# Table of Contents

## 1.0 INTRODUCTION ................................................................. 1.1  
1.1 STUDY AREA ........................................................................ 1.1  
1.2 PURPOSE ............................................................................. 1.1  
1.3 AGENCY CONSULTATION ..................................................... 1.2  

## 2.0 ENVIRONMENTAL POLICIES AND LEGISLATION ............ 2.1  
2.1 PROVINCIAL POLICY STATEMENT ........................................ 2.1  
2.2 CITY OF LONDON OFFICIAL PLAN ....................................... 2.1  
2.3 CITY OF LONDON ZONING BY-LAW ...................................... 2.2  
2.4 CITY OF LONDON ENVIRONMENTAL MANAGEMENT GUIDELINES 2.3  
2.5 CITY OF LONDON TREE CONSERVATION BY-LAW .................... 2.3  
2.6 POTTERSBURG CREEK AND CRUMLIN DRAIN SUBWATERSHED STUDY 2.4  
2.7 UTRCA ENVIRONMENTAL PLANNING POLICY MANUAL ............. 2.4  
2.8 SUMMARY OF POLICY IMPLICATIONS .................................. 2.5  

## 3.0 METHODS ............................................................................ 3.1  
3.1 BACKGROUND DATA REVIEW ............................................. 3.1  
3.2 FIELD INVESTIGATIONS ......................................................... 3.1  
  3.2.1 Vegetation Surveys ......................................................... 3.2  
  3.2.2 Breeding Bird Surveys .................................................... 3.2  
  3.2.3 Chimney Swift Surveys .................................................... 3.2  
  3.2.4 Preliminary Tree Inventory and Health Assessment ............... 3.5  
  3.2.5 Incidental Wildlife ........................................................... 3.5  
3.3 IDENTIFICATION OF SIGNIFICANCE AND SENSITIVITY ......... 3.5  

## 4.0 SITE DESCRIPTION AND NATURAL FEATURES ............. 4.1  
4.1 DESIGNATED NATURAL FEATURES ..................................... 4.1  
4.2 PHYSIOGRAPHY .................................................................... 4.1  
4.3 TERRESTRIAL RESOURCES .................................................... 4.1  
  4.3.1 Landscape Ecology ....................................................... 4.1  
  4.3.2 Vegetation Communities ................................................. 4.2  
  4.3.3 Vascular Plant Species ................................................. 4.2  
  4.3.4 Tree Inventory and Health Assessment ......................... 4.3  
  4.3.5 Woodland Evaluation .................................................... 4.7  
  4.3.6 Breeding Birds ............................................................... 4.7  
  4.3.7 Chimney Swift Roosting and Nesting Surveys ................. 4.8  
  4.3.8 Wildlife and Wildlife Habitat ......................................... 4.10  
4.4 AQUATIC RESOURCES .......................................................... 4.10  

## 5.0 SUMMARY OF ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES .... 5.1  
5.1 DEVELOPMENT CONSTRAINTS AND OPPORTUNITIES ........... 5.1  
  5.1.1 Local Wetland .............................................................. 5.1
5.1.2 Chimney Swift Habitat............................................................... 5.2
5.1.3 Downstream Fish Habitat......................................................... 5.3
5.2 RESTORATION OPPORTUNITIES................................................. 5.4
5.3 FUTURE STUDIES AND ADDITIONAL INFORMATION REQUIREMENTS ........ 5.5
5.4 CONCLUSION........................................................................... 5.5

6.0 REFERENCES ........................................................................... 6.1

List of Appendices

Appendix A Figures
Appendix B Vascular Plant List
Appendix C Wildlife Species List
Appendix D Pottersburg Creek Area 8 Factsheet

List of Figures

Figure 1 Location of Study Area
Figure 2 Existing Environmental Features
Figure 3 Tree Inventory Areas

List of Tables

Table 1 Survey Dates, Times and Weather Conditions
Table 2 ELC Vegetation Types
1.0 Introduction

Stantec Consulting Ltd. (Stantec) was retained by Ontario Realty Corporation (ORC), as agent on behalf of Her Majesty the Queen in right of Ontario as represented by the Minister of Energy and Infrastructure, in 2008 to complete a Natural Heritage Study as a component of the London Psychiatric Hospital Lands Area Plan in the City of London.

The intent of this Phase 1 report is to characterize the natural system and its ecological functions and to identify the environmental constraints and opportunities for the future re-development of this area as input to the identification of possible land use scenarios and for review by the review and approval agencies. The Phase 2 report will build on these initial findings to identify and assess the impacts of future land use scenarios and to identify environmental management measures for the long-term protection of the natural heritage features and functions in the area.

1.1 STUDY AREA

The Study Area is approximately 73 hectares (180 acres) in size and is bounded by Oxford Street to the north, Highbury Avenue to the west, Dundas Street to the south and a residential and industrial area to the east within the City of London (Figure 1). The majority of the lands within the Study Area are owned by the Province of Ontario, with a small portion of the Study Area also owned by the Government of Canada and the Salvation Army. The majority of the lands (65 ha) are occupied by the London Psychiatric Hospital, which are owned by the Province of Ontario and managed by the ORC.

The Study Area is currently designated as a Regional Facility within the City of London Official Plan. The adjacent lands include a mix of land uses including light industrial, community shopping area, low density residential and commercial policy areas. While the trees and landscaping possess some cultural significance, including the Grand Allée along the driveway entering the ORC property from Dundas Street, the only natural feature recognized within the Study Area is a small isolated wetland pocket in the southeast corner that is mapped by the UTRCA as a Regulated Area.

1.2 PURPOSE

The intent of the Natural Heritage Study is to provide the framework for the identification, assessment and selection of preferred land uses for the future redevelopment of the Study Area. The objectives of the Natural Heritage Study include:

- To characterize the natural heritage system and its ecological functions;
To identify development constraints and recommend appropriate land use designations for the protection of natural features in accordance with the City of London Official Plan Natural Heritage System;

To identify and assess the impacts of future land use scenarios;

To recommend appropriate measures for the long-term protection and enhancement of the natural heritage system; and

To identify areas that require additional detailed study to refine appropriate land use designations or that will provide detailed recommendations for final development approvals.

This Phase 1 Constraints and Opportunities Report provides a summary of the existing background information supplemented by site specific field investigations to identify the natural heritage features, ecological functions and corresponding development opportunities and constraints. This information is intended to be considered during the development, assessment and selection of alternative land use scenarios through the Area Plan process by providing a general depiction of the extent of developable and non-developable land within the Study Area, as well as any additional constraints that should be considered and assessed to ensure compliance with current provincial and municipal policies.

The Phase 2 report will be prepared to assess the potential environmental impacts of the various land use scenarios developed through the Area Plan process, to identify measures to avoid and mitigate potential impacts of the preferred scenario and to recommend opportunities for the restoration and enhancement of the natural heritage system.

1.3 AGENCY CONSULTATION

Various review and approval agencies were contacted early in the project as part of a pre-consultation process to solicit initial comments, identify potential concerns and obtain pertinent information for consideration during the development of this property and completion of the Natural Heritage Study.

Agency staff from the City of London and UTRCA provided input during the preparation of the Terms of Reference (ToR) for this study, which was approved by the City of London Planning Committee on June 22, 2009. City and UTRCA staff provided comments during the Proposal Review Meeting held on February 11, 2009, which were reflected in the approved ToR. Specific field investigations were also included to confirm the possible occurrence of Chimney Swifts on the ORC property based on information that was forwarded from the McIlwraith Field Naturalists through City staff on May 8, 2009.

Public and agency input was obtained during the Community Visioning Session held on June 24, 2009, during which anecdotal information was provided regarding historic land uses.
and impacts, vegetation communities and incidental observations of wildlife and habitat within the Study Area were provided.

Specific consultation with Ron Gould from the Ministry of Natural Resources (MNR) was held on November 23, 2009 to discuss observations of the Chimney Swift and on site and review the implications of such findings under the Endangered Species Act, 2007 and subsequent regulations that have been approved to protect this species and its habitat.

Finally, further agency consultation occurred through a review of the Phase 1 report, which was submitted to the City and UTRCA in October 2009 and subsequently discussed during a Proposal Review Meeting at City Hall on November 11, 2009. Comments from the UTRCA were received on November 23, 2009 and from various departments at the City of London on January 22, 2010. Responses and revisions arising from these comments have been incorporated into this final report.
2.0 Environmental Policies and Legislation

An understanding of the applicable natural environment policies is required in order to establish potential development constraints and opportunities on the Study Area. The following is a summary of the current Provincial, Municipal and Conservation Authority policies that apply in this area.

2.1 PROVINCIAL POLICY STATEMENT

This assessment has been done in a manner consistent with Policy 2.1 of the Provincial Policy Statement (PPS) (Ministry of Municipal Affairs and Housing, 2005), and the Natural Heritage Reference Manual for Policy 2.3 (Ministry of Natural Resources (MNR), 1999). The natural heritage features to be considered in accordance with the PPS include:

- Significant wetlands (in Ecoregions 5E, 6E and 7E) and significant coastal wetlands;
- Significant habitat of endangered and threatened species;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant areas of natural and scientific interest (ANSIs); and
- Fish habitat.

In southern Ontario, development is not permitted in significant habitat of endangered and threatened species, significant wetlands or significant coastal wetlands. Development and site alteration may be permitted on lands adjacent to significant wetlands, coastal wetlands and the habitat of endangered and threatened species if it is demonstrated that there will be no negative impacts on the natural features or the ecological functions for which the area was identified.

Development is not permitted within, or on lands adjacent to, the other significant natural heritage features unless the ecological function of these lands has been evaluated and it has been demonstrated that no negative impacts on the natural heritage features or their ecological function will occur. Development and site alteration is not permitted within fish habitat except in accordance with provincial and federal requirements.

2.2 CITY OF LONDON OFFICIAL PLAN

The City of London Official Plan contains City Council's objectives and policies to guide the short-term and long-term physical development of all lands within the boundary of the municipality. The general environmental goals of the Official Plan include, but are not limited to, the following:
- promote a healthy natural environment in the City of London;
- maintain a healthy Natural Heritage System for the benefit of present and future generations through the implementation of an ecosystem approach to environmental planning;
- reduce the risk to public health and safety from natural human generated hazards, such as areas susceptible to flooding, erosion and slope instability; and
- conserve natural resources for the benefit of present and future generations of Londoners.

An Open Space designation is applied to lands that are to be maintained as park space or in a natural state, which include public and private open space, flood plain lands and natural heritage areas that have been recognized by the City as significant. The intent is to conserve such areas and, where appropriate, integrate them into the City's overall parks network.

