, occupants and owners of Point Pelee & Pelee Island. They contended that they never surrendered Point Pelee in 1790, and that the 999 year lease to Pelee Island was invalid.

Name: Pelee Island

Status: concluded – no lawful obligation found

Description: The First Nation alleged that they did not surrender Pelee Island and that the 999 year lease is invalid since the Crown's patent is void.

### **Litigation**

Name: Peter Welch v. HMTQ in Right of Ontario

Status: active (as of 23/11/2011)

Court File No.: not yet available

Description: This is a Fish and Wildlife Conservation Act prosecution involving a member of the Caldwell First Nation. The case involves an investigation regarding the shooting of a deer in 2011. The applicant is claiming Aboriginal and treaty rights to hunt, and will argue that his Charter rights were breached in the investigation.

### **Chippewas of Kettle and Stony Point**

Chief Thomas Bressette (tenure expires June 23, 2014)

6247 Indian Lane

Kettle and Stony Point First Nation, Ontario, N0N 1J1

Phone: (519) 786-2125 Fax: (519) 786-2108

[www.kettlepoint.org/home.html](http://www.kettlepoint.org/home.html)

**Treaty Area** - Southern Ontario Treaties to open the Interior: 1815 to 1862

For more information on treaties, see "Other Considerations" below.

### **Membership**

Southern First Nations Secretariat (London District Chiefs Council)

Union of Ontario Indians

Chiefs of Ontario

See "Other Considerations" below for further information.

### **Specific Claims**

Name: 1927 Surrender

Status: active litigation

Description: The First Nation alleges that the 1927 surrender of part of the Kettle Point Indian reserve no. 44 and its subsequent sale in 1929 was invalid.

Name: 1928 Surrender at Stony Point

Status: concluded September 2012

Description: The First Nation alleges that the 1928 surrender and sale of 377 acres of the Stony Point Reserve was invalid. (1928 Surrender at Stony Point - Ipperwash Provincial Park).

Name: Clench Defalcation

Status: active negotiations

Description: The Plaintiffs claim a misappropriation of sale proceeds.

Name: Enniskillen (Split #02) Chippewas of Kettle and Stony Point

Status: settled through negotiation

Description: The First Nation alleged that certain lands in Enniskillen Township were sold without surrender between 1866 and 1918.

Name: Lot 27 – Bosanquet Lands

Status: concluded – no lawful obligation found

Description: Misappropriation of sale proceeds of Lot 27, concession 6, Township of Bosanquet.

### **Agreement negotiations**

Anishinabek Nation (UOI) negotiations on Governance and Education

Please see “Other Considerations” below for more details.

### **Litigation**

Name: Chippewas of Sarnia et al. v. HMTQ in Right of Canada, Laurie Desautels, Polysar Hydrocarbons Limited

Status: active

Court File No.: 1796A/87

Description: In 1987, the Chippewas of Sarnia and Kettle Point (Chippewas) sued Ontario and Polysar for a declaration of Aboriginal rights recognized by the Royal Proclamation of 1763 and never ceded to the waterbeds of the St. Clair River and Lake Huron and damages for Polysar’s gas pipeline contained therein. The Plaintiffs allege that Ontario has breached its fiduciary duties and trust obligations to the band as a result of granting licenses to the various companies named as defendants. The plaintiffs seek damages and declaratory relief.

Name: Chippewas of Kettle and Stony Point v. Attorney General of Canada et al.

Status: active

Court No: C22725

Description: The Plaintiffs allege that the 1927 surrender and subsequent letters patent for a portion of the Kettle Point Reserve is invalid, and that the beach front was not surrendered.

Name: Rosalie Winnifred Manning et al v. HMTQ

Status: active

Court File No.: T-3077-94

Description: The plaintiffs, who claim to be members of the self-styled Stony Point First Nation, and the defendants, the Chippewas of Kettle and Stony Point are recognized as one band by the department. The plaintiffs claim, among other things, that the Crown breached its fiduciary duty. They allege this occurred through the Crown’s failure to ensure the plaintiffs’ interests: with regards to the Stony Point Reserve; when represented in its negotiations with the Chippewas of Kettle and Stony Point Band; trespassing from 1942 to 1994; the environmental degradation of the land; and the plaintiffs loss of the use and enjoyment of the lands.

Name: Corporation of Township of Bosanquet v. Attorney General of Canada, Chippewas of Kettle and Stony Point

Status: active

Court File No.: 24085/96

Description: The Town of Bosanquet has initiated a claim against Canada in which they are asking the court for a declaration that the beachfront at Camp Ipperwash is dedicated to public

use and that any transfer of land to the First Nation would be restricted by the declaration. The land in question was originally surrendered by the Chippewas of Kettle and Stony Point in 1928 and subsequently sold to private individuals. In 1944, the land was transferred to the Department of National Defence and became part of Camp Ipperwash. In accordance with the 1981 Order in Council (PC 1981-499), Canada made the commitment to return Camp Ipperwash, including the portion obtained from private individuals in 1944, to the band when no longer needed for military purposes. Canada is negotiating the return of the land with the Kettle and Stony Point First Nation. In separate litigation involving Canada, the Town of Bosanquet and a number of private homeowners, the Chippewas of Kettle and Stony Point are claiming a portion of the West Ipperwash Beach, which is adjacent to the Kettle Point Reserve.

**Traditional Territory:** In March 2012, the Chippewas of Kettle and Stony Point First Nation reaffirmed their claim (see above Chippewas of Sarnia et al. v. HMTQ) to the lakebed surrounding their First Nation in a letter to AANDC. They wish to be notified by government, proponents, groups or individuals who use, or who plan to use, the area they consider their traditional territory. This area is described as such:

“from the point of intersection of the surrendered lands with Lake Huron at its most northerly point, extending directly out onto Lake Huron to the International boundary, then running along the International boundary to the southerly limit of the herein described lands at the water’s edge of the St. Clair River, and the land underlying this portion of Lake Huron (lake bed)”

#### **Additions to Reserve**

Since 2009, the Province has been engaged with the First Nation to transfer the Ipperwash Provincial Park lands as an addition to their reserve. These lands are being transferred through the federal Additions to Reserve process.

#### **Chippewas of the Thames**

Chief Joe Miskokomon (tenure expires June 27, 2013)

320 Chippewas Road

Muncey, Ontario, N0L 1Y0

Phone: (519) 289-5555 Fax: (519) 289-2230

[www.cottfn.ca/index.html](http://www.cottfn.ca/index.html)

**Treaty Area –** Southern Ontario Treaties to open the Interior: 1815 to 1862  
For more information on the treaty see “Other Considerations” below.

#### **Membership**

Southern First Nations Secretariat (London District Chiefs Council)

Union of Ontario Indians

Chiefs of Ontario

See “Other Considerations” below for further information.

#### **Specific Claims**

Name: Big Bear Creek Reserve

Status: active negotiations

Description: It is alleged that the 5,120 acre Big Bear Cree Reserve was patented and sold by the Crown in the 1830s without a proper surrender by the First Nation. Furthermore, the compensation paid by the Crown for the loss of the reserve in 1849-50 was inadequate. The land in question was reserved for the First Nation under the Longwoods Treaties (1819-1822). A community vote on whether to accept Canada's offer to settle is expected to take place over the fall of 2012. The government has offered to pay the costs of acquiring land in Southwestern Ontario of the size believed to be the equivalent of the lost reserve (21 sq. Km).

Name: Caradoc IR Railway Right of Way

Status: under assessment

Description: The First Nation alleges the failure to properly manage 3 railway transactions on Caradoc Indian reserve and failure to provide proper and lawful consideration to protect First Nation interest.

Name: Caradoc Reserve 1834 Surrender

Status: under assessment

Description: The First Nation alleges that Canada breached fiduciary duties and duty of honour and integrity in relation to the 1834 Surrender.

Name: Clench Defalcation

Status: settled through negotiation

Description: Misappropriation of sale proceeds from 1845-1854.

Name: Muncey

Status: settled through negotiation

Description: The First Nation alleged that lots 12 and 13 of Caradock Township were illegally patented in 1831, on the basis that no surrender was obtained from the Chippewa Indians for those dates.

Name: Hydro-Right-of-Way

Status: concluded

Description: The First Nation alleged a breach of fiduciary obligations by the Crown for wrongfully renewing a Hydro easement in 1956 after the option to renew expired, and for failing to obtain appropriate compensation for the renewal of the easement. The claim is located in the townships of Caradoc and Delaware.

