Environmental and Ecological Planning Advisory Committee Report

The 5th Meeting of the Environmental and Ecological Planning Advisory Committee
April 21, 2022
Advisory Committee Virtual Meeting - during the COVID-19 Emergency
Please check the City website for current details of COVID-19 service impacts.

Attendance

PRESENT: S. Levin (Chair), I. Arturo, L. Banks, A. Bilson Darko, A. Butnari, P. Ferguson, L. Grieves, S. Hall, S. Heuchan, B. Krichker, K. Moser, B. Samuels, S. Sivakumar, R. Trudeau, M. Wallace and I. Whiteside and H. Lysynski (Committee Clerk)
ABSENT: S. Esan, J. Khan and I. Mohamed,
ALSO PRESENT: S. Butnari, M. Fontaine, J. MacKay, B. Page and S. Pratt
The meeting was called to order at 5:02 PM

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that M. Wallace disclosed a pecuniary interest in clauses 4.1 and 4.2, respectively, having to do with the Working Group comments on the property located at 7098-7118 Kilbourne Road and the Working Group comments on the property located at 1140 Fanshawe Park Road East, by indicating that the proponents are members of the Association that is his employer.

2. Scheduled Items

None.

3. Consent

3.1 4th Report of the Environmental and Ecological Planning Advisory Committee

That it BE NOTED that the 3rd Report of the Environmental and Ecological Planning Advisory Committee, from its meeting held on March 17, 2022, was received.

3.2 Municipal Council Resolution - 3rd Report of the Environmental and Ecological Planning Advisory Committee

That it BE NOTED that the Municipal Council resolution adopted at its meeting held on February 22, 2022 with respect to the 3rd Report of the Environmental and Ecological Advisory Committee, was received.

3.3 Public Meeting Notice - 520 Sarnia Road

That it BE NOTED that the Public Meeting Notice, dated March 31, 2022, from A. Riley, Senior Planner, with respect to an Official Plan and Zoning By-law Amendment related to the property located at 520 Sarnia Road, was received.

4. Sub-Committees and Working Groups

4.1 7098-7118 Kilbourne Road

That the Working Group report relating to the property located at 7098-7118 Kilbourne Road BE REFERRED to the Civic Administration for consideration.

4.2 1140 Fanshawe Park Road East

That the Working Group report relating to the property located at 1140 Fanshawe Park Road East BE REFERRED to the Civic Administration for consideration.

4.3 Goldfish Brochure

That, on the advice of the Civic Administration, the attached proposed draft Goldfish brochure BE FORWARDED to the new Ecological Community Advisory Committee for discussion, and to Corporate Communications for review.

5. Items for Discussion

5.1 Wetland Relocation Lessons Learned Document

That, on the advice of the Civic Administration, the Wetland Relocation Lessons Learned document BE PROVIDED to the Ecological Community Advisory Committee for discussion.

5.2 1349 Western Road

That the Working Group comments relating to the property located at 1349 Western Road BE FORWARDED to the Civic Administration for consideration.

6. Adjournment

The meeting adjourned at 6:13 PM.

Environmental and Ecological Planning Advisory Committee Report

The 4th Meeting of the Environmental and Ecological Planning Advisory Committee
March 17, 2022
Advisory Committee Virtual Meeting - during the COVID-19 Emergency
Please check the City website for current details of COVID-19 service impacts.

Attendance

PRESENT: S. Levin (Chair), L. Banks, A. Bilson Darko, A. Butnari, S. Esan, S. Hall, S. Heuchan, B. Krichker, K. Moser, B. Samuels, S. Sivakumar and I. Whiteside and H. Lysynski (Committee Clerk)

ABSENT: I. Arturo, P. Ferguson, L. Grieves, J. Khan, I. Mohamed, R. Trudeau and M. Wallace

ALSO PRESENT: S. Butnari, C. Creighton, K. Edwards and M. Shepley

The meeting was called to order at 5:00 PM

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that no pecuniary interests were disclosed.

2. Consent

2.1 3rd Report of the Environmental and Ecological Planning Advisory Committee

That it BE NOTED that the 3rd Report of the Environmental and Ecological Planning Advisory Committee, from its meeting held on February 17, 2022, was received.

2.2 Municipal Council Resolution - 2nd Report of the Environmental and Ecological Planning Advisory Committee

That it BE NOTED that the Municipal Council resolution adopted at its meeting held on February 15, 2022 with respect to the 2nd Report of the Environmental and Ecological Advisory Committee, was received.

3. Sub-Committees and Working Groups

3.1 Working Group Comments - 1160 Wharncliffe Road South

That the Working Group report relating to the property located at 1160 Wharncliffe Road South BE REFERRED to the Civic Administration for consideration.

3.2 Working Group Comments - Huron Watermain EIS

That the Working Group report relating to the Huron Watermain Environmental Impact Study BE REFERRED to the Civic Administration for consideration.

3.3 Sales of Goldfish

That a Working Group BE ESTABLISHED consisting of B. Samuels (lead), A. Butnari and B. Krichker, relating to a draft Goldfish brochure to be provided to pet sale outlets; it being noted that the Upper Thames River Conservation Authority and the Animal Welfare Advisory Committee will be consulted on this draft brochure; it being further noted that the Environmental and Ecological Planning Advisory Committee received a communication from B. Samuels, with respect to this matter.

4. Items for Discussion

4.1 Notice of Planning Application - 7098 - 7118 Kilbourne Road

That, the following actions be taken with respect to the Notice of Planning Application for a revised draft Plan of Vacant Land Condominium, Official Plan and Zoning By-law Amendments dated March 2, 2022, relating to the property located at 7098-7118 Kilbourne Road:

a) a Working Group BE ESTABLISHED consisting of S. Levin (lead), L. Banks and I. Whiteside; and,

b) the Environmental and Ecological Planning Advisory Committee Working Group comments BE FORWARDED to the Civic Administration for consideration.

4.2 Notice of Planning Application - 1140 Fanshawe Park Road East

That a Working Group BE ESTABLISHED consisting of I. Arturo, S. Hall, B. Krichker and K. Moser, relating to the Notice of Planning Application for the revised draft Plan of Subdivision, Notice of Official Plan and Zoning By-law Amendment dated March 2, 2022, relating to the property located at 1140 Fanshawe Park Road East.

4.3 Notice of Planning Application - Definition of “Parks”, “Community Centres” and Other Municipally Owned Land Uses and Facilities

That it BE NOTED that the Notice of Planning Application for a Zoning By-law Amendment dated March 7, 2022 relating to the Definition of “Parks”, “Community Centres” and Other Municipally Owned Land Uses and Facilities, was received.

5. Additional Business

5.1 (ADDED) Advisory Committees

That the Civic Administration BE DIRECTED to provide advisory committee members with information and clarity about process, particularly for matters that fall within the mandate of multiple committees; it being noted that this may also include methods by which the advisory committees can communicate with each other.

6. Adjournment

The meeting adjourned at 5:37 PM.