Floodplains, stream corridors and various natural heritage features, including wetlands, woodlands and Environmentally Significant Areas (ESAs), are delineated on Schedule B and recognized as either Open Space or Environmental Review lands on Schedule A, depending on the attributes of the feature and the need for further evaluation to assess significance, refine boundaries and determine the appropriate level of protection. Natural Heritage policies in Section 15 provide for the protection and rehabilitation of natural heritage features and apply as an overlay to the land use designations shown on Schedule "A". Any future development should be directed away from such areas.

Based on a review the current City OP, there are no Environmental Features or natural hazards identified on Schedules A and B within the Study Area.

The new City of London Official Plan update (not yet in force) is organized in a similar fashion, but separates the natural heritage features and natural hazards onto two Schedules (B1 and B2 respectively). A small isolated wetland pocket is identified on Schedule B2 (natural resource and natural hazards) in the south east corner of the Study Area as an area regulated by the UTRCA. This feature is not designated as Open Space or Environmental Review on Schedule A or as a natural heritage feature on Schedule B1.

### 2.3 CITY OF LONDON ZONING BY-LAW

Natural heritage features and hazards are identified within the City of London Zoning By-Law (2007) as either Open Space (OS) or Environmental Review (ER). OS1, OS2 and OS3 are used to identify Open Space lands that are not environmentally significant (i.e. parks, cemeteries), while OS4 and OS5 are the most restrictive open space zones and apply to lands that have physical (natural hazards) or environmental (natural heritage) constraints to development. Environmental Review lands are intended to remain in a natural condition until their significance is determined through the completion of more detailed environmental studies.
Based on a review of the City Zoning By-Law, there are no OS or ER lands within the Study Area. The entire Study Area is identified as a Regional Facility (RF), which recognizes large institutional type facilities that serve a regional function.

2.4 CITY OF LONDON ENVIRONMENTAL MANAGEMENT GUIDELINES

In 2007, the City of London completed and approved a set of Environmental Management Guidelines to provide a consistent template and outline clear expectations that is intended to expedite the review process and assist decision makers in their assessment and review of development proposals (City of London, 2007).

The City of London Guidelines for the Preparation and Review of Environmental Impact Studies (City of London, November, 2003) provides direction for the preparation and review of EIS reports in London, which are required where development is proposed within or adjacent to components of the natural heritage system as defined in the City of London Subwatershed Planning Studies or Official Plan.

Additional guidelines, standards, procedures outlined in this document include guidelines and standards for the collection of ecological inventory, the identification and delineation of Environmentally Significant Areas, the evaluation of ecologically significant woodlands, for determining setbacks and ecological buffers and for the selection of plants for natural heritage areas and buffers. These documents are to be consulted and adhered to during the preparation of the Area Plan and supporting Natural Heritage Study.

2.5 CITY OF LONDON TREE CONSERVATION BY-LAW

The City of London Tree Conservation By-Law (2001) states that no tree shall be destroyed or injured in an Environmental Protection Area without the prior issuance of a Permit from the City of London. An “Environmental Protection Area” includes those lands designated as either Environmental Review or Open Space on Schedule A of the City OP.

Permits for tree removal may be considered and issued to remove the dead, dangerous, diseased or severely injured trees or stumps, in accordance with good forest practice, providing the removal:

- will not interfere with natural drainage processes; or result in soil erosion, slope instability or siltation in a watercourse;
- will not have a significant impact on any healthy vegetation community within, and adjacent to the subject site; and,
- will not have a significant impact on any fish or wildlife habitat within, and adjacent to the subject site.
2.6 POTTERSBURG CREEK AND CRUMLIN DRAIN SUBWATERSHED STUDY

The *Pottersburg Creek and Crumlin Crain Subwatershed Study* (Paragon Engineering Limited, 1995) characterized and assessed several areas of concern within the subwatershed, including the hydrology, hydraulics, aquatic and terrestrial biology. The Subwatershed Study provides a summary of the natural environment characteristics and areas of concern in the subwatershed pertaining to hydrology (flooding), hydrogeology, stormwater management, surface water and ground water quality, aquatic and terrestrial resources. The Subwatershed Study also recommends constraint areas (Category 1 and 2), development criteria (SWM, tree preservation, water balance), conservation and management practices (agricultural, non-point source pollution) and specific projects and programs (riparian planting, channel remediation) to sustain and, where feasible, enhance existing conditions in the subwatershed.

According to the Subwatershed Study, no natural heritage features or constraints are identified within the Study Area. The management plan for the Pottersburg Creek corridor to the east includes recognition of the floodplains and recommendation for riparian vegetation planting areas to replace the existing concrete lined channel. No Category 1 or 2 constraints were identified within at least 120 metres of the Study Area. A copy of the Area 8 factsheet that describes the local resources and best management practices for the Study Area is provided in Appendix D.

2.7 UTRCA ENVIRONMENTAL PLANNING POLICY MANUAL

The *UTRCA Environmental Planning Policy Manual* (UTRCA, 2006) includes policies for the protection of natural hazards and natural heritage features within their jurisdiction (watershed), which apply to both municipal plan review (Planning Act) and the implementation of the UTRCA’s *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* Regulation (Ontario Regulation 157/06).

These policies are intended to protect life and property from flood and erosion, ensure a sustainable water supply, protect and enhance water quality, preserve and manage natural areas and provide outdoor recreation opportunities (UTRCA, 2006). The purpose of this manual is to provide policies to guide development and site alteration while protecting, preserving and enhancing the natural environment.

These policies are similar to those included in the PPS and apply to the protection and preservation of natural hazards, such as floodplains and steep or eroding slopes, and natural heritage resources, such as wetlands, woodlands, wildlife habitat, threatened and endangered species, fish habitat and adjacent land areas. The UTRCA’s policies also include the protection of all wetlands from development and site alteration, but does allow for some restricted uses (i.e. municipal infrastructure, conservation uses, hazard control structures) provided they are supported by an EIS.
According to *UTRCA Regulation Limit Map 141* (UTRCA, 2006), as recognized on the proposed City of London Official Plan Schedule B2 (draft), a small isolated wetland pocket is located in the south east corner of the Study Area that is regulated under Ontario Regulation 157/06. New development and site alteration is generally not permitted in wetlands (Policy 4.2.4.1), however, some “restricted uses” may be permitted provided that they are supported by an Environmental Impact Study or Environmental Assessment (Policy 4.2.4.2).

“Restricted uses” include conservation uses (wildlife or fisheries management, forestry or passive recreation), flood and/or erosion control structures, facilities that by their nature must locate near water or traverse water, ancillary facilities of an adjacent land use that are of a passive, non-structural nature or municipal infrastructure (roads and utilities/servicing, sewer lines, gas pipelines, hydro facilities) (UTRCA, 2006).

### 2.8 SUMMARY OF POLICY IMPLICATIONS

Any future land use scenario or proposed development within the Study Area should recognize the objectives of the documents noted above and the requirements of the individual agencies. The approach to this project should take these policy requirements and guidelines into consideration during the establishment of the conceptual plans for the Study Area, identification of mitigation, restoration and enhancement opportunities and during the detailed design and construction of the proposed development.
3.0 Methods

3.1 BACKGROUND DATA REVIEW

A variety of background documents and sources of information were consulted during the preparation of this report, including the following primary data sources:

- *Pottersburg Creek and Crumlin Drain Subwatershed Study* (Paragon Engineering Limited, 1995);
- *City of London Official Plan and Land Use Schedules A and B*;
- *UTRCA Regulation Limit Map 141* (UTRCA, 2006);
- *Environmental Planning Policy Manual for the Upper Thames River Conservation Authority* (UTRCA, 2006); and
- Natural Heritage Information Centre (NHIC) Web Database System (2009).

These information sources were reviewed to provide an understanding of the site in the context of the surrounding area. We have relied on these secondary sources of information to identify the known environmental constraint areas and to provide a map of the significant natural features such as wetlands, woodlands and watercourses in the area.

3.2 FIELD INVESTIGATIONS

As proposed in the Terms of Reference, a number of field investigations were completed to supplement existing background information in support of the Area Plan, including:

- Spring and summer botanical surveys
- Classification of vegetation communities according to the Ecological Land Classification (ELC) system (Lee et al., 1998)
- Breeding bird surveys;
- Chimney swift surveys;
- Preliminary tree inventory and health assessment; and
- Incidental wildlife observations.

These field investigations will aid in the identification and refinement of vegetation cover and species composition, tree health, and wildlife usage within the Study Area, as well as for confirming the ecological resources within, and adjacent to, the Study Area.
3.2.1 Vegetation Surveys

Spring and summer vascular plant inventories and vegetation community characterization were completed for the Study Area on May 20 and July 30, 2009. The Study Area was systematically covered on foot to ensure a complete inventory of plant species and vegetation communities potentially impacted by the proposed development. Community characterizations (eco-sites and vegetation types) identified during these surveys were based on the Ecological Land Classification (ELC) system (Lee et al., 1998). Vegetation communities were delineated on aerial photographs and checked in the field. English colloquial names and scientific binominals of plant species generally follow Newmaster et al. (1998).

3.2.2 Breeding Bird Surveys

Breeding bird surveys were conducted on the ORC lands on May 30, 2009 between 5:30 and 8:30 AM and on June 25 between 6:00 and 8:10 AM. Weather conditions of the May 30 survey had increasing temperatures of 11 to 14°C, with a wind of 0 (Beaufort scale) and 50% cloud cover. The June 25 survey had an approximate temperature of 19°C, with a wind of 1-2 (Beaufort scale) and 50% cloud cover. There was no precipitation during either survey, but prior to the May 30 survey overnight rain had occurred.

Breeding bird surveys were conducted by traversing the Study Area on foot while maintaining less than 200m between routes or transects. All species seen and heard were recorded. A conservative approach to determining breeding status was taken; all birds seen or heard in appropriate habitat during the breeding season were assumed to be breeding. Observations were separated into 3 areas, the cultural lawn and parkland that covered the majority of the subject area, a meadow/thicket swamp located at the southeast corner, and any offsite adjacent lands.

3.2.3 Chimney Swift Surveys

Specific surveys were conducted to confirm the presence of Chimney Swift within the Study Area. Dusk surveys were conducted to confirm which chimneys the swifts were using as roosts, while the daytime surveys were conducted to determine if Chimney Swifts were nesting within the roosts and to estimate the population size within the Study Area. Times of surveys and weather conditions during each survey are summarized in Table 1.