### **Agreement negotiations**

Anishinabek Nation (UOI) negotiations on Governance and Education

Please see "Other Considerations" below for more details.

### **Litigation**

No relevant litigation listed.

**Moravian of the Thames** (Delaware Nation)

Chief Greg Peters (tenure expires May 31, 2013)

RR 3

Thamesville, Ontario, N0P 2K0

Phone: (519) 692-3936 Fax: (519) 692-5522

**Treaty Area** – Southern Ontario treaties for settlement: 1783 to 1815  
For more information on the treaty, see “Other Considerations” below.

**Membership**

Southern First Nations Secretariat  
Association of Iroquois and Allied Indians  
See “Other Considerations” below for further information.

**Specific Claims**

Name: Orford Township  
Status: concluded – no lawful obligation found  
Description: Alleged unlawful alienation of 26,325 acres in Orford township.

**Litigation**

No litigation to report.

**Munsee-Delaware Nation**

Chief Patrick Waddilove (tenure expires June 4, 2014)  
RR1  
Muncey, Ontario, N0L 1Y0  
Phone: (519) 289-5396 Fax: (519) 289-5156  
<http://www.munseedelawarenation.org/>

**Treaty** - Southern Ontario treaties for settlement: 1783 to 1815  
For more information on the treaties, see “Other Considerations” below.

**Membership**

Southern First Nations Secretariat (London District Chiefs Council)  
Union of Ontario Indians  
Chiefs of Ontario  
See “Other Considerations” below for further information.

**Specific Claims**

Name: Reserve Allocation  
Status: concluded  
Description: The claimants alleged that they were to receive more land than was allotted to them.

**Agreement negotiations**

Anishinabek Nation (UOI) negotiations on Governance and Education  
Please see “Other Considerations” for more details.

**Litigation**

No relevant litigation listed.

**Oneida Nation of the Thames**

Chief Joel Abram (tenure expires July, 2014)

2212 Elm Ave.

Southwold, Ontario, N0L 2G0

Phone: (519) 652-3244 Fax: (519) 652-9287

[www.oneida.on.ca](http://www.oneida.on.ca)

**Treaty** - Southern Ontario treaties for settlement: 1783 to 1815

For more information on the treaties, see "Other Considerations" below.

**Membership**

Association of Iroquois and Allied Indians

Southern First Nations Secretariat (London District Chiefs Council)

Chiefs of Ontario

See "Other Considerations" below for further information.

**Specific Claims**

No relevant claims to report.

**Litigation**

Name: In the matter of An Arbitration ordered by the Director of the Cemeteries Branch of the Ontario Minister of Government Services Pursuant to the Regulation made pursuant to the Ontario Cemeteries Act

Status: dormant since 2006

Court File No.: not available

Description: This is a Notice of Constitutional Question with respect to an arbitration concerning cemeteries near Dorchester, Ontario. The Oneida Nation Council of Chiefs represent the Haudenosaunee people buried in this land and assert that they have aboriginal title to the land they occupy. 202249 Ontario is a development company that bought this land in late 2003 in order to subdivide the land into lots for single-family homes. Direct negotiations between Oneida Nation Council of Chiefs and the President of the development company failed and an effort to find a mediated resolution was also unsuccessful. In early December 2004, the development company brought heavy equipment onto the land and graded the proposed roads, disturbing two graves in the process. Charges were laid against the company under the Cemeteries Act, resulting in an order for the development company to return the topsoil and restore the land. The President of the company indicated that he would not comply with this order, and instead made application to The Director of the Cemeteries Branch to appoint an arbitrator pursuant to the Ontario Cemeteries Act. This appointment was to take effect on November 11, 2005.

**Walpole Island**

Chief Burton Kewayosh Jr. (tenure expires June 23, 2014)

RR 3, Wallaceburg, Ontario, N8A 4K9

Phone: (519) 627-1481 Fax: (519) 627-0440



## **Treaty Area**

There is no treaty establishing the Walpole Island reserve. Walpole Island is unsurrendered land of the First Nation which was granted reserve status through the 1850 Proclamation intended to protect the “lands and property of the Indians in Lower Canada”. The following specific claims and litigation refers to land outside of the Walpole Island reserve. The Federal Government’s position is that it does not recognize Aboriginal rights and title to these off-reserve areas.

## **Membership**

Southern First Nations Secretariat

Chiefs of Ontario

See “Other Considerations” below for more information.

## **Specific Claims**

Many of the below claims are listed as ‘active litigation’. This means that the First Nation may have chosen to pursue these claims through the courts after submitting them to the Specific Claims process, or, to refer them to the Specific Claims Tribunal for a binding decision.

Name: Anderdon

Status: active litigation

Description: The First Nation alleges that the Crown failed to carry out the terms of the surrender of 300 acres in Anderdon Township in 1848.

Name: Bob Lo (Bois Blanc) Island

Status: active litigation

Description: The First Nation alleges that the surrender in 1786 was invalid and that no compensation was ever paid.

Name: East Sister Island

Status: active litigation

Description: The First Nation alleges that the Crown breached its fiduciary obligations regarding the use, license and disposition of the island.

Name: Fighting Island

Status: active litigation

Description: The First Nation alleges that Fighting Island and the adjacent fishery and waters have never been lawfully surrendered by Walpole Island First Nation.

Name: Grass Island

Status: active litigation

Description: The First Nation alleges that Canada illegally patented Grass Island in 1890, and that the island was never surrendered. Furthermore, no compensation for it was paid to Walpole Island.

Name: Hen and Chicken Island

Status: active litigation

Description: The First Nation alleges the Crown breached its fiduciary obligations regarding the use, licence and disposition of the island.

Name: Lower Indian Reserve

Status: active negotiations

Description: The First Nation seeks the return of lower reserve, or compensation and questions the price paid for the land. The claim is located in the township of Moore.

Name: Middle Island

Status: active litigation

Description: The First Nation alleges the Crown breached its fiduciary obligations permitting Middle Island to be occupied pursuant to a license of occupation with no remuneration to the First Nation. The Crown also failed to advertise the sale of Middle Island.

Name: North Harbour Island

Status: active litigation

Description: The First Nation alleges the Crown breached its fiduciary obligations regarding the use, licence and disposition of the island

Name: Peche Island (Fishing / Peach Island)

Status: active litigation

Description: The First Nation alleges licenses and leases were issued to Peche Island without any compensation paid to First Nation. Claimant also alleges that they did not receive fair market value for Peche Island at time of surrender in 1857.

Name: Pelee Island

Status: active litigation

Description: The First Nation alleges Pelee Island was never surrendered, and that 1870 surrender did not include Pelee Island. Furthermore, no compensation has been paid to the First Nation for the island.

Name: St. Clair Flats

Status: active litigation

Description: The First Nation alleges that in 1892 Ontario illegally sold and patented part of St. Clair Flats.

Name: Turkey Island

Status: active litigation

Description: The First Nation alleged that Walpole Island Indians and the Chippewas of Anderdon were the rightful owners of Turkey Island. They claim that Canada erred in seeking a surrender from the Wyandotts of Anderdon in 1874.

Name: Chenail Ecarte Reserve

Status: concluded – no lawful obligation found

Description: The First Nation alleged that Chenail Ecarte Reserve was intended to be 144 sq. miles, while the Surrender #7 document specified on 12 sq. miles. Furthermore, it is claimed that as per the terms of treaty, payment were never fulfilled. (Sombra Townships)

Name: Sawmill and Dock Lease Surrender (Surrender Project)

Status: concluded - no lawful obligation found

Description: The First Nation alleged the Crown broke its fiduciary obligations to the Band regarding a 5 year lease of 3 acres of reserve land in 1883, for the purposes of constructing a dock and lumber mill.

Name: Enniskillen (SPLIT #03) Walpole Island

Status: concluded - file closed

Description: The First Nation alleged that certain lands in Enniskillen Township were sold without surrender. Other Claimants - Kettle and Stony Point and Aamjiwnaang First Nations have settled this claim.