P.O. Box 5035
300 Dufferin Avenue
London, ON
N6A 4L9

March 24, 2022

M. McKillop
Engineer, Environment and Infrastructure

That, the following actions be taken with respect to the 3rd Report of the Environmental and Ecological Planning Advisory Committee, from its meeting held on February 17, 2022:

a) the Adelaide Wastewater Treatment Plant Working Group comments BE FORWARDED to the Civic Administration for consideration; it being noted that the Environmental and Ecological Planning Advisory Committee heard a verbal presentation from M. McKillop, Environmental Services Engineer and P. De Carvalho, Restoration Specialist and S. Braun, Water Resource Engineer, Matrix Solutions Inc., with respect to the Adelaide Wastewater Treatment Plant Climate Change Resiliency Class Environmental Assessment;

b) the Greenway Wastewater Treatment Plant Working Group comments BE FORWARDED to the Civic Administration for consideration; it being noted that the Environmental and Ecological Planning Advisory Committee heard a verbal presentation from M. McKillop, Environmental Services Engineer and P. De Carvalho, Restoration Specialist and S. Braun, Water Resource Engineer, Matrix Solutions Inc., with respect to the Greenway Wastewater Treatment Plant Climate Change Resiliency Class Environmental Assessment;

c) the Working Group report relating to the Oxford Street West/ Gideon Drive Intersection Improvements Environmental Assessment BE REFERRED to the Civic Administration for consideration; it being noted that additional comments may be provided to the Civic Administration by the Working Group;

d) the Working Group report relating to the Windermere Road Improvements Municipal Class Environmental Assessment - Environmental Impact Study BE REFERRED to the Civic Administration for consideration; and,

e) clauses 1.1, 2.3, 2.4, 3.1 and 3.2, BE RECEIVED for information. (3.4/5/PEC)

M. Schulthess
City Clerk
/pm

cc: Chair and Members, Environmental and Ecological Advisory Committee
E. Guil, Technologist II, Environment and Infrastructure

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Adelaide Waste Water Treatment Plant Flood Management EIS

Preliminary Comments from EEPAC Feb. 7, 2022

Summary

It is important to protect the Adelaide Wastewater Treatment Plant, but it is also important to improve the protection of the natural heritage features in the study area. The study area includes several natural features, is connected to the Thames River and represents an incredible diversity of wildlife. This area is an ESA and should be treated as such.

Comments

Study Area

The description of the study area should note that the study site is 300 m from the Thames River, which is a significant valleylands. The EIS Executive Summary shows that the area meets the criteria to be an ESA, and therefore, work done in the region has the potential to impact the Thames River and SAR that reside there. It is critical to note that all construction in this area should assume that this project has the potential to impact an ESA and take necessary precautions to protect the ESA.

Page 10

A key ecological goal of the *City of London Thames Valley Corridor Plan*
is to preserve, enhance, and create ecological corridors and linkages between natural features in order to establish a continuous corridor along the Thames River and enhance linkages to tributary watersheds
(Dillon Consulting and D.R. Poulton 2011).

What can this project do to help achieve this goal – anything?

p. 12

Unfortunate that the Dougan SLSR for the TVP which was included in the Scoping document seems not to have been consulted? Why? It included the significant trees to a greater extent than the Dillon EIS. A significant number of trees were removed for the bridge project. Which means the potential bat maternal colonies were reduced then, so no surprise that what is currently there did not meet the threshold. Death by a 1000 cuts. New plantings do not replace habitat trees!

p. 16

Section 5.2 says that there are no ESAs within the study area; however, an outlet channel flows from the study area into an area that is an ESA based on the data provided in this report and others (e.g. Dillon). This should be noted in this part of the EIS.

Any opportunity to address invasives such as Loosestrife and Phragmites as part of this project? And the buckthorn in CUT 1b? Remove it all and replant it.

No breeding bird stations in the Significant Woodland. Why not? Stns 5 and 6 were outside the study area north and west of the PCP. (Figure 2)

p. 23 – sure if you limit it to the study area! Therefore, the forested communities within the study area are not considered SWH for bat maternity roosting.

Which trees are to be removed? The EIS is not clear from page 22-3. table 4? Does Figure 3 show the ones to be removed? There are 8 marked on this figure. P. 22 says seven are high quality snag trees.

Identifying suitable roost trees for Little Brown Myotis and Northern Myotis includes recording the location of all snags that exhibit appropriate attributes including cavities, loose bark, cracks, or knot holes. Identifying suitable roost trees for Tri-Coloured Bats includes recording the location of any Oak trees greater than 10 cm diameter at breast height (DBH), Maple trees greater than 10 cm DBH if the tree includes dead/dying leaf clusters, and any Maple tree greater than 25 cm DBH. A formal leaf-on habitat assessment was not completed, though the presence of appropriately sized Oak and Maple trees were noted during subsequent ELC field studies.

p. 25

Section 5.5.1. Both in the fish and mussel sections, the EIS suggests that because the Thames River is 300m away from the study area and proposed project, it is unlikely to have any impact on the river or water species. However, this is misleading since there is an outlet that flows from the study area to the Thames River. This is particularly concerning given there are SARs identified in the Thames where the outlet enters the river.

p. 26

The works associated with this project are unlikely to have any impact on the river, and therefore, will not impact these species.

However, part of the project is a pumping station to allow sewage to continue to flow when gravity won't work in high water situations. Not clear where this is constructed or if there is a new outlet. Or if this is only treated water? Was told the work was within fence line but the berm seems to be outside, or at least, the construction of it will include outside the fence. It would be helpful to show what areas would be affected directly by construction and where the berm/wall will be. The presentation at PIC 1 shows a nice neat line at the fence line. This is clearly not the case based on the impact table and the text on p. 42-3 – It would be appreciated if this could be shown at the EEPAC meeting

“Along the western side of the proposed berm, there will be some vegetation removal, which is located within 25 m of a stormwater outfall that outlets into the Thames River. Mitigation measures have been put in place to protect this outfall and the Thames River from erosion, sedimentation, and spills. Any trees removed should be replaced at a 3:1 ratio, which will result in a long-term net benefit for the area once the trees and vegetation reach maturity.”

It would be helpful at EEPAC to show the area of disturbance expected – the consultants probably estimated one to do the impacts table. Why there would be any in water work is unclear but mentioned on page 39.

p. 27

Section 6 The EIS reports that neither ESAs or significant valleylands are within the study area, however, they are in close proximity and connected by an outlet from the study area. This should be explained.

p. 29

Section 6.4 Here it states that the outlet channel supports fish habitat within the Thames River through the supply of water and nutrients. This then supports my concern that sediments and toxins from construction during the project could also enter the Thames River.

This section also suggests that the determination of dead fish is done by self-assessment. What does this mean?

Will the wetlands be evaluated? We suspect not despite the policy requirement. Page 43 says: “Confirm wetland boundaries, complete the OWES evaluation and confirm buffer/setbacks. Unevaluated wetlands at the Adelaide study area should be evaluated by a qualified person in accordance with the OWES, with the evaluation approved by the MNRF, to determine its significance. Once the boundaries are confirmed, and evaluation of the appropriate setback should be conducted.”