### Table 1 Survey Dates, Times and Weather Conditions

<table>
<thead>
<tr>
<th>Survey Date</th>
<th>Survey Type</th>
<th>Time</th>
<th>Weather Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 29, 2009</td>
<td>Dusk</td>
<td>19:35-21:30</td>
<td>16°C, with a wind of 0 (Beaufort scale) and decreasing cloud from 95 to 50%. Thunderstorm earlier in the evening</td>
</tr>
<tr>
<td>May 30, 2009</td>
<td>Daytime</td>
<td>8:45-9:50</td>
<td>15°C, with a wind of 0 (Beaufort scale) and 50% cloud cover.</td>
</tr>
</tbody>
</table>
Survey Date | Survey Type | Time | Weather Conditions
---|---|---|---
June 24, 2009 | Dusk | 19:40-21:30 | 32°C, with a wind of 2 (Beaufort scale) and 25% cloud cover.
June 25, 2009 | Daytime | 8:00-9:20 | 24°C, with a wind of 2-3 (Beaufort scale) and 45% cloud cover.
July 30, 2009 | Daytime | 10:15-11:20 | 26°C, with a wind of 2 (Beaufort scale) and 10% cloud cover.

The purpose of the monitoring program was to determine which buildings or structures within the Study Area supported roosting colonies of Chimney Swifts and, if present, whether such structures contained breeding pairs or just a roosting colony. Each day at dusk, Chimney swifts enter their roosts for the night. This is therefore the most reliable time of day to observe Chimney Swifts entering structures that are providing roosts. During the nestling period, the breeding pair will typically visit the nest every 10 minutes to feed their young. This is the best method to predict if a breeding pair is using the structure. The nestling phase may occur through June, July and early August, but most nestlings occur in late June through July. Although a structure may support many roosting individuals, typically there is only one nesting pair per structure. However, some larger structures may hold more than one nest.

Prior to the Chimney Swift surveys, the Study Area was explored to examine each building to identify chimneys or other structures that may provide roosting (or nesting) sites for Chimney Swifts. Environment Canada’s document “Chimney Swift (Chaetura pelagica) Monitoring Protocols (March 2009)”, describes potential roosting structures as having a minimum inside diameter of 25 to 30cm; although roost sites are often larger than the minimum diameter. Roost structures are usually made of brick, stucco, stone or concrete that provide a rough surface to which the swifts can cling to. Chimneys with caps or animal guards are not suitable. Typically, roosting and nesting sites are in a sheltered and dark location (Cink and Collins, 2002).

A total of five (5) buildings (or groups of buildings) were identified within the Study Area that contain possible roosting structures (i.e. chimneys) within which this species may establish nests or roosting sites (Figure 2). The five structures are described below:

**Station 1 (Barn)**

A barn located in the northwest corner of the site is derelict and entering a state of ruin. While this structure contains no chimneys, it does include 5 peaks (belfry like structures) on the roof approximately 60cm by 60cm sided with louvers (most of the slats are missing). This site was identified by the McIlwraith Field Naturalists as a possible Chimney Swift location.

The peaks on the roof provided little shelter or darkness, which this species typically prefers, and it was difficult to determine whether additional sheltered areas inside the barn could be accessed through the peak. Two buildings adjacent to the barn had chimneys that did not have
a cap or animal guard, however, the inside diameters of the chimneys (approx. 20cm) appeared to be below the minimum requirements of Chimney Swifts.

Station 2 (Soccer Club Building)

The Soccer Club building located in the northeast portion of the site had a chimney with no cap or animal guard. The chimney appeared to be approximately 20cm in diameter, again below the minimum requirements of Chimney Swifts. No swifts were observed in the vicinity of this building.

Station 3 (Stone Outbuilding)

A stone outbuilding with chimneys was located within the centre of the Study Area. The chimneys appeared to be approximately 20cm in diameter, again below the minimum requirements of Chimney Swifts. No swifts were observed in the vicinity of the outbuilding.

Station 4 (Church)

A church was located centrally on the Study Area. The church had chimneys made of stone. The inside diameter appeared to be 15cm, below the minimum requirements of Chimney Swifts. No swifts were observed in the vicinity of the church.

Station 5 (Infirmary Building)

The infirmary was a large building located within the centre of the Study Area, also derelict and in an advanced state of ruin (i.e. broken windows, holes in roof, fenced off, etc.). The infirmary had six large brick chimneys - two measuring approximately 60cm by 60cm with the other 4 structures measuring approximately 60cm by 120cm. The infirmary also had 2 belfry structures, similar to the barn, which measured approximately 60cm by 60cm with some missing slats on the louvered sides. The numerous broken windows also provided potential entry points into the building.

Two dusk surveys and three daytime surveys were conducted. The first dusk survey was completed near the beginning of the breeding season (May 29, 2009) with a second dusk survey completed on June 24, 2009. Separate surveys were conducted since Chimney Swifts have been known to change roosting locations during the season. The dusk surveys took place from approximately 7:30pm and continued until all swifts had entered their roosts for the night, approximately 9:30pm. During the surveys, the Study Area was traveled scanning for Chimney Swifts. Throughout the surveys, each of the 5 buildings with potential roost structures was visited to scan for Chimney Swifts. Records were made of any Chimney Swifts observed entering or exiting structures, as well as an estimate of swifts identified within 100m of each potential roost structure.
Daytime surveys were also conducted to determine if Chimney Swifts were nesting within the roosts and to estimate the population size within the Study Area. Daytime surveys were conducted on May 30, June 25 and July 30. Methods of the surveys were based on Environment Canada’s document “Chimney Swift (Chaetura pelagica) Monitoring Protocols” (March 2009), with the modification of using a 30-minute survey period instead of 15 minutes. Daytime surveys were conducted at the single building (Infirmary) that was confirmed to support roosting Chimney Swifts during the dusk surveys.

Due to the difficulty of tracking all chimneys on the building at once, two 30 minute surveys were conducted, one on the north side and one on the south side of the building. During this 30 minute survey, the number of entrance/exits from the structure was recorded within each 5-minute period. An effort was also made to record the number of Chimney Swifts flying in the general area of the structure.

3.2.4 Preliminary Tree Inventory and Health Assessment

A general inventory and health assessment of all trees greater than 10 cm DBH within the Study Area was completed on August 24, 2009. The Study Area was divided into 16 areas and the trees within each group were assessed according to species, size and overall general health.

3.2.5 Incidental Wildlife

During all field investigations, observations of wildlife were noted and added to all pertinent species lists, including both direct (visual, audible) and indirect (scat, browse, tracks) observations.

3.3 Identification of Significance and Sensitivity

The provincial status of wildlife flora and fauna was provided by the Natural Heritage Information Centre (NHIC, 2007). Status rankings (SRANKs) for plants, vegetation communities and wildlife are based on the number of occurrences in Ontario and have the following meanings:

- S1: critically imperiled; often fewer than 5 occurrences
- S2: imperiled; often fewer than 20 occurrences
- S3: vulnerable; often fewer than 80 occurrences
- S4: apparently secure
- S5: secure
- S?: unranked, or, if following a ranking, rank uncertain (e.g. S3?).

The global, federal and provincial status of wildlife was determined by reviewing species accounts published by the Natural Heritage Information Centre (NHIC, 2007). Provincial significance of vegetation communities was based on the draft rankings assigned by the Natural
Heritage Information Centre (Bakowsky, 1996). The provincial status of all plant species is based on Newmaster et al. (1998), with updates from the database of the Natural Heritage Information Centre (NHIC, 2007).

Identification of potentially sensitive plant species was based on the coefficient of conservatism value (CC) assigned to each native species in southern Ontario (Oldham et al. 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species’ tolerance of disturbance and fidelity to natural habitats. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters and undisturbed environments.
4.0 Site Description and Natural Features

The London Psychiatric Hospital Lands Area Plan Study Area is generally bounded by Highbury Avenue to the west, Dundas Street to the south and Oxford Street to the north, in the City of London. A mixture of residential and industrial land uses occur east of the Study Area.

The Study Area currently contains a number of buildings, extensive parking areas, manicured lawn and roadways on and is designated for Institutional Use as a Regional Facility. A mix of industrial and institutional uses dominates the Study Area, with some recreational uses (lawn bowling) and residential (Salvation Army) located south of the CN Railway. A small isolated wetland pocket is located at the southeast corner of the Study Area.

4.1 DESIGNATED NATURAL FEATURES

Based on a review of the City of London Official Plan and Zoning By7-Law, there are no designated natural heritage or hazardland features identified within the Study Area. The only recognized natural feature within the Study Area is the small wetland at the southeast corner of the site identified as a Regulated Area by the UTRCA.

4.2 PHYSIOGRAPHY

The Study Area is situated in the Stratford Till Plain Physiographic Region. The till in this region is fairly uniform as it is part of the ground moraine that was a product of the advances of the Huron ice lobe (Chapman and Putnam, 1984). The overburden thickness within the Pottersburg Creek subwatershed generally ranges from 25 to 45 metres, overlying a limestone bedrock (Paragon Engineering Limited, 1995). This overburden within the Study Area is identified as sand and gravel potentially capable of infiltrating 214mm/year (Paragon Engineering Limited, 1995).

Drainage across the Study Area is generally in a north to south direction, although topography is relatively flat across the site. Drainage is split between Pottersburg Creek, which drains the east side of the Study Area, and the Forks Watershed (South Thames River), which drains the west side. No watercourses occur within the Study Area, but drainage from the small wetland is conveyed via a culvert under the CN Railway to Pottersburg Creek via existing storm sewers.

4.3 TERRESTRIAL RESOURCES

4.3.1 Landscape Ecology

The Study Area is located within the Niagara section of the Deciduous Forest Region (Rowe, 1972). The Niagara Section is dominated by sugar maple and American beech, mixed with basswood, red maple, red oak, white oak, and bur oak. The bulk of Canada’s black walnuts, sycamores, swamp white oaks, and shagbark hickories are found in this forest region. Other
associated species include butternut and bitternut hickories, rock elm, silver maple, and blue beech. Coniferous species are generally limited to scattered white pine, eastern hemlock, eastern red cedar, and, more rarely, black spruce, tamarack, and eastern white cedar.

4.3.2 Vegetation Communities

The majority of the ORC lands consist of manicured park lands or institutional areas consisting of mowed lawns, hedgerows, scatter mature trees and sports fields. A series of paved and gravel roads and parking lots connecting several buildings are interspersed across the site. The CN Railway bisects the study area east to west.

Canopy cover varies within the park land and is generally sparse (manicured, landscaped). The densest canopy cover is found along the Grand Allée, which is a north-south running lane lined with mature deciduous and coniferous trees that enters the Study Area from the south providing access to the site from Dundas Street. This area remains cultural in nature with mown grass and manicured trees and was not found to support significant woodland plants or animals.

The only natural area within the Study Area is located in the southeast corner, which consists of fallow vegetation including cultural meadow and a small thicket swamp community. The vegetation communities, based on the Ecological Land Classification (ELC) system, are shown on Figure 2 and are succinctly described in Table 2 below.