Name: 1958 Seaway Treaty (Surrender Project)

Status: concluded – no lawful obligation found

Description: This claim concerns construction of 16mi x 1000ft channel on Indian Reserve #46. The First Nation alleged that the Crown: did not conduct sufficient evaluation or impact studies prior to surrender; provided inadequate compensation; created injurious affection to remaining lands; created loss of economic opportunity related to the lands and damages resulting from construction of the channel. They also alleged no consideration was given to a lease rather than a surrender.

Name: Attempted Survey

Status: settled through negotiations

Description: The First Nation alleged the government attempted to survey Walpole Island 1890-1910 against the wishes of the First Nation. They sought return of First Nation trust funds used to pay for the survey, which was never completed.

Name: Fawn Island

Status: concluded – no lawful obligation found

Description: The Walpole Island First Nation claims that Canada was negligent in breach of its fiduciary duty regarding the deposition of Fawn Island and that the lands were sold for less than their fair market value. The island was surrendered in 1857, but only sold in 1875.

Name: Middle Sister Island

Status: no lawful obligation found

Description: Alleged the Crown breached its fiduciary obligations regarding the use, licence and disposition of the island, and sold the island for less than fair market value.

Name: Surrender for Timber on Walpole Island

Status: no lawful obligation found

Description: The First Nation alleges that Canada breached its fiduciary obligation by upholding the Jan. 30, 1883 vote when the Indian Act Agent provided only one proposal for consideration and in suggesting or threatening that if the First Nation didn't value in favour of the proposal, the timber would be surrendered to the Crown for sale by tender.

## **Litigation**

Name: Walpole Island First Nation, Bkejwanong Territory v. Attorney General of Canada, HMTQ in Right of Ontario

Status: active

Court File No.: 00-CV-189329

Description: The Plaintiff is asserting their unextinguished Aboriginal title and claiming the Aboriginal right to hunt, access and preserve sacred sites to the Three Fires Confederacy Unceded Traditional Lands. The claimed area includes land that is subject to treaty 25 (1822) which was not signed by the Plaintiff. These lands also include lands subject to treaties 2,6,7,12,29 and the Township of Anderdon. The Plaintiff excludes islands or water lots that were encompassed by treaties signed by them or their predecessors, as well as any land that is owned in fee simple by private parties.

Name: HMTQ in Right of Canada v. Clark Peters, Paul Tooshkenig Jr., William Shipman, Lonni Shipman, Clark Peters Jr.

Status: active

Court File No.: not available

Description: The Notice of Constitutional Question deals with the Robinson-Superior Treaty that provides that "its Aboriginal beneficiaries the full and free privilege to hunt". The Defendants are members of the Walpole First Nation, and were hunting moose in the Robinson-Superior Treaty area, with the permission of the Michipicoten First Nation. They are challenging Section 6 of the Fish and Wildlife Conservation Act, alleging that it gives no priority to any persons having Treaty or Aboriginal rights, and is inconsistent with section 35 of the Constitution Act, 1982, and it is therefore inapplicable to Aboriginal persons.

Name: William Shipman, Clark Peters Jr., Clark Peters, Paul Tooshkenig, Lonnie Shipman v. HMTQ in Right of Canada

Status: active

Court File No.: 260-91; 260-92; 260-94; 260-25

Description: The Defendants intend to question the validity of s.6 of the Fish and Wildlife Conservation Act made pursuant to the Interim Enforcement Policy, generally and in regard to the application to the Defendants. The Defendants were charged with hunting moose for food purposes, within the boundaries of the Robinson-Superior Treaty. The Defendants assert that they were exercising their Aboriginal and/or treaty right to hunt within their traditional territory.

Name: William Shipman, Clark Peters Jr., Clark Peters, Paul Tooshkenig, Lonnie Shipman v. HMTQ in Right of Canada

Status: active

Court File No.: C44543

Description: The Appellants intend to question the constitutional validity and applicability of s.6 of the Fish and Wildlife Conservation Act. The Appellants assert that the Ontario licensing system for the issuance of moose hunting licences gives no priority to any persons having Treaty or Aboriginal rights. They will argue, inter alia, that s.6 of the Fish and Wildlife Conservation Act is inconsistent with s. 35 of the Constitution Act as it does not give priority to persons having Treaty or Aboriginal rights, and that prosecutorial discretion cannot be exercised if the constitutional priority of Treaty and Aboriginal rights is not respected. They will also argue that they are entitled to the benefits of the hunting rights protected by the Robinson-Superior Treaty and by s. 35 of the Constitution Act, and that these hunting rights are unjustifiably infringed by s. 6 of the Fish and Wildlife Conservation Act.

Name: Chief Daniel R. Miskokomon v. Minister of Transport

Status: closed

Court File No.: T-1920-93

Description: The plaintiffs claim Aboriginal and treaty rights and aboriginal title to the waters and beds under the waters of portions of Lake Huron, the St. Clair River, Lake St. Clair, and Lake Erie stemming from the Royal Proclamation of 1763. The plaintiffs further state that Canada is in breach of its fiduciary duty to the First Nation for granting easements to permit construction of the CN tunnel, which will directly interfere with the rights and title of the First Nation.

Name: Walpole Island First Nation v. Attorney General of Canada, Minister of Environment, ICI Canada Inc.

Status: closed

Court File No.: T-272-97

**Description:** Imperial Chemical Industries Canada (ICI) operated a fertilizer plant on the St. Clair River from 1967-1968. On 10 Feb 1995, ICI applied for approval to discharge waste into the river - approval was granted. The Walpole Island First Nation (WIFN) commenced actions to have the decision rescinded. The Minister of Environment refused because, among other things, the proposed discharge posed no threat to public health or environment. On May 29, 1997 WIFN filed a Memorandum of Argument, claiming that the Minister's decision constituted an infringement of their Charter rights i.e. enjoyment of life and health.

### **Walpole Island First Nation Consultation Protocol**

The Walpole Island First Nation passed its own consultation protocol. It states their expectations from government and proponents in any activities or decision making undertaken in their traditional territory. It is recommended that this protocol be reviewed in advance of consultation to better understand the First Nation's expectations. However, the federal government is not a party to this agreement and does not endorse the content. A link to the protocol is:

[http://indigenouspeoplesissues.com/attachments/article/2576/2576\\_WalpoleIsland\\_ConsultationProtocol2009.pdf](http://indigenouspeoplesissues.com/attachments/article/2576/2576_WalpoleIsland_ConsultationProtocol2009.pdf)

### **Public Notice of Aboriginal title assertion**

The Council of the Three Fires published a notice (2005) asserting Aboriginal title by Walpole Island First Nation- Bkejwanong Territory. Walpole Island First Nation gives notice to all Crown departments and agencies, federal or provincial and to municipalities that it wishes to be notified and consulted with in relation to any actions taken in respect of the claimed territory.

## **Other Considerations**

### **Aboriginal Rights Assertions: the Métis**

The inclusion of the Métis in s.35 represents Canada's commitment to recognize and value their distinctive cultures, which can only survive if they are protected along with other Aboriginal communities. In 2003, the Supreme Court of Canada affirmed Métis rights under s.35 of the Constitution Act, 1982, in the Sault St. Marie area, in the *Powley* decision. For more information on the *Powley* decision visit the following link: [www.aadnc-aandc.gc.ca/eng/1100100014419](http://www.aadnc-aandc.gc.ca/eng/1100100014419)

The Office of the Federal Interlocutor for Métis and Non-Status Indians (OFI) is aware that the Métis Nation of Ontario (MNO), its regional and community councils, have asserted a Métis right to harvest in a large section of the province.

The provincial government has accommodated Métis rights on a regional basis within Métis harvesting territories identified by the MNO. These accommodations are based on credible Métis rights assertions. An interim agreement (2004) between the MNO and the Ministry of Natural Resources (MNR) recognizes the MNO's Harvest Card system. This means that Harvester's Certificate holders engage in traditional Métis harvest activities within identified Métis traditional territories across the province. For a map of Métis traditional harvesting territories visit the MNO website at: <http://www.metisnation.org/harvesting/harvesting-map.aspx>

The MNO maintains that Aboriginal 'rights-holders' are Métis communities which are collectively represented through the MNO and its community councils. In partnership with community councils, MNO has established a consultation process. The MNO has published regional consultation protocols on their website which offer pre-consultation stage instructions on

engaging the Métis through their community councils (via the consultation committee made up of an MNO regional councilor, a community councilor representative and a Captain of the Hunt). Please note however, that this organization does not represent all Métis in Ontario.