Under City policy - The wetlands are unevaluated wetlands and should be evaluated by a qualified person in accordance with the Ontario Wetland Evaluation System (OWES; MNRF 2014), with the evaluation approved by the MNRF, to determine its significance.

Page 29 – SAM 2 ecosite? Do you mean MAM2?

p. 31 from recovery strategy for Kentucky Coffee Tree (Ontario species at risk web site)

Sites where Kentucky Coffee-tree has been planted as part of a restoration program will not be considered for critical habitat identification until it can be determined that the plantings are successful. Determination of restoration success and viability, as measured through plant vigour and fitness, must precede identification of critical habitat at restoration sites at this time.

Critical habitat may be identified at restoration sites following long-term monitoring to determine success, extent of suitable habitat and site occupancy.

p. 32

Table 10 Should show that although a significant valleyland is not directly in the study area, the channel outlet connects it to the Thames. Table 10 also shows that this is an ESA.

p. 35

Section 8 Again significant valleylands should be included in the list.

Both direct and indirect impacts on natural heritage features and functions can occur as a result of the
preferred alternative. Impacts and residual effects on natural heritage features were assessed based on
the following criteria:
• duration: long or short-term
• extent: localized or expansive
• permanent: permanent or temporary
• severity: positive or negative

p. 37

Table 12 A potential impact noted is a spill yet no mitigation measure is described. This is particularly troubling given the channel outlet linking the study area to the Thames and the SAR identified in the Thames River.

Impacts – Table 12
Technically, this is outside the study area although ELC work was done.

Near-water works to create the floodwall/berm along the western section of the Adelaide WWTP (25m from storm water outfall)

Page 39 – good – will this be in tender/construction docs? - 4B: Enlist an environmental monitor onsite to provide advice and ensure that activities will not have any negative effects. Information for site-specific SAR should be posted in construction trailer.

p. 40 – agree - Retain an Arborist during detailed design to create a tree preservation plan to protect as many healthy, native trees as possible through the process.

p. 41 – agree - Develop a restoration plan to prescribe when and how disturbed areas will be restored. Plantings should consist of native trees, shrubs and seed mixes. Tree replacement should be at a MIN 3:1 tree replacement ratio.

Must also include invasive species removal (Phrag, Loosestrife and Buckthorn)

Also no equipment should be fueled within 30 m of river or wetland

p. 42

Section 9.6 Species at Risk – I am assuming that you mean section 6.6 Table 9 here?

Can you tell us how this is done at detailed design? SAR habitat is protected under the ESA; therefore, at the detailed design stage it will be important to confirm potential occurrence (i.e., location of SAR and SAR habitat) as well as permitting report requirements under the ESA. Permitting and additional studies are discussed further in Section 11.

p. 44 – please explain when this will be done and by who - identified candidate SWH habitat and potential SAR habitat will need to be reviewed in more detail once the area of impact is confirmed for this project.

From: Sandy Levin
To: mmckillop@london.ca
Cc: ewilliam@london.ca; sbutnari@london.ca; sbraun@matrix-solutions.com; pdecarvalho@matrix-solutions.com
Sent: Wednesday, February 9, 2022 11:33 AM
Subject: Greenway EA - EIS

Hi Marcy, here are the preliminary comments from the Greenway PCP EA working group. Look forward to your feedback at EEPAC next week.

Regards

1 – The EIS identified one Kentucky coffee-tree on the site. The EIS goes from "appeared to be a planted species" to being "a planted species", meaning it does not receive protection under the ESA... I suppose it's one of those things that is impossible to prove. However, the report does recommend that the tree be transplanted, and we would agree with that recommendation (section 9.6).

2 – With respect to the Bat Maternity Roosting Survey, the report found a total of 30 snags (of which 20 were high quality) and went onto say that 55 snags would be the minimum based on the forested size (5.51 ha) to be considered SWH for bat maternity roosting habitat. However, the report also mentioned that "large portion of the FOD7-4 ecosite within the WWTP compound was inaccessible due to lack of access within the fenced area of the Greenway WWTP. Snag trees and mature Oak and Maples were identified from a distance, indicating that additional habitat potential is present within this feature beyond that survey findings indicate." (Section 5.4.3.1) It might be worthwhile to more formally determine whether there are more snags in this area such that the forested area is indeed SWH for bat maternity roosting habitat. Are there alternative ways to better search the area for suitable habitat, for example using drones or something similar?

3 – Several areas were identified as having Buckthorn. As part of the construction of the flood mitigation measures, the EIS states that some vegetation will be removed to erect the proposed berm. While this vegetation is being removed, would it be feasible to also go in and remove any Buckthorn at the same time?

Oxford Street West and Gideon Drive Environmental Assessment (EA) Study' s Environmental Impact Study (EIS)
Comments from EEPAC on EIS Jan. 12, 2022
Berta Krichker, Katrina Moser, Spencer Heuchan, Seun Esan

Summary
The study area is in an ecologically sensitive area, and within an area of rapid development in the city of London. It is in very close proximity to Kains Woods, an ESA, Tributary C (Figure 1, ~<400 m), a rare, cold-water stream that is connected to the Thames River, and significant valleylands. The proposed intersection improvements are required because of increased traffic volumes and a need to address safety issues resulting from rapid development, limited access to public transportation and opportunities for active transportation. EEPAC's concerns are mainly associated with the potential environmental/ecological adverse impacts on Tributary C, which is the only documented cold water stream in the City of London.

The documents pertaining to the alterations at the Gideon intersection and this EIS refers to the potential future widening of Oxford Street and other existing and future development activities in this region. The EIS needs to acknowledge the City's commitment, responsibility and accountability to protect this rare ecologically, extremely sensitive and important stream system by ensuring compliance with the Municipal Class EA Schedule 'C' Storm/Drainage and Stormwater Management, Transportation and Sanitary Trunk Servicing Works for Tributary 'C' (Tributary 'C' Class EA) recommendations that provided provisions to ensure protection and preservation of the Tributary C cold water system, aquatic life and fishery. This Class EA was accepted by the City Council & MECP.

EEPAC's comments on the present EIS report should be viewed as preliminary because EISs typically represent environmental/ecological support information to Class EA projects reports that encompass and identify all components of the project. EEPAC has not received this Oxford Street West and Gideon Drive Class EA project report and we did not have all information required in time to properly and comprehensively review the project in order to report our full comments in time for our February meeting.

Comments
Aquatic

The study area includes Tributary C, a rare, cold-water stream that supports a population of brook trout. The study area also provides habitat and spawning areas for several species at risk. To protect both the stream and its ecosystem, it is imperative that stream water temperatures remain cold (optimum temperatures for growth are between 13° C and 16.1° C) (Hokanson et al. 1973; Dwyer et al. 1983) and the water quality needs to be maintained and protected. As a result of extended road surfaces there will be increased impermeable surfaces, and therefore, increased peak flows and volumes under the post-development conditions. This will result in increased surface/storm water flows from the project catchment areas, and these will require pretreatment to protect the stream if these flows will be discharged into Tributary "C". Any

direct storm/surface discharges to this system will introduce warm waters and contaminants. Under climate change, these problems will be exacerbated as temperatures rise and precipitation increases and becomes more variable, specifically during extreme storm events. Potential changes to the hydrology (surface flows and groundwater) must be considered and addressed in all City's future plans. Maintaining cool temperatures and good water quality conditions are absolutely critical and important for the preservation of this rare and natural cold water system, aquatic life, and fisheries.