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Ecological Land Classification (ELC) Vegetation Types - ORC Lands</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELC TYPE</td>
<td>Community Description</td>
</tr>
<tr>
<td>Cultural (CU)</td>
<td></td>
</tr>
<tr>
<td>Cultural Meadow (CUM)</td>
<td></td>
</tr>
<tr>
<td>CUM1-1 Old-Field Cultural Meadow</td>
<td>The cultural meadow community was heavily dominated by Kentucky bluegrass with scattered forbs, such as thistle species and common milkweed. Scattered black walnut seedlings were beginning to succeed into this community.</td>
</tr>
<tr>
<td>Swamp</td>
<td></td>
</tr>
<tr>
<td>Thicket Swamp (SWT)</td>
<td></td>
</tr>
<tr>
<td>SWT2-2 Willow Mineral Thicket Swamp</td>
<td>The swamp thicket community contained several willow shrub species with approximately 50% cover. A few scattered trees were present, including eastern cottonwood and silver maple. Ground cover within the community was dominated by reed canary grass with tangles of bitter-nightshade.</td>
</tr>
</tbody>
</table>

4.3.3 Vascular Plant Species

Seventy-six (76) species of vascular plants were recorded within the Study Area during the inventories. Of that number 39 (51%) were native and 37 (49%) were exotic species, reflecting
the anthropogenic nature of this area. Many of the tree species identified on the subject land were planted cultivars within the parkland and institutional area. Overall, the two unmanaged, fallow communities within the Study Area contained low species diversity. A complete list of botanical species identified during the 3 season inventory is included in Appendix B.

All of the native species recorded from the Study Area are ranked S5 (Secure; common and widespread) except for the black walnut, which is ranked S4 (Apparently secure; uncommon but not rare). One locally rare species in Middlesex County (Oldham, 1993) (Virginia pepper-grass) was observed in the cultural meadow community near the edge of the thicket swamp.

Common evening-primrose (Oenothera biennis), which was observed in the cultural meadow, is considered locally rare by Oldham, 1993. However, it is our understanding that there is confusion surrounding naming conventions of this species. Common evening-primrose is common in southern Ontario and it is not believed to be the rare species intended by Oldham.

According to the Element Occurrence Database of the NHIC, one species occurrence was historically identified within the Study Area. White-hair witch-grass (Panicum villosissimum) is ranked S3 (vulnerable in the province) but has no provincial (COSSARO; Endangered Species Act) or federal (COSEWIC; Species At Risk Act). This species was not observed in the Study Area. No nationally or provincially rare, threatened or endangered species were identified.

4.3.4 Tree Inventory and Health Assessment

Field studies were undertaken to inventory the number and location of trees on the property and to assess the health of the individual specimens. The Study Area was divided into 16 Tree Inventory Areas, as identified on Figure 3 and detailed below:

Area 1 – Soccer Fields

The area where the soccer fields are located has very sparse tree cover. A single row of mature trees with a mix of Black Walnut (Juglans nigra) and Shellbark Hickory (Carya laciniosa) are located along the gravel drive. They range in condition from fair to excellent and have trunk callipers between 0.4m and 1.0m. Species including White Spruce (Picea glauca), Black Spruce (Picea mariana), Colorado Blue Spruce (Picea pungens var. glauca) and Norway Spruce (Picea abies) are found in a mature row of trees along the southern limit of this area. Trunk callipers range between 0.3m and 0.6m. These trees are in good to excellent condition.

Area 2 – Northern Lawns

The northern lawn area includes trees that border a number of gravel and asphalt drives. The majority of trees found in this area are mature deciduous species, in good to excellent condition. Species include, Sugar Maple (Acer saccharum), Silver Maple (Acer saccharinum), Red Maple (Acer rubrum), Norway Maple (Acer platanoides), White Ash (Fraxinus americana), Black Walnut (Juglans nigra), Horse chestnut (Aesculus hippocastanum), Oak (Quercus rubra),
American Beech (*Fagus grandifolia*) and Scots Pine (*Pinus sylvestris*). A small number of trees were found to be in fair to poor condition. Calipers range from 0.2m to 1.4m.

**Area 3 – Highbury Avenue**

The majority of trees in the area that borders Highbury Avenue were found to be mature and in good to excellent condition. A wide range of species was found, including Sugar Maple (*Acer saccharum*), Silver Maple (*Acer saccharinum*), Red Maple (*Acer rubrum*), Norway Maple (*Acer platanoides*), Crimson King Maple (*Acer platanoides ‘Crimson King’*), Red Oak (*Quercus rubra*), Ohio Buckeye (*Aesculus glabra*), White Ash (*Fraxinus americana*), Cottonwood (*Populus deltoides*), Black Walnut (*Juglans nigra*), Austrian Pine (*Pinus nigra*), Red Pine (*Pinus resinosa*), White Pine (*Pinus strobes*), Scots Pine (*Pinus sylvestris*), White Spruce (*Picea glauca*), Black Spruce (*Picea mariana*) and Colorado Blue Spruce (*Picea pungens var. glauca*). Trunk diameters range from 0.3m to 1.4m.

**Area 4 – Building ‘E’**

The trees surrounding Building E include a mixture of young, semi-mature and mature species. The condition of these trees ranges from poor to excellent, with callipers ranging from 0.2m to 0.7m. Sugar Maple (*Acer saccharum*), Silver Maple (*Acer saccharinum*), Norway Maple (*Acer platanoides*), Littleleaf Linden (*Tilia cordata*), White Ash (*Fraxinus americana*) and Tree of Heaven (*Ailanthus altissima*) exist in this area. Also found was White Spruce (*Picea glauca*), Black Spruce (*Picea mariana*), White Pine (*Pinus strobes*), Austrian Pine (*Pinus nigra*), Red Pine (*Pinus resinosa*) and Scots Pine (*Pinus sylvestris*). The ash trees in this area have been affected by the Emerald Ash Borer.

**Area 5 – Building ‘W’**

This area has a sparsely vegetated mix of species ranging from young to mature, varying in calliper from 0.2m to 0.6m. Species include, Sugar Maple (*Acer saccharum*), Silver Maple (*Acer saccharinum*), Red Maple (*Acer rubrum*), Norway Maple (*Acer platanoides*), Crimson King Maple (*Acer platanoides ‘Crimson King’*), Ornamental Cherry (*Prunus sp.*), Littleleaf Linden (*Tilia cordata*), White Ash (*Fraxinus americana*), White Spruce (*Picea glauca*), Colorado Blue Spruce (*Picea pungens var. glauca*), Austrian Pine (*Pinus nigra*), Red Pine (*Pinus resinosa*) and Scots Pine (*Pinus sylvestris*). Condition of plant material ranges from poor to excellent.

**Area 6 – Building ‘Q’**

The area surrounding Building ‘Q’ is sparsely vegetated. The majority of the trees that do exist are semi-mature to mature. Sugar Maple (*Acer saccharum*), Silver Maple (*Acer saccharinum*), Norway Maple (*Acer platanoides*), Crimson King Maple (*Acer platanoides ‘Crimson King’*), Northern Catalpa (*Catalpa speciosa*), Black Walnut (*Juglans nigra*), Magnolia (*Magnolia sp.*), Japanese Tree Lilac (*Syringa reticulate*), Colorado Blue Spruce (*Picea pungens var. glauca*)
and Black Spruce (*Picea mariana*) exist. Trunk calliper ranges from 0.1m to 1.4m and condition ranges from good to excellent.

**Area 7 – Building ‘X’**

This area has a number of trees that have been planted in distinct rows. The majority of trees are White Ash (*Fraxinus americana*), Norway Maple (*Acer platanoides*), Red Oak (*Quercus rubra*), Black Walnut (*Juglans nigra*), White Spruce (*Picea glauca*), Norway Spruce (*Picea abies*) and Austrian Pine (*Pinus nigra*). Also found was Sugar Maple (*Acer saccharum*), Silver Maple (*Acer saccharinum*), Pyramidal English Oak (*Quercus robur* ‘Fastigiata’), Black Spruce (*Picea mariana*) and Balsam Fir (*Abies balsamea*). Calipers range between 0.1m and 0.9m. Condition ranges from poor to excellent and there is a variety of young, semi-mature and mature tree species.

**Area 8 – Southern Lawn**

The southern lawn area has a mix of deciduous and coniferous species. The majority were found to be mature Sugar Maple (*Acer saccarum*), Silver Maple (*Acer saccharinum*), White Spruce (*Picea glauca*) and Austrian Pine (*Pinus nigra*). A small number of young Red Oak (*Quercus rubra*) and Black Walnut (*Juglans nigra*) also exist. Calipers range from 0.15m to 0.75m. The large majority of trees are in fair to excellent condition, with a few found to be in poor condition.

**Area 9 – Building ‘H’**

This area has a mix of young to mature tree species with conditions ranging from poor to excellent. Species include Sugar Maple (*Acer saccarum*), Silver Maple (*Acer saccharinum*), Norway Maple (*Acer platanoides*), Red Pine (*Pinus resinosa*), Scots Pine (*Pinus sylvestris*), White Ash (*Fraxinus americanana*), Northern Catalpa (*Catalpa speciosa*), Ornamental Cherry (*Prunus sp.*), Austrian Pine (*Pinus nigra*), White Spruce (*Picea glauca*) and Colorado Blue Spruce (*Picea pungens var. glauca*). The ash trees have been affected by the Emerald Ash Borer and are in decline. Calipers range from 0.25m to 0.65m.

**Area 10 – Southern Driveway**

The majority of the southern driveway is bordered by mature and semi-mature trees on either side. Groupings of Ohio Buckeye (*Aesculus glabra*), Sugar Maple (*Acer saccarum*) and Silver Maple (*Acer saccharinum*) exist. Red Pine (*Pinus resinosa*), Norway Maple (*Acer platanoides*), White Elm (*Ulmus Americana*), White Ash (*Fraxinus americanana*), White Spruce (*Picea glauca*) and Scots Pine (*Pinus sylvestris*) were also found. The condition of trees in this area was found to be good to excellent. Calliper size ranges from 0.2m to 0.75m.
Area 11 – Department of National Defence

The Department of National Defence has little to no tree cover.

Area 12 – Entry Drive North of CP Railway (Grand Allée North)

Trees in this area are centralized around the two lane entry drive and are layered in rows. Deciduous species are found along the central pedestrian walk and the edge of the driveway. Coniferous species are found on the outside edge of these deciduous trees with the exception of the east side where an additional group of deciduous trees are located. The majority of the trees were found to be Silver Maple (Acer saccharinum) and Sugar Maple (Acer saccharum). Other deciduous species include Norway Maple (Acer platanoides), Black Oak (Quercus velutina), Northern Catalpa (Catalpa speciosa), Basswood (Tilia americana), White Elm (Ulmus Americana), European Mountain Ash (Sorbus aucuparia) and White Ash (Fraxinus americana). Coniferous trees were found to be a mix of White Spruce (Picea glauca) and White Cedar (Thuja occidentalis). Trees in this area are semi-mature to mature and are in fair to excellent condition. A number of trees were found to be in poor condition or dead, which for the most part included White Ash (Fraxinus americana) that have been effected by the Emerald Ash Borer. Calipers range in diameter from 0.1m to 1.1m.