#### Métis Nation of Ontario

Métis Consultation Unit is located within the MNO head office.

500 Old St. Patrick Street, Unit 3

Ottawa, Ontario, K1N 9G4

Phone: (613) 798-1488 Fax: (613) 725-4225

[www.metisnation.org/home.aspx](http://www.metisnation.org/home.aspx)

#### Métis National Council

4-340 MacLaren Street,

Ottawa, Ontario, K2P 0M6

Phone: (613) 232-3216 Fax: (613) 232-4262

[www.metisnation.ca](http://www.metisnation.ca)

For an indication of the population in Ontario who self-identify as Métis, visit the Statistics Canada website. The Ontario map indicates populations as small as 250 up to over 2,000 within its borders.

[http://geodepot.statcan.gc.ca/2006/13011619/200805130120090313011619/16181522091403090112\\_13011619/151401021518090709140112\\_201520011213052009190904161516\\_0503-eng.pdf](http://geodepot.statcan.gc.ca/2006/13011619/200805130120090313011619/16181522091403090112_13011619/151401021518090709140112_201520011213052009190904161516_0503-eng.pdf)

#### **Métis Litigation in Ontario**

Name: HMTQ in Right of Canada v. Michel Blais

Status: active

Court File No.: 08-213

Description: The Applicant is charged with unlawfully harvesting forest resources in a Crown forest without a license contrary to the Crown Forest Sustainability Act, 1994. The Applicant, a Métis, asserts that he is an Aboriginal person within the meaning of s. 35 of the Constitution Act, 1982 and that the alleged harvesting occurred in lands set apart for the Batchewana Band pursuant to the Robinson Treaty of 1850. He claims that the Batchewana First Nation may permit Métis persons to exercise the same Aboriginal and treaty rights as its members pursuant to this treaty.

Name: HMTQ in Right of Canada, Laurie Desautels v. Henry Wetelainen Jr.

Status: active

Court File No.: CV-08-151

Description: The defendant, Henry Wetelainen Jr., intends to question the constitutional validity of sections 28, 31 and 40 of the Crown Forest Sustainability Act (1994), S.O. 1994, c. 25 and Ontario Regulation 167/95, as amended, in relation to an act or omission of the government of Ontario. The defendant claims that he was exercising Aboriginal and treaty rights afforded by the Adhesion to Treaty 3, by harvesting wood within his traditional territory. He claims that he is a Métis/Non-Status Indian and that the imposition of payment for harvesting or use of the forest resource is an infringement and violates his constitutional rights.

Name: Ministry of Natural Resources v. Kenneth Sr. Paquette

Status: active

Court File No.: to be determined



Description: This Notice of Constitutional Question relates to a provincial prosecution involving a charge pertaining to hunting moose. The Defendant intends to assert his s. 35 right as a Métis person to hunt moose, and he also intends to seek a Charter remedy under s. 15 of the *Charter*.

### **Court Decisions concerning Métis in Ontario**

R. v. Laurin, Lemieux, Lemieux - 2007

Court No.: ONCJ 265

Three Métis defendants were charged with fishing violations and claimed that the decision of the Ministry of Natural Resources (MNR) to prosecute them violated the terms of the Interim Agreement (2004) between the MNR and the Métis Nation of Ontario (MNO). As the defendants were indeed Harvester Card holders authorized to fish in the Mattawa/Nipissing territory, therefore, they were entitled to the exemption in the agreement.

The Court concluded that laying of charges against any valid Harvester Card holder who is harvesting in the territory designated on the card within 2 years of the 2004 agreement was a breach. The Interim Agreement itself was silent as to any geographic limitations. There was no mention of the Agreement only applying north and east of Sudbury. Further, the reliance on Harvester Cards, which explicitly contained the territorial designation of the cardholder, signified that the MNR accepted such designations for the purpose of the agreement. The Court was clear to note that this case did not make any ruling regarding the merits of any claim that the Mattawa/Nipissing area contains section 35 rights bearing Métis communities.

### **Membership**

First Nations may or may not delegate certain authority and/or powers to tribal councils to administer programs, funding and/or services on their behalf. The best source of information with respect to consultation is through individual First Nations themselves.

### Association of Iroquois and Allied Indians

This is a political organization which advocates the interests of its eight members. Using political lines the members form a collective to protect their Aboriginal and treaty rights.

[www.aiai.on.ca](http://www.aiai.on.ca)

387 Princess Avenue

London, Ontario, N6B 2A7

Phone: (519) 434-2761

### Chiefs of Ontario

The Chiefs of Ontario is a coordinating body for 133 First Nation communities in Ontario. The main objective of this body is to facilitate the discussion, planning, implementation and evaluation of all local, regional and national matters affecting its members.

[www.chiefs-of-ontario.org](http://www.chiefs-of-ontario.org)

#### **Administrative Office:**

111 Peter Street, Suite 804

Toronto, Ontario, M5V 2H1

Phone: (416) 597-1266

Fax: (416) 597-8365

#### **Political Office:**

Fort William First Nation

RR 4, Suite 101, 9- Anemki Drive

Thunder Bay, Ontario, P7J 1A5

Phone: (807) 626-9339

Fax: (807) 626-9404

The Union of Ontario Indians (UOI)

The UOI is a political advocate for approximately 40 member First Nations across Ontario. Its headquarters is located on Nipissing First Nation, just outside of North Bay Ontario, and has satellite offices in Thunder Bay, Curve Lake First Nation and Munsee-Delaware First Nation. The UOI delivers a variety of programs and services. The Anishinabek Nation incorporated the Union of Ontario Indians (UOI) as its secretariat in 1949.

[www.anishinabek.ca](http://www.anishinabek.ca)

Head Office:

1 Miigizi Mikan  
North Bay, Ontario, P1B 8J8  
Phone: (705) 497-9127  
Fax: (705) 497-9135

Regional Office  
300 Anemki Place  
Thunder Bay, Ontario, P7J 1H9  
Phone: (807) 623-8887

#### Southern First Nations Secretariat

The Secretariat is a non-profit, non-political corporate support body. It provides service delivery for the London District Chiefs Council (association of 7 First Nation governments), and facilitates communications amongst member First Nations, their organizations and other similar service providers.

<http://www.sfns.on.ca>

22361 Austin Line  
Bothwell, Ontario, N0P 1C0  
Phone: 519-692-5868      Fax: 519-692-5972

### **Treaties of Southern Ontario- The Upper Canada Treaties**

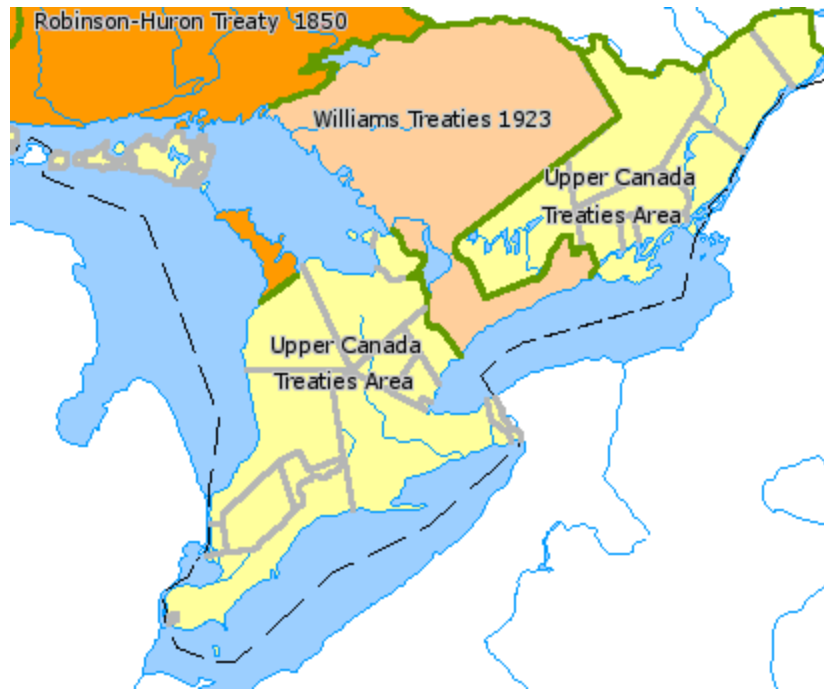
There are several treaty making eras which impact the province of Ontario. These eras are known as the Upper Canada Land Surrenders from 1764 to 1862. These surrenders are seen as treaties which transfer all Aboriginal rights and title to the Crown in exchange for one-time payments or annuities. They tended to be made with individual First Nation groups for tracts of land. In light of the evolution of Aboriginal law over the past twenty years, this position may not be as clear as believed. There may be residual rights remaining especially relating to hunting and fishing.