Recommendations:

1. *All proposed design of storm drainage servicing (minor/major surface drainage/stormwater conveyance systems, outlet discharges and SWM) works for the Oxford Street West and Gideon Drive Class EA shall comply with the Municipal Class EA, Schedule 'C' Storm/Drainage and Stormwater Management, Transportation and Sanitary Trunk Servicing Works for Tributary C recommendations to ensure that surface/storm drainage water quality will be maintained and preserved to protect Tributary C environmental/ecological conditions and associated cold water fisheries.*

2. *All stormwater outlets for minor and major flows should be identified on maps in figure 1 or 2 and will require water quality pre-treatment measures and plans for the removal of silt, sediment and salt need to be identified for the existing and/or proposed surface/stormwater discharges into the Tributary 'C' water resources system.*

3. *EEPAC should be allowed the time upon receiving a complete package of all reports, including the storm water servicing, hydrologic report, and class EA, to do a thorough review. This would provide EEPAC assurance that the City is sincere in their commitment and responsibilities to protect Tributary C.*

4. *We note in the geotechnical assessment (pg. 3) that borehole data used in the geotechnical report was collected in 2000-2015. Given the considerable recent housing development occurring in the area and increase in impervious surfaces, this data may not reflect current conditions. We recommend additional time to ensure that there is a comprehensive understanding of the hydrology prior to further construction to ensure that Tributary C is protected.*

5. *The stream temperature is presumably maintained by groundwater inputs. Although we have not had time to carefully review the geotechnical report, groundwater is very close to the surface in places. Is it possible that changes to drainage in this project could lead to changes in the relative proportion of groundwater relative to surface flows entering Tributary C? How will the city ensure this does not happen? Places in the EIS indicate uncertainty around groundwater and surface flows. For example, on page 25 it says "In support of this new housing development, drainage patterns have been altered, but inputs to Tributary C should be maintained." We need to know that the drainage patterns "will" maintained – it is not an option.*

6. *To ensure no harm comes to the stream, there needs to be a commitment to monitoring. At present, the baseline conditions have been determined using limited or old data. For example, water quality has been measured at two sites collected on one day in Sept. 2021. Water quality includes four variables, temperature, pH, conductivity, and dissolved oxygen. Stream water chemistry is highly variable temporally and can not be captured in a single day measurement. Fish data is from 1999 and 2010; invertebrate data is from 1999-2002. This is insufficient to provide present baseline conditions and shows a lack of commitment to monitoring and stream protection. Were aquatic measurements collected for previous EAs for recent development in this region? How has the stream changed in response? Is a monitoring program implemented as part of the development projects? Is there any sense of how the stream is doing? What is being planned for this project? As pointed out in section 8.4, factors that could impact fish include turbidity and nutrient loads and neither has been measured, despite the potential for these to increase from road construction, fertilizer use etc. Do we know whether ground water or surface flows into Tributary C have changed as a result of housing development projects? Were monitoring plans implemented for previous projects? What are the findings?*

Terrestrial

1. This study area includes several species at risk including the Eastern Peewee, which relies on the walnut tree habitat. Based on a previous EA, the walnut inclusion area is being lost. (see Figures 8 and 9 - Figure 3 and 4 below).

Recommendation:
An additional 20 trees are targeted for removal. EEPAC recommends walnut trees be avoided. However, if walnut trees are removed how will they be compensated. EEPAC recommends that the species planted must be native. This should improve habitat for woodland birds like the Eastern Wood-Peewee.

2. Barns Swallows have been spotted in the past within the study area foraging for food.
Recommendation
It appears from the air photos (figure 2) that there is a barn on the subject lands. EEPAC recommends a check for Barn Swallow nests/roosts to be undertaken before the structure is removed. If nests are found, it is recommended that a kiosk be built using materials from the old barn be used as compensation. Cole Engineering has a history of successful kiosk construction. https://www.thespec.com/news/hamilton-region/2017/07/07/inside-ontario-s-fight-to-save-declining-barn-swallows-one-bird-house-at-a-time.html

3. There is the potential presence of nesting bats within the subject area since there were reported occurrences of SAR bats in the surrounding area.
Recommendation
EEPAC recommends to perform a tree cavity search prior to tree removal as some trees have been noted as potential nesting habitat.

4. Monarch butterflies have been spotted in subject area along with potential larva feeding habitant (milk weed) also in subject area. Milkweed is the only source of food for the growing Monarchs.

Recommendation

EEPAC recommends milkweed planting in nearby subject area to compensate for any loss of potential habitant (milkweed) for monarch larva.

Alternatives

The preferred alternate has the greatest impact on the ecological integrity and preservation of the existing environmental/ecological conditions of the area. Potentially, it also contributes to increased air and noise pollution, road kill and safety concerns for cyclists and pedestrians. The EIS suggests that idling cars at a stop light increase pollution, but having no light will increase speeds and road kill. At the presentation, it was explained that cyclists would have to walk their bikes at the round about – we are uncertain that many cyclists will adhere do this. How safe will this really be for cyclists and pedestrians? The plan is unclear about the connectivity of sidewalks for pedestrians. Will there be a sidewalk all the way down Oxford and Kains Road? How safe are round abouts for pedestrians? Gideon Road has become a popular running and cycling route – how will this be taken into consideration as the area expands? Are there plans for bike paths and sidewalks on Gideon Road? Widening roads increases individual automobile use, which is the number one greenhouse gas emitter on London (https://getinvolved.london.ca/climate/widgets/49286/photos/19337). This alternative, therefore, is in direct conflict with finding ways to reduce greenhouse gases.

We also note a private property just to the west of the planned intersection that is within the study area. Figure 1 of the geotechnical report shows that this driveway and property will lead to problems with traffic flow at the intersection, yet no mention is made of this home.

Recommendations: Reduce the need for individual vehicles by having a public transportation plan in place and an effective active transportation network, which would negate the need to accommodate so many cars. Instead consider option 1 or 2, which has less ecological impact, increases safety and reduces vehicular traffic and helps address the climate change emergency.

Recommendations: If there hasn't been, there should be a discussion with the home owner regarding the planned alternatives. This driveway and property need to considered in a review of the alternatives. As well, the safety of this entryway at a roundabout should be part considerations of the proposed alternatives.