Area 13 - Salvation Army

The Salvation Army property has been vegetated to provide shade and soften hard surfaces. There is a significant mix of species, including Littleleaf Linden (Tilia cordata), Norway Maple (Acer platanoides), Silver Maple (Acer saccharinum), Sugar Maple (Acer saccharum), Tulip Tree (Liriodendron tulipifera), Honey Locust (Gleditsia triacanthos), Red Maple (Acer rubrum), Black Walnut (Juglans nigra), Ohio Buckeye (Aesculus glabra), London Plane Tree (Platanus acerifolia), American Beech (Fagus grandifolia), White Ash (Fraxinus americana), Scots Pine (Pinus sylvestris), Austrian Pine (Pinus nigra), White Spruce (Picea glauca) and Mountain Maple (Acer spicatum). Calliper size ranges from 0.1m to 0.8m; young to semi-mature. The condition ranges anywhere from poor to excellent.

Area 14 – Entry Drive South of CP Railway Grand Allée South

Trees in this area are centralized around the two lane entry drive and are layered in rows. Deciduous species have been planted along the central pedestrian walk and the edge of the driveway. White Spruce (Picea glauca) exist along the outside edge. The majority of the trees were found to be Silver Maple (Acer saccharinum) and Sugar Maple (Acer saccharum). Other deciduous species include Trembling Aspen (Populus tremuloides), Tulip Tree (Liriodendron tulipifera), Basswood (Tilia americana), Littleleaf Linden (Tilia cordata), White Elm (Ulmus Americana) and White Ash (Fraxinus americana). The majority of trees are mature and are in fair to excellent condition. A few trees were found to be in poor condition. Calipers range between 0.1m and 1.2m in diameter.
Area 15 – Lawn Bowling Club

The lawn bowling club does not have any trees on their property.

Area 16 – Grass Field / Wetland

Small numbers of trees were found in this area. The majority found were in fair to good condition with callipers ranging in size from 0.15m to 0.8m. A large number of the trees were found around the wet area on the southern boundary, including Trembling Aspen (*Populus tremuloides*), Black Walnut (*Juglans nigra*) and White Ash (*Fraxinus americana*).

Overall, trees identified within the Study Area are almost entirely cultural in nature (planted, landscaped). The species list consists of a variety of deciduous and coniferous species of various maturities and health conditions. Most trees are generally in fair to excellent condition, with many of the Ash trees affected by the Emerald Ash Borer.

4.3.5 Woodland Evaluation

The City of London has incorporated the protection of significant woodlands into the City OP where they have been identified through a subwatershed study as a significant natural feature. For those other vegetation patches greater than 4ha, as identified as Environmental Review in the City OP, they are to be assessed according to the *Guideline Document for the Evaluation of Ecologically Significant Woodlands* (City of London, 2006) as part of a development application. Any patches deemed to be significant through the application of these guidelines are to be considered significant woodlands.

While the cultural tree community along the Grand Allée feature is considered to have significant cultural heritage value, it has limited natural heritage value and would therefore not satisfy the criteria for consideration as a significant woodland. This feature is less than 4 ha in size, is isolated from the natural heritage system associated with Pottersburg Creek, contains no rare or significant species of flora or fauna and is maintained (manicured) as a cultural feature.

4.3.6 Breeding Birds

A total of 35 species of birds were observed during the breeding bird surveys, 31 of which are likely to be breeding in the Study Area. Observed species not expected to be breeding within the Study Area include Ring-billed Gull and American Crow (flyovers), Canada Goose (no suitable breeding habitat), and Blackpoll Warbler (migrant that breeds further north). All species observed are ranked S5 (Secure; common and widespread) or S4 (Apparently secure; uncommon but not rare), with the exception of the Rock Pigeon and European Starling (Exotic and not native to Ontario). A complete list of birds observed is provided in Appendix C.
One additional species, Turkey Vulture (S5), was not observed during the breeding bird surveys but may breed on the Study Area. Observations made by a local resident (personnel communications) reported 2 Turkey Vultures roosting in a missing window of the infirmary building, which provides a potential nesting site for Turkey Vultures.

Area sensitive birds are defined as those species that prefer to breeding in habitat patches greater than 20ha in size. There were no area sensitive species located in the Study Area and no areas large enough to support such species.

The Partners In Flight (PIF) program plan for Bird Conservation Region (“BCR”) 13 (Lower Great Lakes/St. Lawrence Plain region of southern Ontario) has identified a number of species that are considered conservation priorities for the region (Ontario PIF, 2006). Six priority species were identified during the breeding bird surveys. Grassland priority species include Savannah Sparrow, Eastern Meadowlark and the Eastern Kingbird. Savannah Sparrows were located in both onsite habitat types, in the south and north ends of the Study Area. The Eastern Meadowlark was observed in the soccer fields at the northern section of the property and the Eastern Kingbird was located along the row of trees that border the Dundas Street access road. The Northern Flicker was observed just south of the soccer fields on both visits while the Willow Flycatcher was observed in the thicket swamp. Chimney Swifts were observed circling the main abandoned building located in the centre of the Study Area.

The Chimney Swift (S4) is identified as a federally Threatened species according to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and is listed under Schedule 1 of the Species at Risk Act. As of September 10, 2009, this species was added to the Species at Risk in Ontario List of the Endangered Species Act as a provincially Threatened species based on recommendations by the Committee on the Status of Species at Risk in Ontario (COSSARO) (MNR, 2009).

The Chimney Swift is a widespread, swallow-like, aerial feeding bird that breeds in old style (brick lined) chimneys that provide suitable nesting habitat (COSSARO, 2009). Due to the ongoing elimination of these old-style chimneys in favour of modern metal liners and caps, as well as a decline in aerial insects that this species feeds on, this species has recently undergone large declines across its range, with a population decrease of 43% in Ontario over the past 20 years to an estimated 7,500 birds (COSSARO, 2009). Due to the presence of Chimney Swift within the Study Area, as identified through pre-consultation and as confirmed during the breeding bird surveys, additional surveys for this species were conducted to confirm the presence of possible roosting and nesting sites within the Study Area.

4.3.7 Chimney Swift Roosting and Nesting Surveys

A total of 5 additional daytime and dusk surveys of the potentially suitable habitat for this species were conducted as part of the field program. Based on such surveys, one Chimney Swift roosting and nesting site was confirmed within the Study Area in the Infirmary building on the ORC property (Figure 2).
During the May 29, 2009 survey, approximately 10 to 12 Chimney Swifts were observed foraging, generally staying within 100m of the infirmary. For most of the survey, no swifts were observed entering or exiting the building. Starting at 21:05, swifts began to enter the chimneys. By 21:20, all swifts had entered the chimneys for the night. Chimney Swifts were observed entering all of the 6 chimneys on the infirmary. No chimney Swifts were observed in the vicinity of the remaining stations, including the barn previously identified as a potential roost location.

During the subsequent dusk survey on June 24, 2009, at least 8 Chimney Swifts were observed in the vicinity of the infirmary. At dusk, they were observed entering 3 of the 6 chimneys. No swifts were observed entering the infirmary via the belfries or broken windows. Based on the dusk surveys, the infirmary was the only building being used by roosting Chimney Swifts during the 2009 breeding season.

During the initial daytime survey on May 30, 2009, up to 11 Chimney Swifts were observed flying in the vicinity of the infirmary, but no entrances or exits into the chimneys was observed. This survey was relatively early in the season and it was likely that nesting activity had not yet begun.

During the subsequent daytime survey on June 24, 2009, at least 8 Chimney Swifts were observed in the vicinity of the infirmary. Entrances/exits were observed at 4 of the 6 chimneys on the building. At 3 of the chimneys, only one entrance/exit was observed within the 30-minute period. At the 4th chimney 2 entrance/exits were observed during the survey. The entrance/exits were possibly related to some nesting activity, such as nest building or incubating.

During the final daytime survey on July 30, 2009, a significant increase in the number of Chimney Swifts using the Study Area was observed. Up to 26 swifts were observed foraging within 200m of the infirmary. During this survey, Chimney Swifts were observed using 3 of the 6 chimneys, with entrances/exits approximately every 5 to 15 minutes at each active chimney. Results suggest these 3 chimneys contained activity nesting Chimney Swifts. Chimney Swifts were not identified at the remaining stations.

Observations made by a local resident and Swift Watch participant during the daytime on August 6, 2009, confirmed Chimney Swift activity at the same 3 chimneys in the Infirmary (Station 5), providing further evidence that the chimneys in this structure contained active nests.

The chimneys on the Infirmary provided the only structures on the Study Area that accurately fit the roosting preference of Chimney Swifts. Results of the dusk surveys concluded that the Infirmary (Station 5) was the only building being used by roosting Chimney Swifts in the 2009 breeding season.

Results of the daytime surveys indicated at some point through the 2009 season each of the 6 chimneys on the infirmary were used as roosts for Chimney Swifts. The July survey suggests that 3 of the chimneys contained active nests. Typically, there is only one Chimney Swift nest
per chimney. However, the large chimneys on the infirmary building (the larger ones 30 x 60cm), may support more than one nesting pair. It is therefore concluded that at least 3 and as many was 6 pairs of Chimney Swifts were breeding within the Study Area in 2009. The infirmary chimneys also appeared to provide roosts for large numbers of swifts in the late summer.

4.3.8 Wildlife and Wildlife Habitat

Incidental wildlife observations during the field investigations included common species, such as eastern cotton tail, grey squirrel, red fox and raccoon, as complete list of which is included in Appendix C.

4.4 AQUATIC RESOURCES

There are no watercourses identified on, or within 120 metres of, the Study Area. Pottersburg Creek is located to the east and receives drainage via existing stormsewers from the eastern portion of the Study Area.

Pottersburg Creek in this reach is channelized (concrete banks) except for the mouth of the creek where it outlets to the South Thames River. The fisheries community in Pottersburg Creek is considered Type IV (Tolerant Warmwater Community) fish habitat and the invertebrate community is also impaired (Paragon Engineering Limited, 1995).

There are 17 fish species known to occur within Pottersburg Creek, including Smallmouth Bass and Northern Pike (UTRCA, 2007), although higher quality habitat and water quality occur in the headwaters of this subwatershed.

The western portion of the Study Area drains via a series of stormsewers, including a large trunk stormsewer along Highbury Avenue, to the South Branch of the Thames River located more than 2,500 metres away.
5.0 Summary of Environmental Constraints and Opportunities

5.1 DEVELOPMENT CONSTRAINTS AND OPPORTUNITIES

Based on a review of existing information and observations made during the field investigations, the Study Area is relatively unconstrained. The majority of the Study Area consists of manicured lawns and landscape trees surrounding institutional parking areas, roadways and buildings. The area is surrounded by existing residential, commercial, industrial and institutional development and is disconnected from the nearest natural heritage feature (Pottersburg Creek) by more than 120 metres of parking lot and commercial buildings.