#### **1764-1782 – Early Land Surrenders**

The Royal Proclamation of 1763 established the protection from encroachment of an Aboriginal territory outside of the colonial boundaries. Rules and protocols for the acquisition of Aboriginal lands by Crown officials were set out and became the basis for all future land treaties. In response to military and defensive needs around the Great Lakes, the Indian Department negotiated several land surrender treaties in the Niagara region.

#### **1783-1815- Treaties for Settlement**

As part of the plan to resettle some 30,000 United Empire Loyalists who refused to accept American rule, and fled to Montreal, the Indian Department undertook a series of land surrenders west of the Ottawa River with the Mississauga and the Chippewa of the southern Great Lakes. These tended to be uncomplicated arrangements whereby for a particular Aboriginal group was paid a specific sum paid in trade goods, to surrender a stated amount of land.



\*Atlas of Canada

### **1815-1862- Treaties to Open the Interior**

After the war of 1812, the colonial administration of Upper Canada focused on greater settlement of the colony. The Indian Department completed the last of the over 30 Upper Canada Land Surrenders around the Kawartha, Georgian Bay, and the Rideau and Ottawa Rivers. All of this land which today is known as Southern Ontario, was ceded to the Crown.

### **Self Government Agreement Negotiations**

Anishinabek Nation (Union of Ontario Indians) negotiations on Governance and Education

In 1995, the Anishinabek Nation's Grand Council authorized its secretariat arm, the Union of Ontario Indians (UOI), to begin self-government negotiations with Canada. Negotiations towards agreements in the areas of education and governance began in 1998.

An agreement-in-principle (AIP) on education was signed in November 2002. In February 2007, the parties signed the AIP with respect to governance. Final agreement negotiations are proceeding in parallel, and together these agreements would mark important steps towards the Anishinabek Nation's long-term objective of supporting participating First Nations to move out from under the *Indian Act*.

The governance agreement will provide the establishment of the Anishinabek Nation government and the recognition of participating First Nation lawmaking authority in four core governance areas: leadership selection, citizenship, culture and language, and management and operations of government.

The education AIP authorized the parties to negotiate a final agreement with respect to lawmaking authority for primary, elementary and secondary education for on-reserve members, and to administer AANDC's post-secondary education assistance program. Negotiations towards a final agreement with respect to education are nearing conclusion. The Province of

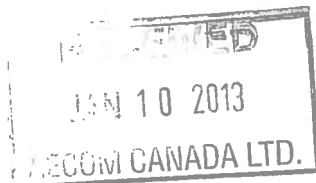
Ontario is not a party to these negotiations but is engaged in tripartite discussions on particular issues that would assist in the implementation of the final agreement.

To prepare for self-government in member communities, the Union of Ontario Indians has undertaken a range of activities including a Community Engagement Strategy, the development of an appeal and redress process, a constitutional development process and a number of capacity development activities.

### **Provincial guidelines**

Under its responsibility to promote stronger Aboriginal relationships, the Ontario Ministry of Aboriginal Affairs has produced *Draft Guidelines on Consultation with Aboriginal Peoples Related to Aboriginal Rights and Treaty Rights*. These guidelines are for use by ministries who seek input from key First Nations and Métis organizations, all Ontario First Nations and selected non-Aboriginal stakeholders. To review the guidelines, visit:

<http://www.aboriginalaffairs.gov.on.ca/english/policy/draftconsultjune2006.pdf>



**Ministry of Aboriginal Affairs**

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

**Ministère des Affaires Autochtones**

160, rue Bloor Est, 9<sup>e</sup> étage  
Toronto ON M7A 2E6  
Tél. : (416) 326-4740  
Télec. : (416) 325-1066  
[www.aboriginalaffairs.gov.on.ca](http://www.aboriginalaffairs.gov.on.ca)



Reference: 474

December 31, 2012

Nancy Martin  
Project Coordinator  
AECOM Canada Ltd  
410-250 York Street,  
Citi Plaza  
London, Ontario  
N6A 6K2

**Re: Albert Street Bridge Replacement  
Strathroy ON,  
Municipal Class Environmental Assessment**

Dear Nancy Martin:

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.

We acknowledge that you have been in contact with the following Aboriginal communities/organizations: Chippewas of the Thames, Aamjiwnaang First Nation, Caldwell First Nation, Munsee- Delaware Nation, Bkejwanong Territory, Delaware Nation, Oneida Nation of Thames, Chippewas of Kettle & Stony Point, Union of Ontario Indians, Association of Iroquois & Allied Indians, Southern First Nations Secretariat and Chiefs of Ontario.

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

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,

A handwritten signature in blue ink, appearing to read 'Wendy Cornet', with a stylized, cursive script.

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





**AAMJIWNAANG FIRST NATION  
CHIPPEWAS OF SARNIA  
Band Council**

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

January 18, 2013



File # 2013-0007

AECOM  
410-250 York Street  
Citi Plaza  
London, Ontario  
N6A 6K2

Attention: Ms. Nancy Martin

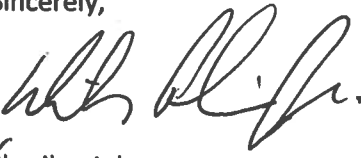
Re: **Albert Street Bridge Replacement  
Strathroy ON – Municipal Class Environmental Assessment**

Dear Ms. Martin:

Thank you for the information regarding this project dated November 26, 2012. 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.

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,

  
Fed. / Sharilyn Johnston  
Environmental Coordinator  
Aamjiwnaang First Nation

*"Saving our Home and Native Land"*

May 08, 2013

Chief Louise Hillier  
Caldwell First Nation  
14 Orange Street  
Leamington ON, N8H 1P5

Dear Chief Hillier:

**Regarding: Albert Street Bridge Replacement  
Strathroy Ontario  
Municipal Class Environmental Assessment**

In response to your request for additional information regarding the Albert Street Bridge Replacement Municipal Class EA, we are providing you with a copy of the information presented at the May 02, 2013 open house. The material provided gives an overview of the project to date.

The presentation also provides information from our natural environment background investigation regarding Species at Risk within the study area. It has been determined that the habitat within 120m of the study area may contain suitable habitat for five (5) Threatened and four (4) Special Concern species including:

- Spiny Softshell
- Eastern Hog-nosed Snake
- Barn Swallow
- Silver Shiner
- Willowleaf Aster
- Snapping Turtle
- Monarch Butterfly
- Blue Ash
- Northern Map Turtle

Species that are most likely to be present within the study area include Barn Swallow, Snapping Turtle and Monarch Butterfly. While the potential exists for the other species for which suitable habitat was identified to be present the probability of this occurring is low due to lower abundances within the area/province, more stringent habitat requirements and the absences of recent records in the area. Correspondence with the OMNR regarding the presence of nesting Barn Swallow under the bridge is being completed to determine the best course of action to address this issue.

Using information collected during site investigations, the habitat at the site was assessed to determine if Significant Wildlife Habitat (SWH) is present within the study area. Due to the size and disturbed nature of the habitat present within the study area and its close proximity to human settlement there is limited potential for SWH. The only type of SWH that may be present in the study area is turtle nesting habitat which could be present south of the bridge along the west bank of the Sydenham River. The proposed works should have little to no effect on this potential habitat as the anticipated works are within the existing Albert Street right of way.

A copy of the preliminary General Arrangement drawing is included in this package which illustrates the proposed structure to be a single span bridge (approximately 34 m long). The total roadway width between the curbs is 10.5m. The initial configuration will have 2 through lanes and a concrete sidewalk (1.5m wide) along each side of road with parapet wall and railing. It is the intent to implement this alternative such that no in-water works are required and that all physical work will be contained in the right-of-way limits.

Additional information will be provided in the EA report once it has been finalized. We hope the information contained in this package provides you with the information you requested. Should you have any additional questions or comments about this project or wish to be further engaged in the Class EA process please do not hesitate to contact us.