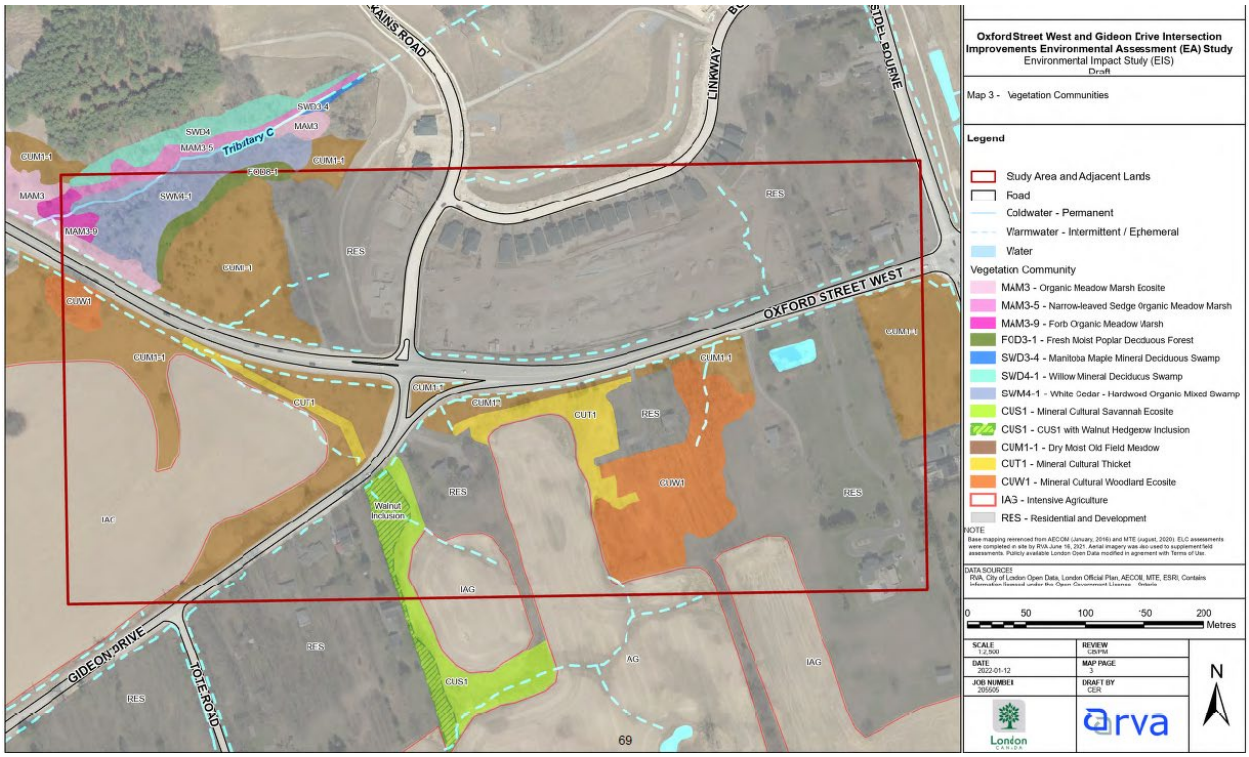
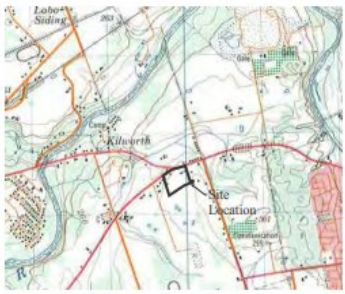

Oxford Street West and Gideon Drive Intersection Improvements Environmental Assessment (EA) Study
Environmental Impact Study (EIS)
Draft
Map 3 - Vegetation Communities
Legend
Study Area and Adjacent Lands
Road
Coldwater - Permanent
Warmwater - Intermittent / Ephemeral
Water
Vegetation Community
MAM3 - Organic Meadow Marsh Ecosite
MAM3-5 - Narrow-leaved Sedge Organic Meadow Marsh
MAM3-9 - Forb Organic Meadow Marsh
FOD3-1 - Fresh Moist Poplar Deciduous Forest
SWD3-4 - Manitoba Maple Mineral Deciduous Swamp
SWD4-1 - Willow Mineral Deciduous Swamp
SWM4-1 - White Cedar - Hardwood Organic Mixed Swamp
CUS1 - Mineral Cultural Savannah Ecosite
CUS1 - CUS1 with Walnut Hedgerow Inclusion
CUM1-1 - Dry Moist Old Field Meadow
CUT1 - Mineral Cultural Thicket
CUW1 - Mineral Cultural Woodland Ecosite
IAG - Intensive Agriculture
RES - Residential and Development
NOTE
DATA SOURCES
0 50 100 200
Metres
SCALE
DATE
2022-01-12
JOB NUMBER
DRAFT BY
REVIEW
MAP PAGE
N
OXFORD STREET WEST
GIDEON DRIVE
TOTE ROAD
LINKWAY
Tributary C
Walnut Inclusion
69

Figure 1

Figure 2

Figure 3

Figure 9: Tree Preservation and Compensation
(2017 City of London Air Photo)



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Key Plan

1 CUW1 Mineral Cultural Woodland Ecosite
(Black Walnut dominant)
2 CUS1 - Mineral Cultural Savannah Ecosite with Walnut Hedgerow inclusion
3 CUT1 Mineral Cultural Thicket Ecosite

R1 Maintained lawn and residential dwelling
R2 Maintained lawn and garage

A Active Agriculture

- Tree Removal and Preservation Area

- Proposed Tree Compensation Area (1:1)

Print on 11X17, Landscape Orientation
0 160
Scale 1:5000
August 2020

MTE


Gideon Dr
Walnut Inclusion
R1
R2
3
1
1b
A
2
BLOCK 40
MULTI-FAMILY
1.729 ha
BLOCK 41
EXISTING RESIDENTIAL
0.936 ha
BLOCK 46
0.3m RESERVE
BLOCK 47
0.3m RESERVE
ROAD WIDENING
0.133 ha
STREET A
STREET B
Subject Lands
APPROXIMATE LIMIT OF URBAN GROWTH BOUNDARY
Figure 4

EEPAC Working Group Comments re: Windermere Rd EIS
EIS Received at the January 2022 EEPAC meeting
Comments Submitted February 10, 2022

Working Group Members: Ian Arturo, Susan Hall, Sandy Levin, Katrina Moser, Brendon Samuels

1. Point in text: Appendix table, Habitat Suitability Screening and Species Impact Assessment for SAR and SOCC Identified as Potentially Present in the Study Area, Birds, Barn Swallow
Comment: As identified, Barn Swallows may nest under the Richmond St Bridge. Cliff swallows historically also bred here. We disagree with the statement, "The Project Area does not impact the bridges, no impacts are anticipated) as loud noise associated with construction activities may negatively impact breeding success for SAR under the bridge, which is within the study area.
Recommendation: The breeding season for the Barn Swallow spans from May through July. The underside of the Richmond St Bridge should be surveyed regularly during this period for signs of Barn Swallow breeding activity (i.e., nests) especially prior to commencing construction activities that produce loud noise. If active nests are found, construction activities producing loud noise should be paused until nestlings have fledged (19-24 days after hatching).