No natural heritage features have been identified within the Study Area according to existing municipal policy or planning documents or the Pottersburg Creek and Crumlin Drain Subwatershed Study (Paragon Engineering Limited, 1995). The UTRCA has recognized the small wetland at the southeast corner as a Regulated Area.

Through the completion of the field investigations for this project, the following natural heritage features and ecological functions have been identified within the Study Area, which represent constraints for the future redevelopment of this area:

- **Locally Significant Wetland** – a small wetland (SWT2-1) in the south east corner of the Study Area, which is a small anthropogenic wetland that is separated from Pottersburg Creek by the CN railway track and parking lot associated with the adjacent commercial development;
- **Chimney Swift Roost and Nest Site** – the chimneys of the Infirmary building would be considered habitat of a Threatened species protected under the Provincial Policy Statement, Endangered Species Act and Species at Risk Act; and
- **Pottersburg Creek** – existing drainage from a portion of the Study Area currently drains to Pottersburg Creek, which contains an intolerant warmwater fish community (Type IV habitat)

While the Grand Allée provides limited natural heritage function, with the exception of the presence of some minor breeding bird activity, this feature possesses significant cultural heritage value that is linked to the retention of the existing trees. As such, these trees should be protected and a management plan established to maintain this cultural feature in perpetuity.

Retention of mature healthy tree species across the study area is encouraged, where feasible.

5.1.1 Local Wetland

The small wetland has limited natural heritage value due to its limited size (0.65 ha), anthropogenic nature, low diversity of species and isolation from any larger patches or corridors.
The City of London and UTRCA policies encourage the protection of all wetlands, although some restricted uses may be permitted adjacent to this small wetland subject to the completion of an Environmental Impact Study (EIS). Opportunities to maintain and enhance this feature are encouraged, either as part of the parkland dedication or through naturalization efforts adjacent to the proposed stormwater management facility for this site. The establishment of appropriate mitigation measures, such as buffers, development setbacks or other protection measures (i.e. fencing or trails), should be identified and assessed as part of an EIS in support of any future development adjacent to this feature. Of note, any development or interference within, or adjacent to, this wetland will require the prior issuance of a Permit from the UTRCA.

5.1.2 Chimney Swift Habitat

The Chimney Swift habitat identified on the ORC lands would be protected by the habitat provisions of the Provincial Policy Statement issued under the Planning Act, the Endangered Species Act and the Species at Risk Act. The provincial designation and protections under the Endangered Species Act are based on the June 11, 2009 recommendations by COSSARO and corresponding addition of this species to the SARO List on September 10, 2009. At present, the species and its general habitat (direct and indirect habitat) are protected under the Endangered Species Act.

The Chimney Swift is also a federally Threatened species protected through the Species at Risk Act (SARA). SARA includes a prohibition against harming any species (or its residence) listed under SARA that are either an aquatic species or a migratory bird (protected under the Migratory Bird Convention Act) (Blake, Cassels & Graydon LLP, 2009). Therefore, this species and its nest sites within the Infirmary building in the Study Area would be protected against harm either generally or as a result of any future development proposals. The nests themselves are also protected under the Migratory Bird Convention Act during the breeding bird timing window, which generally extends from May 1st to July 31st.

However, where it is specifically known that birds are nesting then the timing window ends whenever the birds finish nesting (approximately mid-to-late August). Even after these birds finish nesting, the nests are protected under the Fish and Wildlife Conservation Act, even if they are not active. While this provision is typically only applied to raptors’ nests (i.e. eagle, osprey), the protections may be applied given the fact that these birds often return to previous nest sites and the declining status of the Chimney Swift. Further consultation with federal and provincial agencies is recommended to determine the opportunities for development on this site.

Up to 26 individual Chimney Swifts were observed foraging within the area surrounding the chimney structures in 2009, with daytime activity suggesting the presence of between 3 and 6 breeding pairs within these structures. Due to the seasonal concentration of this species, the specialized habitat requirements of this species and the confirmed presence of roost and nesting sites within the chimney structures of the Infirmary building, these anthropogenic structures should be protected. Any development within or adjacent to the habitat of this
species (i.e. chimneys) would have to demonstrate no negative impact on this species or its habitat.

The difficulty with the protection of the habitat identified within the Study Area is the anthropogenic nature of these structures. Due to a loss of old growth forests in Ontario following the arrival of Europeans, this species now mainly relies on these human created structures for nesting opportunities (COSSARO, 2009). However, as these chimneys and buildings age, as in the case of the Infirmary building, the integrity of these structures and the corresponding public safety concerns for the potential hazards must be balanced. Maintenance of these structures is often required to maintain these chimneys, but in some cases, may not be feasible. Regardless, the habitat protections of the Acts noted above apply regardless of whether the identified habitat is man-made or not.

Further consultation with the Ministry of Natural Resources and the Canadian Wildlife Service is required to identify management alternatives for these structures and to explore maintenance, restoration or habitat creation opportunities to avoid, mitigate or offset potential impacts of any future development should be explored with the agencies. The applicability of the above Acts and the options available for maintenance or replacements should be explored and confirmed with such agencies.

Establishing exceptions through *Ontario Regulation 242/08* is one way that the MNR has dealt with balancing competing interests in the past where the strict application of the habitat protection provisions of the *Endangered Species Act* may not be feasible. Other general exemptions exist to protect health or safety of individuals and to protect property, which may also be applicable in this case. Assuming that this exception would be in place during the Area Plan study is premature at this time. Instead, efforts should focus on identifying opportunities to retain, protect or mitigate any development impacts on this structure through consultation with the MNR and CWS.

Further consultation with the Canadian Wildlife Service is also recommended to confirm the *Species and Risk and Migratory Bird Convention Act* implications and protections for the roost and nests within the chimneys. As well, further consultation is recommended with the Ministry of Natural Resources to confirm the *Endangered Species Act* and *Fish and Wildlife Conservation Act* implications and protections for the existing nests and habitat structures.

### 5.1.3 Downstream Fish Habitat

Pottersburg Creek supports an intolerant warmwater fish community, which receives drainage from a portion of the Study Area. While no direct impacts on Pottersburg Creek are anticipated as a result of the proposed redevelopment of the Study Area, indirect impacts in terms of water quality and quantity may result. As such, any future development should implement the recommendations of the *Pottersburg Creek and Crumlin Drain Subwatershed Study* in regards to stormwater management (SWM), as follows:
5.4 SWM facilities designed to satisfy the subwatershed development criteria:
- 375 m³/ha for peak flow attenuation;
- 100 m³/ha for extended detention;
- 100 m³/ha at-source controls (infiltration);
- infiltration of 25 mm roof runoff where permeable soils exist;
- disconnect roof leaders from storm sewers;
- SWM study to confirm the size and location of SWM facilities, peak flow rates, water budget and channel conveyance requirements.

The implementation of SWM controls to achieve a Normal level of water quality control in accordance with the *Stormwater Management Planning and Design Manual* (MOE, 2003) is also recommended to minimize further impacts on the downstream fish community. In an effort to improve water quality within Pottersburg Creek, consideration for a higher level of stormwater quality control may be something to consider as an enhancement measure to improve water quality in Pottersburg Creek. Further discussion with agency staff is recommended in this regard.

5.2 RESTORATION OPPORTUNITIES

Opportunities for the restoration or enhancement of natural features are available within the existing manicured areas and cultural communities within the Study Area. However, due to the lack of existing natural heritage features within the Study Area, the benefit of restoration opportunities would be limited to the local level. Any restoration or enhancement efforts should be focused on the existing wetland, associated buffers and adjacent SWM facility, or at opportunities to increase the quantity of tree cover available or to be retained on this site. For example, naturalizing adjacent buffers with native shrubs and grasses may improve buffer functions or enhance habitat in the area (i.e. PIF species). Details in this regard should be provided as part of any landscaping plans for this area at the time of development.

The potential creation of linkages or corridors to more significant components of the Natural Heritage System is limited by the extent of existing development surrounding the Study Area and relative isolation of the Study Area from more contiguous natural features. The closest feature is Pottersburg Creek, which itself has been severely impacted and degraded by historic land use patterns. As recommended in the Pottersburg Creek and Crumlin Drain Subwatershed Study, restoration efforts in this area should be focused on riparian vegetation planting along Pottersburg Creek to replace the existing concrete lined channel, where feasible (Paragon Engineering Limited, 1995). No moderate or significant enhancement measures were recommended for the lands within the Study Area, but instead focused around existing significant vegetation patches with re-vegetation proposed within the floodplain.
5.3 FUTURE STUDIES AND ADDITIONAL INFORMATION REQUIREMENTS

Due to the presence of the Chimney Swift population and cultural significance of the infirmary building, the opportunity exists to maintain the chimney swift habitat and incorporate this structure into the future land use scenario. Protecting the structural integrity of the infirmary building should be balanced with the desire to maintain the chimneys and associated habitat that they provide. Ongoing consultation with MNR staff is encouraged to ensure compliance with the Endangered Species Act.

Any development adjacent to the small wetland pocket will require the preparation of an EIS to demonstrate that there will be no negative impacts on the feature or its ecological functions. At that time, appropriate buffers, development setbacks and other mitigation measures (i.e. fencing requirements, trails, erosion controls) should be prepared based on the adjacent land use proposed and the ecological functions for which this feature is identified. Any setback less than 30 metres should be enhanced through a rehabilitation, enhancement and planting plan in accordance with City of London guidelines.

Finally, existing surface and groundwater contributions to the wetland area should be maintained to sustain the existing conditions and corresponding ecological functions of this small wetland. While a commitment to maintaining the hydrologic conditions supporting this wetland should be provided through the Area Study, details regarding how this will be achieved should be provided through subsequent phases of development and demonstrated through the completion of an EIS and detailed Stormwater Management Plan.

5.4 CONCLUSION

These conclusions and recommendations are based on the information currently available for this area as provided through a review of existing background information and completion of field investigations. This Phase 1 report is respectfully submitted as a component of the Psychiatric Hospital Lands Area Plan on behalf of the Ontario Realty Corporation.

Sincerely,

STANTEC CONSULTING LTD.