Sincerely,  
**AECOM Canada Ltd.**



Nancy Martin  
Project Coordinator  
519-963-5862  
[nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

## **Martin, Nancy**

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**From:** Louise Hillier [cfnchief@live.com]  
**Sent:** Wednesday, May 08, 2013 9:21 PM  
**To:** Martin, Nancy  
**Subject:** RE: Albert Street Bridge Replacement

Good Evening Nancy

Thank you for providing the documents. Once I have reviewed the information, if there are any questions, I will send an email regarding our concerns.

Again, thank you.

Chief Hillier

---

**From:** [Nancy.Martin@aecom.com](mailto:Nancy.Martin@aecom.com)  
**To:** [cfnchief@live.com](mailto:cfnchief@live.com)  
**CC:** [Corri.Marr@aecom.com](mailto:Corri.Marr@aecom.com)  
**Subject:** Albert Street Bridge Replacement  
**Date:** Wed, 8 May 2013 20:51:05 +0000

Chief Hillier

In response to your information request (April 23, 2013) we are providing you with the attached information for the Albert Street Bridge Replacement EA. Please review and let us know if you require any additional information.

We are sending a hard copy of this information to you which you should receive shortly.

**Nancy Martin**  
**Project Coordinator**  
D 519.963-5862 | [nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

**AECOM**  
Citi Plaza  
250 York Street, Suite 410  
London, ON N6A 6K2  
T 519.673.0510 F 519.673.5975  
[www.aecom.com](http://www.aecom.com)

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*Please consider the environment before printing this page*

## Martin, Nancy

---

**From:** Louise Hillier [cfnchief@live.com]  
**Sent:** Monday, July 15, 2013 1:39 PM  
**To:** Martin, Nancy  
**Subject:** Re: Albert Street Bridge Replacement

Good Afternoon Nancy

I believe the questions we had were answered during our meeting. I am out of the office all week for the AFN Assembly and will not return until Friday evening.

Thanks for the follow-up and have a wonderful day.

Chief Hillier

Sent from my BlackBerry device on the Rogers Wireless Network

-----Original Message-----

From: Martin Nancy <[Nancy.Martin@aecom.com](mailto:Nancy.Martin@aecom.com)>  
Date: Mon, 15 Jul 2013 15:14:32  
To: <[cfnchief@live.com](mailto:cfnchief@live.com)>  
Subject: FW: Albert Street Bridge Replacement

Hi Chief Hillier - if you have any comments on this project can you provide them to us? Otherwise can you let us know that you are satisfied with the information provided and have no further questions or comments.

Thank you

Nancy Martin  
Project Coordinator  
D 519.963-5862 | [nancy.martin@aecom.com](mailto:nancy.martin@aecom.com)

AECOM  
Citi Plaza  
250 York Street, Suite 410  
London, ON N6A 6K2  
T 519.673.0510 F 519.673.5975  
[www.aecom.com](http://www.aecom.com) <<http://www.aecom.com/>>

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From: Martin, Nancy  
Sent: Monday, June 17, 2013 2:21 PM

To: 'Louise Hillier'  
Subject: RE: Albert Street Bridge Replacement

Hi Chief Hillier,

This is a follow up on the information we provided to you regarding the Albert Street Bridge project in Strathroy. As we are nearing the end of this project we would like to ensure that all of your questions and concerns have been addressed.

Please provide us with any additional concerns you may have regarding this project.

Thank you for your continued interest in this project.

Nancy Martin  
Project Coordinator  
D 519.963-5862 | [nancy.martin@aecom.com](mailto:nancy.martin@aecom.com) <<mailto:nancy.martin@aecom.com>>

AECOM  
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From: Louise Hillier [<mailto:cfnchief@live.com>]  
Sent: Wednesday, May 08, 2013 9:21 PM  
To: Martin, Nancy  
Subject: RE: Albert Street Bridge Replacement

Good Evening Nancy

Thank you for providing the documents. Once I have reviewed the information, if there are any questions, I will send an email regarding our concerns.

Again, thank you.

Chief Hillier

-----

From: [Nancy.Martin@aecom.com](mailto:Nancy.Martin@aecom.com) <<mailto:Nancy.Martin@aecom.com>>  
To: [cfnchief@live.com](mailto:cfnchief@live.com) <<mailto:cfnchief@live.com>>  
CC: [Corri.Marr@aecom.com](mailto:Corri.Marr@aecom.com) <<mailto:Corri.Marr@aecom.com>>



Subject: Albert Street Bridge Replacement  
Date: Wed, 8 May 2013 20:51:05 +0000

Chief Hillier

In response to your information request (April 23, 2013) we are providing you with the attached information for the Albert Street Bridge Replacement EA. Please review and let us know if you require any additional information.

We are sending a hard copy of this information to you which you should receive shortly.

Nancy Martin  
Project Coordinator  
D 519.963-5862 | [nancy.martin@aecom.com](mailto:nancy.martin@aecom.com) <<mailto:nancy.martin@aecom.com>>

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# Appendix I

Navigable Waters Protection Act  
Approval

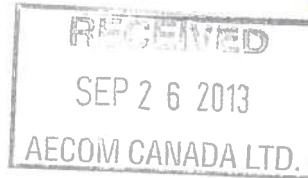


Transport  
Canada

Transports  
Canada

Navigable Waters Protection Program  
100 Front Street South  
Sarnia Ontario N7T 2M4

Your file    Votre référence  
60275667



Our file    Notre référence  
2012-400921

REGISTERED MAIL

SEP 20 2013

County of Middlesex  
399 Ridout Street North  
London, ON N6A 2P1

Attention: Chris Traini

**RE:    Application under the *Navigable Waters Protection Act* for Approval of the Bridge,  
located at East Sydenham River, County Road 39, Albert Street Bridge,  
Municipality of Strathroy-Caradoc, County of Middlesex, in the Province of Ontario.**

Enclosed please find an Approval for the above-noted work signed on behalf of the Minister of Transport pursuant to subsections 5(1) and (3) of the *Navigable Waters Protection Act* (NWPA).

Ensure to review your Approval in its entirety and acknowledge receipt via the contact information provided below. In particular, note that your Approval carries a validity period and therefore it will be necessary to seek Re-Approval prior to the expiry date.

Please note that you must comply with any terms and conditions in the attached Approval document as well as any other requirements under the NWPA, its regulations and other relevant legislation.

Your attention is also drawn to the Navigable Waters Works Regulations sections 5 and 6, which also apply to all construction in Navigable Waters. These sections specifically state that:

1. No person shall permit any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in a navigable water to remain in such water after the completion of the project.
2. Where a work or a portion of a work that is being constructed or maintained in a navigable water causes debris or other material to accumulate on the bed or on the surface of such water, the owner of that work or portion of that work shall cause the debris or other material to be removed to the satisfaction of the Minister.

Please note that the attached document relates only to the effect of your work on navigation under the NWPA. Other Federal and/or Provincial Acts and Regulations may apply. It is your responsibility to comply with any applicable legislation/regulation.

Canada

When work has commenced, you are required to complete the enclosed Statutory Declaration, have it signed by a Commissioner of Oaths, and return it to this office, complete with photographs as evidence that all conditions of Approval are being met.

**Should you have any questions, please do not hesitate to contact our office in Sarnia by phone at (519) 383-1863, by fax at (519) 383-1989 or by e-mail at NWPontario-PENontario@tc.gc.ca.**

Respectfully,



Suzanne Shea  
Officer, Navigable Waters Protection Program  
Marine Safety and Security  
Transport Canada  
Ontario Region

SS/kg

Enclosure

cc: John Pucchio, AECOM



Transport Canada  
Marine

Transports Canada  
Maritime

NAVIGABLE WATERS PROTECTION ACT (R.S.C. 1985, c. N-22) as amended by Part 7 of the *Budget Implementation Act*, 2009, S.C. 2009, c. 2 (*Navigable Waters Protection Act*), PART I  
Subsections 5(1) and (3) – Other Than Substantial Interference

2012-400921

## Approval

**APPLICANT:**

County of Middlesex  
399 Ridout Street North  
London, ON N6A 2P1

**WORK:**

Bridge

**SITE LOCATION:**

Located at Approximately 42° 57' 19.90" N x 081° 37' 57.80" W,  
East Sydenham River, County Road 39, Albert Street Bridge, Municipality  
of Strathroy-Caradoc, County of Middlesex, in the Province of Ontario.