2. Point in text: Page 6, methods, "not yet come into full force and effect"
Comment: The environmental policies and Map 5 for this area are already in full force and effect

3. Point in text: Pages 6-7, 3.1, 3.1.1
Comment: Why does this list not include data gathered for the BRT project?

4. Point in text: Page 8, 3.2.2
Comment: How will EEPAC comments be reviewed?

5. Point in text: Page 29, 4.2.5, re: Queensnake
Comment: Where Queensnake is noted (p. 7), the EIS be updated to reflect the finding of a Queensnake by a member of the public and confirmed by the SAR biologist at UTRCA in 2012/13 west of the Medway bridge near Corley Drive. This finding was also noted in the CMP Phase 1 document (Natural Heritage inventory by Dillion).

6. Point in text: Page 30, 4.2.6, Habitat for Species of Conservation Concern
Comment: Black Redhorse should be presumed present. "In the Medway creek between its mouth and Collip Circle, I have observed Black redhorse spawning in late April and early May. I have also observed the spawning of walleye, rainbow trout, greater redhorse, white sucker, and shorthead redhorse. I have also caught smallmouth bass in that stretch of river." (personal communication with S. Levin with Christian Therrien, M.Sc., Ph.D. Student, Swanson & Neff labs, Department of Biology, University of Waterloo, C3therrien@uwaterloo.ca)

7. Point in text: Page 32, 4.2.8 Tributary to Medway Creek
Comment: What dissipation will be needed for the larger pipes? Particularly for this outlet? Please see detailed comments at the end of this document.

8. Point in text: Page 33, 4.2.8, Tallwood Valley Creek
Comment: Much more up to date data should be used in this section - it states that the data on fishing and mussels is from 1998 UTRCA data. EEPAC believes there is more recent data available. This should be confirmed with the UTRCA

9. Point in text: Page 34, 6.0, Active Transportation Improvements
Comment: This will have an indirect impact on SAR in the river. The bridge has increased the number of people in proximity to SAR turtles in the area (Scott Gillingwater, per comm). From the bridge crossing the Thames River at Ross Park, Katrina Moser (EEPAC) reports frequently observing spiny softshell turtles sunning themselves on a concrete pipe. Directly adjacent to the pipe she has also observed people fishing from shore posing a risk for the turtles.
This connection will add to these threats to the turtles.
Recommendation: Increased education and signage to limit fishing near turtles. Perhaps similar to signage used in Killaly Woods after the osprey was killed in fishing line.
Recommendation: Consult with the Species at Risk biologist at the UTRCA to actively work to reduce risks to SAR turtles related to the indirect impacts of this and other recent city projects in the area. This may include planting of replacement trees in Ross Park rather than within the study area.

10. Comment: EEPAC agrees with the recommendation "*to introduce a variety of native vegetation species that are beneficial to wildlife such as nectar-bearing plants for pollinators; however, in this case, nut and berry producing species will be lower in quantity to avoid attracting wildlife to the wooded edge where there is more of a likelihood of vehicle/wildlife interaction*."

11. Comment: EEPAC agrees with the recommendation that "*any invasive species control be implemented at the transition zone between the active tree removal and the remaining forest to the extent possible. Invasive species management strategies should be included during the development of the detail design for the project, and should be based on best available science such as the Best Management Practices developed by the Ontario Invasive Plant Council.*"

12. Point in text: Page 40, 7.4, 7.4.1.1
Comment: Work should be done by a biologist, not a contractor. There should also be training and photos in the construction trailer of species with a phone number to call if encountered. How else would they be notified to come and move wildlife?

13. Point in text: Page 40, 7.4.2
Comment: Will this be a requirement in the tender docs and detailed design?

14. Point in text: Page 41, 7.4.4
Comment: EEPAC supports the Salt Management Plan goals; however it notes that the City generally does not have site specific salt application plans for areas this small. EEPAC does

support that detail design include design approaches to reduce salt impacts, including site grading and use of vegetated swales within the right-of-way

15. Point in text: Page 42, 7.5, third paragraph, "*At detail design, the need for encroachment…*"
Comment: What about better than standard mitigation? What about Tallwood Creek which is presumed fish habitat?

16. Point in text: Page 43, 8.0, 8.1
Comment: There is an error here, "Reference source not found"
Comment: What about Tallwood? Tallwood Creek is largely missing from the engineering drawings shown in the EA. Is this an oversight?
Recommendation: Given Tallwood Creek is fish habitat and a more sensitive environmental feature, detail design should be closely reviewed to ensure a net benefit.

17. Point in text: Page 44, 8.3
Comment: Consultation with UTRCA during detailed design should be *required* given the presence of SAR. Current text says consultation is recommended, not required.

18. Point in text: Appendix Table, Habitat Suitability Screening and Species Impact Assessment for SAR and SOCC Identified as Potentially Present in the Study Area, Fish, Black Redhorse
Comment: Black Redhorse were seen spawning from the Western Road bridge by a former EEPAC member who is a PhD candidate in aquatic biology.

19. Point in text: Appendix Table, Habitat Suitability Screening and Species Impact Assessment for SAR and SOCC Identified as Potentially Present in the Study Area, Reptiles, Spiny Softshell
Comment: We anticipate there will be indirect impacts. Basking turtles on the Thames Valley Trail pathway leading south from Richmond Street. Turtles have been observed basking in the sun along this pathway. With increased accessibility to and therefore use of this portion of the path, a basking turtle is at increased risk of injury from bicyclists. Increased access to habitat and nesting locations has occurred since the city built the Ross Park bridge (per commu with Scott Gillingwater). Efforts to screen have been ignored by the city up to now.
Recommendation: City of London staff liaise with the UTRCA to develop ways to increase public awareness about the importance of protecting the turtles, such as installing signage for cyclists and pedestrians.

20. Point in text: Mitigation Measures slide, Vegetation Mitigation
Recommendation: To ensure there is no increase in sediment inputs to any of the three water courses, additional ESC measures are needed during the project. Standard ESC measures seemed not to work during the sidewalk installation on the south side of Windemere east of Richmond.
Recommendation: In addition to the mitigation measures outlined on p. 38, p.42 recommend water quality testing to measure turbidity changes.

21. Comment re: Infrastructure Replacement. Improvements will include various storm sewer, sanitary sewer and force main replacements of the existing infrastructure within the municipal ROW. p.35
Recommendation: Assess diameter of stormwater pipes for possible slope instability and erosion at their outlet.

22. Comment: EEPAC recommends that the proposed Municipal Class EA for Windermere Road Improvement incorporates all applicable design, construction and maintenance mitigation/remediation measures required given the existing and post construction conditions. These should include:

- Storm/drainage minor/major peak flows discharges;
- Storm/drainage outlet locations and its hydraulic conditions;
- Erosion/slope stability protection and energy dissipation systems;
- Erosion sediment control plan and measures

All of the above-noted requirements are necessary to eliminate or minimize potential adverse impacts on erosion control, slope stability and erosion sediment control of watercourses/tributaries, and associated unevaluated wetlands related to Tallwood Creek, east of Richmond.