Chris Powell, M.A.
Project Manager, Environmental Planner
Tel: (519) 585-7416
Fax: (519) 585-4239
chris.powell@stantec.com

Shari Muscat, B.A., B.E.S.
Project Manager, Environmental Planner
Tel: (519) 575-4116
Fax: (519) 585-4239
shari.muscat@stantec.com
6.0 References


APPENDIX A

FIGURES
Legend

Study Area
Tree Inventory Areas
Area 1 – Soccer Fields
Area 2 – Northern Lawns
Area 3 – Highbury Avenue
Area 4 – Building 'E'
Area 5 – Building 'W'
Area 6 – Building 'Q'
Area 7 – Building 'X'
Area 8 – Southern Lawn
Area 9 – Building 'H'
Area 10 – Southern Driveway
Area 11 – Department of National Defense
Area 12 – Entry Drive North of CP Railway
Area 13 – Salvation Army
Area 14 – Entry Drive South of CP Railway
Area 15 – Lawn Bowling Club
Area 16 – Grass Field / Wetland

Notes
<table>
<thead>
<tr>
<th>LATIN NAME</th>
<th>COMMON NAME</th>
<th>LOCAL STATUS SOURCE</th>
<th>COEFFICIENT OF CONSERVATION</th>
<th>WETNESS INDEX</th>
<th>WEOOELESSNESS INDEX</th>
<th>PROVINCIAL STATUS</th>
<th>OMNR STATUS</th>
<th>COSEWIC STATUS</th>
<th>GLOBAL STATUS</th>
<th>LOCAL STATUS</th>
<th>SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cupressaceae</td>
<td>Cedar Family</td>
<td>Thuja occidentalis</td>
<td>Eastern White Cedar</td>
<td>4</td>
<td>-3</td>
<td>S5</td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
<td>Oldham 1993</td>
</tr>
<tr>
<td>Pinaceae</td>
<td>Pine Family</td>
<td>Picea abies</td>
<td>Norway Spruce</td>
<td>5</td>
<td>-1</td>
<td>SE3</td>
<td>G7</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pinus resinosa</td>
<td>Red Pine</td>
<td>8</td>
<td>3</td>
<td>S5</td>
<td>G5</td>
<td>IR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pinus sylvestris</td>
<td>Scotch Pine</td>
<td>5</td>
<td>-3</td>
<td>SE5</td>
<td>G7</td>
<td>IR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aceraceae</td>
<td>Maple Family</td>
<td>Acer negundo</td>
<td>Manitoba Maple</td>
<td>0</td>
<td>-2</td>
<td>S5</td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer platanoides</td>
<td>Norway Maple</td>
<td>5</td>
<td>-3</td>
<td>SE5</td>
<td>G7</td>
<td>IU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer saccharinum</td>
<td>Silver Maple</td>
<td>5</td>
<td>-3</td>
<td>S5</td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acer saccharum ssp. saccharum</td>
<td>Sugar Maple</td>
<td>4</td>
<td>3</td>
<td>S5</td>
<td>GST?</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anacardiaceae</td>
<td>Sumac or Cashew Family</td>
<td>Rhus typhina</td>
<td>Staghorn Sumac</td>
<td>1</td>
<td>5</td>
<td>S5</td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apiaceae</td>
<td>Carrot or Parsley Family</td>
<td>Daucus carota</td>
<td>Wild Carrot</td>
<td>5</td>
<td>-2</td>
<td>SE5</td>
<td>G7</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apocynaceae</td>
<td>Dogbane Family</td>
<td>Apocynum androsaemifolium ssp. androsaemifolium</td>
<td>Spreading Dogbane</td>
<td>3</td>
<td>5</td>
<td>S5</td>
<td>GST?</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asclepiadaceae</td>
<td>Milkweed Family</td>
<td>Asclepias syriaca</td>
<td>Common Milkweed</td>
<td>0</td>
<td>5</td>
<td>S5</td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asteraceae</td>
<td>Composite or Aster Family</td>
<td>Arctium minus ssp. minus</td>
<td>Common Burdock</td>
<td>5</td>
<td>-2</td>
<td>SE5</td>
<td>G7T?</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aster species</td>
<td>Aster species</td>
<td>2</td>
<td>-3</td>
<td>S5</td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bidens frondosa</td>
<td>Devil's Beggar-ticks</td>
<td>3</td>
<td>-3</td>
<td>S5</td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cirsium arvense</td>
<td>Canada Thistle</td>
<td>3</td>
<td>-1</td>
<td>SE5</td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cirsium vulgare</td>
<td>Bull Thistle</td>
<td>4</td>
<td>-1</td>
<td>SE5</td>
<td>G5</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Solidago altissima var. altissima</td>
<td>Tall Goldenrod</td>
<td>1</td>
<td>3</td>
<td>S5</td>
<td>G7T?</td>
<td>U</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sonchus arvensis ssp. arvensis</td>
<td>Field Sow-thistle</td>
<td>3</td>
<td>-1</td>
<td>SE5</td>
<td>G7T?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tanacetum vulgare</td>
<td>Common Tansy</td>
<td>5</td>
<td>-1</td>
<td>SE5</td>
<td>G?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Taraxacum officinale</td>
<td>Common Dandelion</td>
<td>3</td>
<td>-2</td>
<td>SE5</td>
<td>G5</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tragopogon pratensis ssp. pratensis</td>
<td>Meadow Goat's-beard</td>
<td>5</td>
<td>-1</td>
<td>SE5</td>
<td>G7T?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bignoniaceae</td>
<td>Bignonia Family</td>
<td>Catalpa bignonioides</td>
<td>Common Catalpa</td>
<td>3</td>
<td>-1</td>
<td>SE1</td>
<td>G4G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boraginaceae</td>
<td>Borage Family</td>
<td>Myosotis laxa</td>
<td>Smaller Forget-me-not</td>
<td>6</td>
<td>-5</td>
<td>S5</td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brassicaceae</td>
<td>Mustard Family</td>
<td>Alliaria petiolata</td>
<td>Garlic Mustard</td>
<td>0</td>
<td>-3</td>
<td>SE5</td>
<td>G5</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Barbarea vulgaris</td>
<td>Yellow Rocket</td>
<td>0</td>
<td>-1</td>
<td>SE5</td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lepidium virginicum</td>
<td>Virginia Pepper-grass</td>
<td>0</td>
<td>4</td>
<td>S5</td>
<td>G5</td>
<td>R4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cirsium altissimum</td>
<td>Tall Tumble-mustard</td>
<td>3</td>
<td>-1</td>
<td>SE5</td>
<td>G7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Campanulaceae</td>
<td>Bellflower Family</td>
<td>Lobelia siphilitica</td>
<td>Great Lobelia</td>
<td>6</td>
<td>-4</td>
<td>S5</td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Caprifoliaceae</td>
<td>Honeysuckle Family</td>
<td>Lonicera tatarica</td>
<td>Tartarian Honeysuckle</td>
<td>3</td>
<td>-3</td>
<td>SE5</td>
<td>G7</td>
<td>I</td>
<td></td>
</tr>
<tr>
<td>Caryophyllaceae</td>
<td>Pink Family</td>
<td>Cerastium arvense ssp. arvense</td>
<td>Field Chickweed</td>
<td>8</td>
<td>4</td>
<td>SE4</td>
<td>G7T?</td>
<td>IVU</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Saponaria officinalis</td>
<td>Bouncing-bet</td>
<td>3</td>
<td>-3</td>
<td>SE5</td>
<td>G?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cornaceae</td>
<td>Dogwood Family</td>
<td>Cornus alba</td>
<td>Red-osier Dogwood</td>
<td>2</td>
<td>-3</td>
<td>S5</td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dipsaceae</td>
<td>Teasel Family</td>
<td>Dipsacus fullonum ssp. sylvestris</td>
<td>Wild Teasel</td>
<td>5</td>
<td>-1</td>
<td>SE5</td>
<td>G7T?</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elaeagnaceae</td>
<td>Oleaster Family</td>
<td>Elaeagnus angustifolia</td>
<td>Russian Olive</td>
<td>4</td>
<td>-1</td>
<td>SE3</td>
<td>G7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fabaceae</td>
<td>Pea Family</td>
<td>Medicago sativa ssp. sativa</td>
<td>Alfalfa</td>
<td>5</td>
<td>-1</td>
<td>SE5</td>
<td>G7T?</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mellotus alba</td>
<td>White Sweet-clover</td>
<td>3</td>
<td>-3</td>
<td>SE5</td>
<td>G7</td>
<td>IC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LATIN NAME</td>
<td>COMMON NAME</td>
<td>COEFFICIENT OF CONSERVATION</td>
<td>WETNESS INDEX</td>
<td>WETNESS INDEX</td>
<td>WEEDINESS INDEX</td>
<td>WEEDINESS INDEX</td>
<td>PROVINCIAL STATUS</td>
<td>OMNR STATUS</td>
<td>COSEWIC STATUS</td>
<td>GLOBAL STATUS</td>
<td>LOCAL STATUS</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>----------------</td>
<td>------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Trifolium repens</td>
<td>White Clover</td>
<td></td>
<td>2</td>
<td>-1</td>
<td>SE5</td>
<td></td>
<td></td>
<td>G?</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fagaceae</td>
<td>Beech Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fagus grandifolia</td>
<td>American Beech</td>
<td>6</td>
<td>3</td>
<td></td>
<td>SE2</td>
<td></td>
<td></td>
<td>G?</td>
<td>IR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus rubra</td>
<td>Red Oak</td>
<td>6</td>
<td>3</td>
<td></td>
<td>SE5</td>
<td></td>
<td></td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hippocastanaceae</td>
<td>Buckeye Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aesculus hippocastanum</td>
<td>Horse Chestnut</td>
<td>5</td>
<td>-1</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juglandaceae</td>
<td>Walnut Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juglans nigra</td>
<td>Black Walnut</td>
<td>5</td>
<td>3</td>
<td></td>
<td>S4</td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moraceae</td>
<td>Mulberry Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morus alba</td>
<td>White Mulberry</td>
<td>0</td>
<td>-3</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fraxinus americana</td>
<td>White Ash</td>
<td>4</td>
<td>3</td>
<td></td>
<td>S5</td>
<td></td>
<td></td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Onagraceae</td>
<td>Evening-primrose Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oenothera biennis</td>
<td>Common Evening-primrose</td>
<td>0</td>
<td>3</td>
<td></td>
<td>S5</td>
<td></td>
<td></td>
<td>G5</td>
<td>R1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxalidaceae</td>
<td>Wood Sorrel Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxalis stricta</td>
<td>Upright Yellow Wood-sorrel</td>
<td>0</td>
<td>3</td>
<td></td>
<td>S5</td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantaginaceae</td>
<td>Plantain Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantago lanceolata</td>
<td>Ribgrass</td>
<td>0</td>
<td>-1</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plantago major</td>
<td>Common Plantain</td>
<td>-1</td>
<td>-1</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rumex crispus</td>
<td>Curly-leaf Dock</td>
<td>-1</td>
<td>-2</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhamnaceae</td>
<td>Buckthorn Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhamnus cathartica</td>
<td>Common Buckthorn</td>
<td>3</td>
<td>-3</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rosaceae</td>
<td>Rose Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crataegus species</td>
<td>Hawthorn species</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fragaria vescaspp. americana</td>
<td>Woodland Strawberry</td>
<td>4</td>
<td>4</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rubus idaeus ssp. melanolasius</td>
<td>Wild Red Raspberry</td>
<td>0</td>
<td>-2</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sorbus americana</td>
<td>American Mountain-ash</td>
<td>8</td>
<td>-1</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salicaceae</td>
<td>Willow Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Populus deltoidesspp. deltoides</td>
<td>Eastern Cottonwood</td>
<td>4</td>
<td>-1</td>
<td>SU</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salix alba</td>
<td>White Willow</td>
<td>-2</td>
<td>S4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salix discolor</td>
<td>Pussy Willow</td>
<td>3</td>
<td>-3</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salix eriocephala</td>
<td>Missouri Willow</td>
<td>4</td>
<td>-3</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salix exigua</td>
<td>Sandbar Willow</td>
<td>3</td>
<td>-5</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salix fragilis</td>
<td>Crack Willow</td>
<td>-1</td>
<td>-3</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrophulariaceae</td>
<td>Figwort Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linaria vulgaris</td>
<td>Butter-and-eggs</td>
<td>5</td>
<td>-1</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Verbascum thapsus</td>
<td>Common Mullein</td>
<td>5</td>
<td>-2</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanaceae</td>
<td>Nightshade Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solanum dulcamara</td>
<td>Bitter Nightshade</td>
<td>0</td>
<td>-2</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulmaceae</td>
<td>Elm Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulmus americana</td>
<td>White Elm</td>
<td>3</td>
<td>-2</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitaceae</td>
<td>Grape Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parthenocissus inserta</td>
<td>Inserted Virginia-creeper</td>
<td>3</td>
<td>3</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitis riparia</td>
<td>Riverbank Grape</td>
<td>0</td>
<td>-2</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MONOCOTYLEDONS</td>
<td>MONOCOTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alismatraceae</td>
<td>Water-plantain Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alisma plantago-aquatica</td>
<td>Common Water-plantain</td>
<td>3</td>
<td>-5</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyperaceae</td>
<td>Sedge Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carex bebbi</td>
<td>Bebb’s Sedge</td>
<td>3</td>
<td>-5</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carex lупulina</td>
<td>Hop Sedge</td>
<td>6</td>
<td>-5</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scirpus atrovirens</td>
<td>Dark-green Bulrush</td>
<td>3</td>
<td>-5</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juncaceae</td>
<td>Rush Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juncus tenuis</td>
<td>Path Rush</td>
<td>0</td>
<td>0</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poaceae</td>
<td>Grass Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromus inermis ssp. inermis</td>
<td>Awnless Brome</td>
<td>5</td>
<td>-3</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G4G5T?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dactylis glomerata</td>
<td>Orchard Grass</td>
<td>3</td>
<td>-1</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elymus repens</td>
<td>Quack Grass</td>
<td>3</td>
<td>-3</td>
<td>SE5</td>
<td></td>
<td></td>
<td></td>
<td>G?</td>
<td>IC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalaris arundinacea</td>
<td>Reed Canary Grass</td>
<td>0</td>
<td>-4</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poa pratensis ssp. pratensis</td>
<td>Kentucky Bluegrass</td>
<td>0</td>
<td>1</td>
<td>S5</td>
<td></td>
<td></td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix B - Vascular Plant List