**IMPORTANT NOTICE:**

This document approves the work in terms of its effect on marine navigation pursuant to the *Navigable Waters Protection Act*. In accordance with the *Navigable Waters Protection Act*, the work must be built, placed, maintained, operated, used and removed as per this Approval including the Terms and Conditions listed below and attached plans as well as regulations made pursuant to the *Navigable Waters Protection Act*.

It is the applicant's responsibility to obtain any other forms of approval, including building permits, under any applicable laws.

**WHEREAS** the above-named applicant has made application to the Minister of Transport under the *Navigable Waters Protection Act* for approval of the above- referenced work at the above-described site in accordance with the attached plan(s);

**WHEREAS** it is considered advisable to approve the said work at the said site and plan(s) thereof for a period of 50 years pursuant to the Schedule referred to in subsection 3(1) of the *Navigable Waters Works Regulations*.

**THEREFORE**, the Minister of Transport, pursuant to subsections 5(1) and (3) of the *Navigable Waters Protection Act*, hereby approves the said work at the said site and plan(s) thereof in accordance with the following terms and conditions:

1. A sign stating "Construction Ahead" shall be placed and maintained 100 metres upstream of the work during all periods of in stream activity taking place between April and October of any year.
2. A minimum navigational clearance of 1.5 metres vertical by 3 metres horizontal shall be maintained during all periods of in stream activity taking place between April and October of any year.
3. All vessels navigating the waterway shall be allowed access through or around the work site at all times during construction and shall be assisted as necessary.
4. The Minister or his representatives must be allowed unimpeded access to any site related to the project for inspection and/or monitoring purposes.

SIGNED in two copies on SEP 20 2013 in Sarnia, Ontario

Suzanne Shea  
Officer, Navigable Waters Protection Program  
Marine Safety and Security  
Transport Canada  
Ontario Region

for the Minister of Transport



Transport  
Canada

Transports  
Canada

Your File Votre référence  
60275667

Our File Notre référence  
2012-400921

# STATUTORY DECLARATION

CANADA

PROVINCE OF ONTARIO

IN THE MATTER OF a *Navigable Waters Protection*  
*Act Approval* of the work referred to below

To Wit:

I \_\_\_\_\_

of the County of Middlesex  
in the Province of Ontario

SOLEMNLY DECLARE that the Bridge, located at approximately 42° 57' 19.90" N x 081° 37' 57.80" W, County Road 39, Albert Street Bridge, Municipality of Strathroy-Caradoc, East Sydenham River, County of Middlesex, in the Province of Ontario is being built or placed in accordance with the approved plan(s) and site pursuant to the *Navigable Waters Protection Act*, its regulations and the terms and conditions in the Approval dated **SEP 20 2013**.

AND I MAKE THIS SOLEMN DECLARATION conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

\_\_\_\_\_  
Signature of applicant

DECLARED BEFORE ME \_\_\_\_\_,  
at the County/District/City of \_\_\_\_\_,  
in the Province of \_\_\_\_\_,  
this \_\_\_\_ day of \_\_\_\_\_, 20\_\_

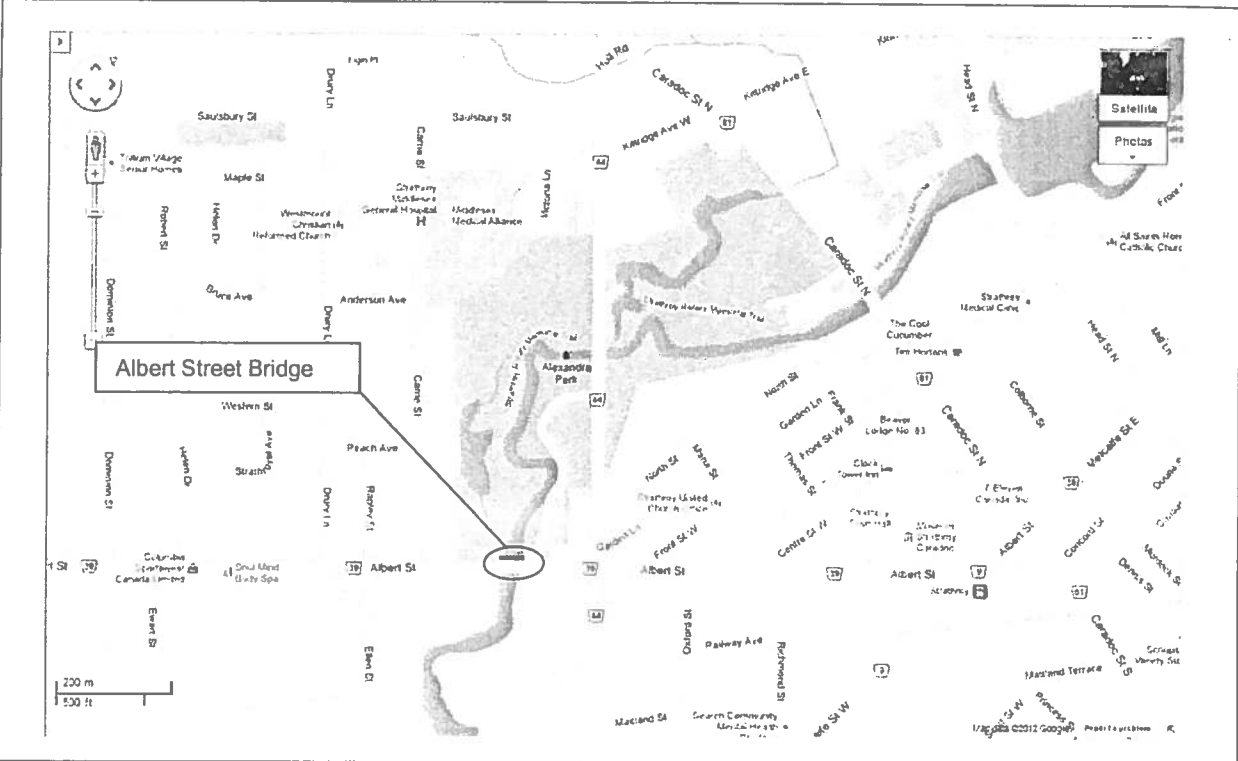
\_\_\_\_\_  
A **Commissioner**, Notary Public, Justice of the Peace, etc