23. Comment: Given the magnitude and duration of the project and extent of the proposed improvements, EEPAC recommends that the proposed Municipal Class EA for Windermere Road Improvement work be required to include, but not be limited to:

1. mitigation measures to address and eliminate the existing erosion and slope stability deficiencies associated with the storm/drainage discharges from the subject project catchment areas;
2. mitigation measures to address storm drainage storages and/or energy dissipation measures/systems to minimize and/or eliminate adverse effects of additional (post-construction) storm/drainage surface peak flows discharges, which are outletting into the receiving water resources system due to increases in peak flows and velocities (energy of discharges) that may adversely affect the existing erosion slope stability conditions; and
3. erosion sediment control plan and measures together with the water quality monitoring program spanning pre-construction and during construction activities, aiming to minimize impacts of sediment on fish and fish habitat, and the risk of sediment being conveyed to Medway Creek, the Thames and their tributaries.

PUBLIC MEETING NOTICE

Official Plan and Zoning By-law Amendments

520 Sarnia Road

File: OZ-9432
Applicant: Horizen Developments LP

What is Proposed?

Official Plan and Zoning amendments to allow:

- An 8-storey apartment building with at total of 129 residential units with a density of 168 units per hectare and parking spaces provided in underground and above-ground facilities; and
- Special provisions to identify Sarnia Road as the front lot line, a reduced interior side yard setback, and a reduced parking rate.

YOU ARE INVITED!

Further to the Notice of Application you received on November 15, 2021, you are invited to a public meeting of the Planning and Environment Committee to be held:

Meeting Date and Time: Tuesday, April 19, 2022, no earlier than 4:00p.m.

Meeting Location: During the COVID-19 emergency, the Planning and Environment Committee meetings are virtual meetings, hosted in City Hall, Council Chambers (see insert)

For more information contact:

Alanna Riley
ariley@london.ca
519-661-CITY (2489) ext. 4579
Development Services, City of London, 300 Dufferin Avenue, 6th Floor,
London ON PO BOX 5035 N6A 4L9
File: OZ-9432
london.ca/planapps

To speak to your Ward Councillor:

Councillor Steve Lehman
slehman@london.ca
519-661-CITY (2489) ext. 4008

If you are a landlord, please post a copy of this notice where your tenants can see it. We want to make sure they have a chance to take part.

Date of Notice: March 31, 2022

Application Details

The purpose and effect of this Official Plan and zoning change is to permit an 8-storey apartment building with at total of a total of 129 residential units with a density of 168 units per hectare and parking spaces provided in underground and above-ground facilities

Requested Amendment to the 1989 Official Plan

To add a Specific Area Policy to add a Specific Area Policy to permit an 8-storey apartment building with at total of a total of 129 residential units with a density of 168 units per hectare without a commercial component on the ground floor.

Requested Amendment to The London Plan (New Official Plan)

To add a Specific Area Policy to add a Specific Area Policy to permit an 8-storey apartment building with at total of a total of 129 residential units with a density of 168 units per hectare without a commercial component on the ground floor.

Requested Zoning By-law Amendment

To change the zoning **FROM** a Neighbourhood Shopping Area Special Provision (NSA1(3)) Zone **TO** a Residential R9 Special Provision Bonus (R9-7(_)*B-_) Zone. Special provisions would identify the Sarnia Road frontage as the front lot line; permit a minimum interior side yard setback of 7.5 metres; and permit a minimum parking rate of 1 space per residential unit, whereas 0.78 spaces per unit is required. The proposed bonus zone would permit a maximum building height of 8-storeys (27.1 metres) and a maximum mixed-use density of 168 units per hectare in return for eligible facilities, services, and matters, specifically affordable housing outlined in Section 19.4.4 of the 1989 Official Plan and policies 1638_ to 1655_ of The London Plan

Both Official Plans and the Zoning By-law are available at london.ca.

Current Zoning
Zone: Neighbourhood Shopping Area Special Provision (NSA1(3)) Zone **
Permitted Uses: Bake shops; Catalogue stores; Clinics; Convenience service establishments; Day care centres) Duplicating shops; Financial institutions; Food stores) Libraries; Medical/dental offices; Offices) Personal service establishments; Restaurants; Retail stores; Service and repair establishments) Studios; Video rental establishments) Brewing on Premises Establishment.

Requested Zoning
Zone: Residential R9 Special Provision Bonus (R9-7(_)*B-_) Zone **
Permitted Uses: Apartment buildings; Lodging house class 2; Senior citizens apartment buildings; Handicapped persons apartment buildings; and Continuum-of-care facilities.
Special Provision(s): Special provisions would identify the Sarnia Road frontage as the front lot line; permit a minimum interior side yard setback of 7.5 metres; and permit a minimum parking rate of 1 space per residential unit, whereas 0.78 spaces per unit is required. The proposed bonus zone would permit a maximum building height of 8-storeys (27.1 metres) and a maximum mixed-use density of 168 units per hectare in return for eligible facilities, services, and matters, specifically affordable housing outlined in Section 19.4.4 of the 1989 Official Plan and policies 1638_ to 1655_ of The London Plan.
Height: 28 metres

The City may also consider additional special provisions.

Planning Policies

Any change to the Zoning By-law must conform to the policies of the Official Plan, London's long-range planning document. These lands are currently designated as

The Community Commercial Node designation requires residential development above ground floor commercial uses. As no commercial component is proposed, an amendment to the 1989 Official Plan is required. Residential density in the Community Commercial Node is determined by the High Density Residential designations. The maximum density contemplated in the 1989 Official Plan in the Multi-Family, High Density Residential designation for sites outside of Central London is 150 units per hectare. Bonusing is required to achieve a density beyond this limit.

The subject lands are in the Neighbourhoods Place Types in The London Plan. The Neighbourhoods Place Type permits a broad range of housing types including stacked townhouses and low-rise apartment buildings, home occupations, group homes, small-scale community facilities, emergency care establishments, rooming houses, supervised correctional residences, mixed-use buildings and stand-alone retail, service, and office buildings. The

London Plan contemplates apartment buildings and bonusing up to, but not exceeding a maximum of 6-storeys at this location. The proposed development would require an amendment to The London Plan for a building height beyond 6-storeys.

How Can You Participate in the Planning Process?

You have received this Notice because someone has applied to change the Official Plan designation and the zoning of land located within 120 metres of a property you own, or your landlord has posted the public meeting notice in your building. The City reviews and makes decisions on such planning applications in accordance with the requirements of the Planning Act. If you previously provided written or verbal comments about this application, we have considered your comments as part of our review of the application and in the preparation of the planning report and recommendation to the Planning and Environment Committee. The additional ways you can participate in the City's planning review and decision making process are summarized below.

See More Information

You can review additional information and material about this application by:

- Contacting the City's Planner listed on the first page of this Notice; or
- Viewing the application-specific page at london.ca/planapps
- Opportunities to view any file materials in-person by appointment can be arranged through the file Planner.

Attend This Public Participation Meeting

The Planning and Environment Committee will consider the requested Official Plan and zoning changes at this meeting, which is required by the Planning Act. You will be invited to provide your comments at this public participation meeting. A neighbourhood or community association may exist in your area. If it reflects your views on this application, you may wish to select a representative of the association to speak on your behalf at the public participation meeting. Neighbourhood Associations are listed on the Neighbourgood website. The Planning and Environment Committee will make a recommendation to Council, which will make its decision at a future Council meeting.