<table>
<thead>
<tr>
<th>LATIN NAME</th>
<th>COMMON NAME</th>
<th>COEFFICIENT OF CONSERVATISM</th>
<th>WETNESS INDEX</th>
<th>WEEDINESS INDEX</th>
<th>PROVINCIAL STATUS</th>
<th>OMNR STATUS</th>
<th>COSEWIC STATUS</th>
<th>GLOBAL STATUS</th>
<th>LOCAL STATUS</th>
<th>MIDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typhaceae</td>
<td>Cattail Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typha latifolia</td>
<td>Broad-leaved Cattail</td>
<td>3</td>
<td>-5</td>
<td></td>
<td>S5</td>
<td></td>
<td>G5</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### FLORISTIC SUMMARY & ASSESSMENT

#### Species Diversity
- **Total Species:** 76
- **Native Species:** 39 (51%)
- **Exotic Species:** 37 (49%)
- **Regionally Significant Species:** 2 (3%)
- **S1-S3 Species:** 0 (0%)
- **S4 Species:** 1 (3%)
- **S5 Species:** 37 (97%)

#### Co-efficient of Conservatism and Floristic Quality Index
- **Co-efficient of Conservatism (CC) (average):** 3.1
  - **CC 0 to 3 (lowest sensitivity):** 23 (59%)
  - **CC 4 to 6 (moderate sensitivity):** 13 (33%)
  - **CC 7 to 8 (high sensitivity):** 3 (8%)
  - **CC 9 to 10 (highest sensitivity):** 0 (0%)
- **Floristic Quality Index (FQI):** 20

#### Presence of Weedy & Invasive Species
- **mean weediness:** -1.8
  - **weediness = -1 (low potential invasiveness):** 17 (49%)
  - **weediness = -2 (moderate potential invasiveness):** 7 (20%)
  - **weediness = -3 (high potential invasiveness):** 11 (31%)

#### Presence of Wetland Species
- **average wetness value:** 1.2
  - **upland:** 16 (22%)
  - **facultative upland:** 29 (35%)
  - **facultative:** 12 (16%)
  - **facultative wetland:** 13 (18%)
  - **obligate wetland:** 6 (8%)
APPENDIX C

WILDLIFE SPECIES LIST
## Appendix C - Wildlife Species List

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
<th>ONTARIO STATUS</th>
<th>GLOBAL STATUS</th>
<th>COSSARO</th>
<th>COSEWIC</th>
<th>AREA (ha)</th>
<th>Local Status</th>
<th>PIF Priority</th>
<th>Species COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIRDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada Goose</td>
<td>Branta canadensis</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mallard</td>
<td>Anas platyrhynchos</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey Vulture</td>
<td>Cathartes aura</td>
<td>S4</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Observation by local resident</td>
</tr>
<tr>
<td>Kildeer</td>
<td>Charadrius vociferus</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ring-billed Gull</td>
<td>Larus delawarensis</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rock Pigeon</td>
<td>Columba livia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mourning Dove</td>
<td>Zenaida macroura</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chimney Swift</td>
<td>Chaetura pelagica</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>THR X</td>
</tr>
<tr>
<td>Downy Woodpecker</td>
<td>Picoides pubescens</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern Flicker</td>
<td>Colaptes auratus</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Eastern Kingbird</td>
<td>Tyrannus tyrannus</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Blackpoll Warbler</td>
<td>Dendroica striata</td>
<td>S4</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Migrant (breeds further north)</td>
</tr>
<tr>
<td>Red-winged Blackbird</td>
<td>Agelaius phoeniceus</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Meadowlark</td>
<td>Sturnella magna</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Common Grackle</td>
<td>Quiscalus quiscula</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown-headed Cowbird</td>
<td>Molothrus ater</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House Finch</td>
<td>Carpodacus mexicanus</td>
<td>SE</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Goldfinch</td>
<td>Carduelis tristis</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>House Sparrow</td>
<td>Passer domesticus</td>
<td>SE</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MAMMALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eastern Cottontail</td>
<td>Sylvilagus floridanus</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woodchuck</td>
<td>Marmota monax</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey Squirrel</td>
<td>Sciurus carolinensis</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red Fox</td>
<td>Vulpes vulpes</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Raccoon</td>
<td>Procyon lotor</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Striped Skunk</td>
<td>Mephitis mephitis</td>
<td>S5</td>
<td>G5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## SUMMARY

- Total Butterflies: -
- Total Amphibians: -
- Total Reptiles: -
- Total Birds: 36
- Total Breeding Birds: 31
- Total Mammals: 6

## SIGNIFICANT SPECIES REFERENCES

| Global:                  | 0 |
| National:                | 1 |
| Provincial:              | 0 |
| Regional:                | 0 |
| Local:                   | 6 |

<table>
<thead>
<tr>
<th>REFERENCES</th>
</tr>
</thead>
</table>
APPENDIX D

POTTERSBURG CREEK AREA 8 FACTSHEET
POTTERTON CREEK
Tributary and Catchment Area Factsheet

AREA 8

RESOURCES

Water Resources
- 1125 ha drainage area
- 6.5 km main stem of Pottersburg Creek
- 1.7 km first order streams

Aquatic Resources (refer to Map C7 for location of aquatic communities and Section B7 for translation to habitat types)
- Type IV fish communities throughout the majority of the reach, except near the mouth at the Thames River, which supports a Type III community
- The invertebrate populations are typical of a Type IV impaired community, dominated by highly tolerant oligochaete species

Stream Morphology
- Almost all of the reach is channelized
- Tributaries of the main stem Pottersburg Creek are essentially all enclosed in storm sewers

Terrestrial Resources
- Category 1:
  - Woodlots contiguous to watercourse or within regulatory flood plain, 4020, 4017, 4016, 4015, 4014, 4005, 4004, 4003, part of 4002
  - Lands within the regulatory floodlines
  - Lands within fill lines
- Category 2:
  - Terrestrial patches > 4 ha, 4018

KEY BEST MANAGEMENT PRACTICES
(refer to Table D.1 and Map D1 for details)

Storm Water Management Practices
- Storm water management facilities designed to satisfy the subwatershed development criteria (375 m³/ha for peak flow attenuation, 100 m³/ha for extended detention, and 100 m³/ha at-source controls)
- Infiltration of 25 mm roof runoff where permeable soils exist
- Disconnect roof leaders from storm sewers
- Riparian vegetation planting along 1.9 km watercourses in three areas
- Significant (upstream of Gore Road Bridge) and minor (south of CN rail, south of Oxford Street near Second Street) erosion areas to be remediated
PROPOSED STUDIES

Water Resources

- storm water management study to confirm size and location of facilities, peak flow rates, water budget and channel conveyance requirements
- scoped EIS for areas within 50-100 m of Category 1 Areas and for all Category 2 Areas

ENVIRONMENTAL TARGETS

Flows

- N/A (existing developed area)

Water Quality (instream targets)

- TP < 0.03 mg/l
- SS < 50 mg/l
- Nitrite < 0.03 mg/l
- Nitrate < 1.0 mg/l
- Fecal Coliform (counts per 100 ml) < 50

Aquatic Community

- riparian vegetation to be planted along 1.9 km streams at three locations
- WQI score = 10-12, EPT Index = 5-10
- Type III fishery in the main branch, Type IV in tributaries

Terrestrial

- protect all Category 1 Areas
- protect Category 2 Areas which are sensitive to development which are to be defined in an EIS
- re-vegetate non-vegetated areas in Category 1
- use indigenous species