My commission expires on \_\_\_\_\_

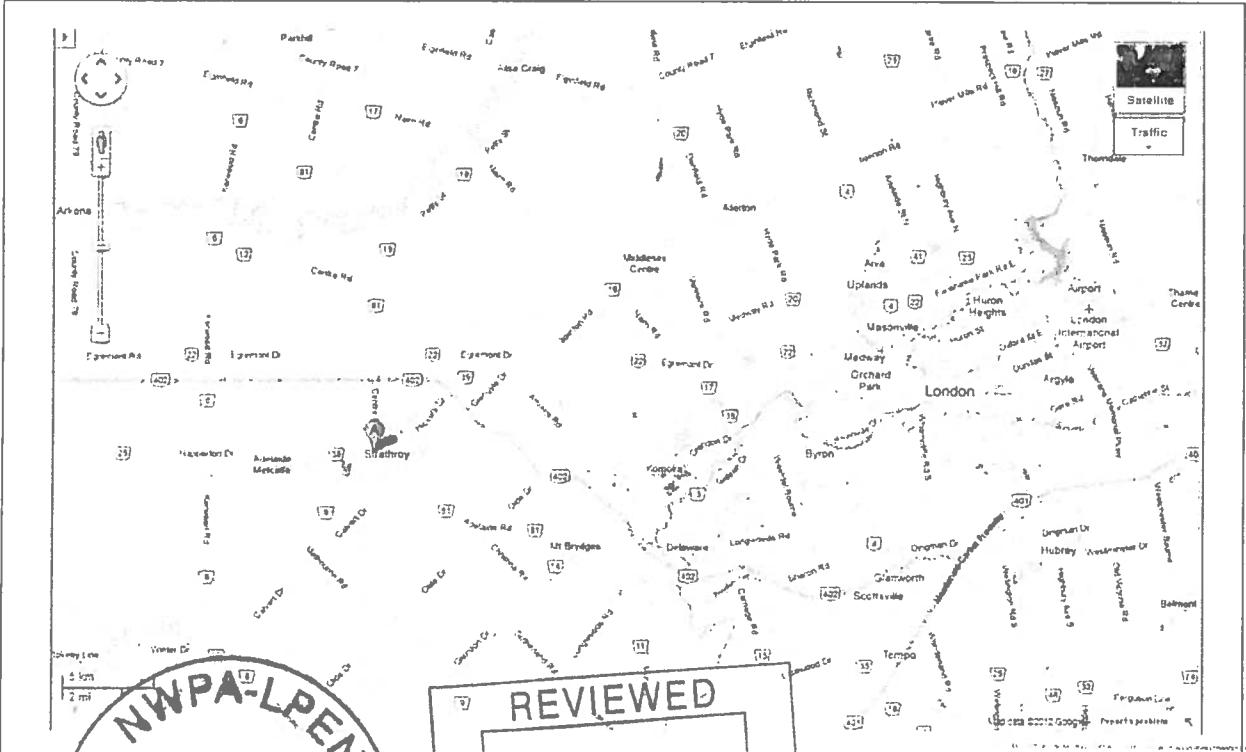
Canada



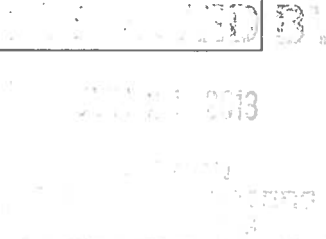
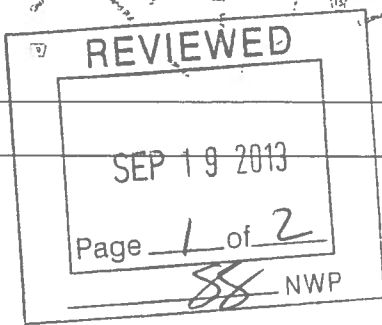
ENCLOSURE A  
County of Middlesex, Town of Strathroy  
Albert Street Bridge over East Sydenham River



Key Map



Area Map





# Appendix J

## Preliminary Cost Estimate

**Albert Street Bridge Replacement, Preliminary Cost Estimate**

Description		Total
<b>PART A - ROAD WORKS</b>		
Place Hot Mix Aphalt	\$	35,000.00
Granular Backfill	\$	25,000.00
Concrete in sidewalk	\$	5,000.00
Concrete curb and gutter	\$	5,000.00
Removal/cutting of asphalt pavement and partial depth removal	\$	20,000.00
Removal of concrete sidewalk, concrete curb and gutter	\$	2,000.00
Traffic Control plan and implementation	\$	45,000.00
Portable Variable Message Signs	\$	60,000.00
Pavement markings	\$	2,000.00
Outlet and Storm Pipe Relocation	\$	5,000.00
Site Restoration	\$	6,000.00
<b>TOTAL PART A - ROAD WORKS</b>	<b>\$</b>	<b>210,000.00</b>
<b>PART B - BRIDGE WORK</b>		
Subdrain Pipe	\$	3,000.00
Removal of bridge structure	\$	80,000.00
Earth excavation for structures	\$	20,000.00
H-Piles HP 310x110	\$	200,000.00
Concrete in Substructure	\$	130,000.00
Concrete in Deck (sidewalks)	\$	120,000.00
Concrete in approach slabs	\$	50,000.00
Concrete in Parapet Walls	\$	75,000.00
Reinforcing steel bar	\$	80,000.00
Parapet Wall Railing	\$	25,000.00
Prestressed members fabrication	\$	600,000.00
Prestressed members Delivery	\$	25,000.00
Prestressed members Erection	\$	50,000.00
Grout precast deck joints	\$	25,000.00
Bridge Deck Waterproofing	\$	25,000.00
Form and fill grooves	\$	2,000.00

# Albert Street Bridge Replacement, Preliminary Cost Estimate

Description		Total
Site access, work platform and scaffolding including environmental protection	\$	60,000.00
<b>TOTAL PART - BRIDGE WORK</b>	<b>\$</b>	<b>1,570,000.00</b>
<b>PART C - MISCELLANEOUS</b>		
Mobilization/Demobilization	\$	30,000.00
Engineer's Site Trailer	\$	5,000.00
Navigable Waters Signs	\$	1,000.00
Bonds		
a) 50% Performance	\$	8,000.00
b) 50% Labour and Maintenance	\$	6,000.00
<b>TOTAL PART C - MISCELLANEOUS</b>	<b>\$</b>	<b>20,000.00</b>
	\$	210,000.00
	\$	1,570,000.00
	\$	20,000.00
Subtotal	\$	1,800,000.00
10% Contingency Allowance	\$	180,000.00
Preliminary Engineering Estimate, Allowance (10%)	\$	180,000.00
<b>Total Preliminary Construction Cost</b>	<b>\$</b>	<b>2,160,000.00</b>
(exclusive of HST)		

# Appendix K

## Notice of Completion



**ALBERT STREET BRIDGE REPLACEMENT  
MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT  
NOTICE OF COMPLETION**

The County of Middlesex retained AECOM to undertake a study to address structural deficiencies and determine the feasibility of replacing the Albert Street Bridge. This bridge is located west of the Albert Street/Victoria Road intersection, in Strathroy.

This study was completed in accordance with the Municipal Class Environmental Assessment requirements for Schedule B projects (as amended in 2007 & 2011) under Ontario's Environmental Assessment Act (EA Act). The Class EA process included stakeholder, public and agency consultation, an evaluation of solutions, assessment of potential impacts, and identification of measures to mitigate any adverse impacts. As part of the consultation program a Public Information Centre was held on May 2, 2013 at the Strathroy-Caradoc Town Hall to bring forward the recommendations for public and agency review and comment.

The County is proposing to replace the existing bridge with a new structure that will increase the width of the bridge to provide sidewalks on both sides and will increase functional safety features including handrails. Total construction duration is estimated to be 16 weeks. During this time, full bridge and road closure is estimated to be 8 weeks to remove the existing bridge and replace the main bridge components using 'rapid bridge' construction methods. Temporary lane closures and traffic staging is estimated to be approximately 8 weeks to complete construction of the remaining bridge components. Local detours for traffic will be provided during construction.

A Screening Report has been prepared and will be placed on public record on October 14, 2013 for thirty (30) calendar days to be reviewed by members of the public and/or any other interested party at the following locations:

Strathroy-Caradoc Town Hall, 52 Frank Street, Strathroy.

Middlesex County Library (Strathroy), 34 Frank Street, Strathroy.

County of Middlesex, 399 Ridout Street North, London.

AECOM, Citi Plaza, 250 York Street, Suite 410, London

Subject to comments received and receipt of necessary approvals, the County of Middlesex may proceed with the design and construction of the project. Any works regarding this project will be

subject to further approval by Middlesex County Council.

If you have any questions or concerns regarding the Screening Report, please contact one of the study representatives listed below no later than November 12, 2013.

Ms. Corri Marr, H.B.Sc.,  
Environmental Planner  
AECOM Canada  
250 York Street, Suite 410  
London ON, N6A 6K2  
Tel: 519-963-5872  
Email: [corri.marr@aecom.com](mailto:corri.marr@aecom.com)

Mr. Chris Traini, P.Eng.,  
County Engineer  
County of Middlesex  
399 Ridout Street North  
London ON, N6A 2P1  
Tel: 519- 434-7321 ext. 2264  
Email: [ctraini@middlesex.ca](mailto:ctraini@middlesex.ca)

Additional information is available on the county website: <http://www.middlesex.ca>.

If concerns regarding this project cannot be resolved in discussion with Middlesex County, a person may request the Minister of the Environment to issue an order to comply with Part II of the EA Act. This is known as a 'Part II Order', bumping up the status of this project to a full Individual Environmental Assessment. The procedure for a Part II Order request is as follows:

- First, the person with concerns directs them to Middlesex County and AECOM, during the thirty (30) calendar day review period for consideration and mitigation.
- Second, if the concerns cannot be resolved, the person may submit a Part II Order request to the Minister of the Environment at 135 St. Clair Avenue West, 12th Floor, Toronto ON, M4V 1P5 no later than November 12, 2013 with a copy of the request being sent to Middlesex County and AECOM.

Subject to the comments received as a result of this notice, detailed design (October – December 2013), tendering (January 2014) and construction of the recommended works (June – October 2014) can proceed.

This Notice issued on October 07, 2013