Attendance is available through telephone or virtual web streaming (computer) application. Pre-registration is required to access these options and can be found in the Public Participation insert.

Please refer to the enclosed Public Participation Meeting Process insert.

What Are Your Legal Rights?

Notification of Council Decision

If you wish to be notified of the decision of the City of London on the proposed official plan amendment and zoning by-law amendment, you must make a written request to the City Clerk, 300 Dufferin Ave., P.O. Box 5035, London, ON, N6A 4L9, or at docservices@london.ca. You will also be notified if you speak to the Planning and Environment Committee at the public meeting about this application and leave your name and address with the Secretary of the Committee.

Right to Appeal to the Ontario Land Tribunal

If a person or public body would otherwise have an ability to appeal the decision of the Council of the Corporation of the City of London to the Ontario Land Tribunal but the person or public body does not make oral submissions at a public meeting or make written submissions to the City of London before the proposed official plan amendment is adopted, the person or public body is not entitled to appeal the decision.

If a person or public body does not make oral submissions at a public meeting or make written submissions to the City of London before the proposed official plan amendment is adopted, the person or public body may not be added as a party to the hearing of an appeal before the Ontario Land Tribunal unless, in the opinion of the Tribunal, there are reasonable grounds to add the person or public body as a party.

For more information go to https://olt.gov.on.ca/appeals-process/forms/.

Notice of Collection of Personal Information

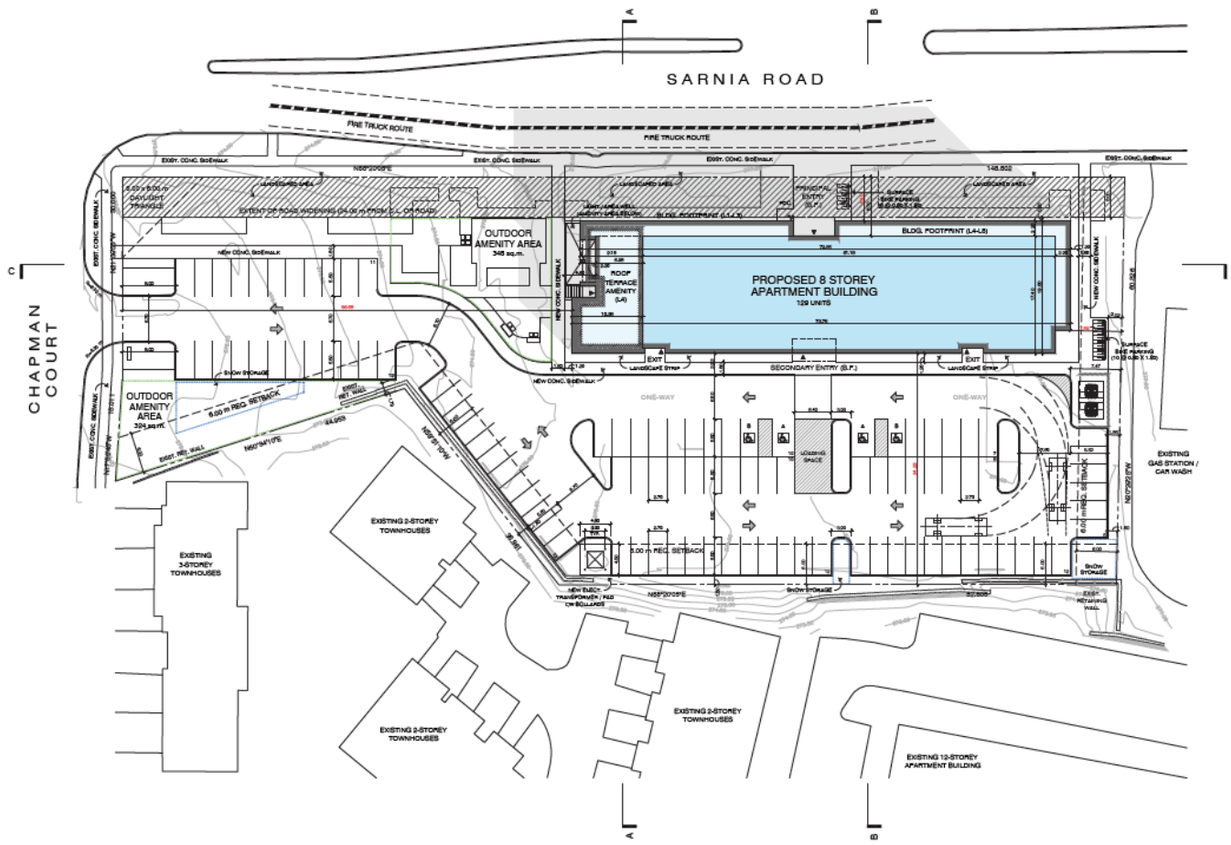
Personal information collected and recorded at the Public Participation Meeting, or through written submissions on this subject, is collected under the authority of the Municipal Act, 2001,

as amended, and the Planning Act, 1990 R.S.O. 1990, c.P.13 and will be used by Members of Council and City of London staff in their consideration of this matter. The written submissions, including names and contact information and the associated reports arising from the public participation process, will be made available to the public, including publishing on the City's website. Video recordings of the Public Participation Meeting may also be posted to the City of London's website. Questions about this collection should be referred to Evelina Skalski, Manager, Records and Information Services 519-661-CITY(2489) ext. 5590.

Accessibility

Alternative accessible formats or communication supports are available upon request. Please contact developmentservices@london.ca for more information.

Site Concept



Site Concept Plan

The above image represents the applicant's proposal as submitted and may change.

Building Renderings

The above images represent the applicant’s proposal as submitted and may change.

Public Participation Meeting Process

As part of the City's ongoing efforts to slow the spread of COVID-19, and in keeping with the regulations and guidelines provided by the Province of Ontario, the Public Participation Meeting process has been modified. The capacity for individuals in City Hall meeting rooms and the Council Chambers Public Gallery will reflect the requirement for 2m physical distancing, with designated seating and standing areas being provided.

Please refer to the public meeting notice for all options available for you to participate in the planning process.

Public Participation Meeting (PPM) Process

- Members of the public are asked to "pre-register" to speak in person at a PPM. Pre-registered speakers will be given priority access to entering City Hall. Speakers will be limited to five minutes of verbal presentation.
    - **Pre-register by calling 519-661-2489 ex. 7100; or by emailing PPMClerks@london.ca** Please indicate the PPM subject matter when contacting the Clerk's Office. Registrations will be confirmed.[1]
    - When pre-registering, members of the public will have a brief COVID-19 health screening and will be asked to self-screen prior to entering City Hall.
- Presentations will be strictly verbal; any other submission of photos, slides or written information must be made outside of the PPM. These can be forwarded to the Planner associated with this application and/or to the registration email, noted above. In order to be considered, all submissions should be made prior to the Council meeting when the Planning and Environment Committee recommendation regarding the subject matter is considered.

Public Participation Meeting (PPM) Process – At the meeting

- Members of the public should self-screen before entering City Hall. You likely will be greeted by security upon entering the building. A mask/face covering is required at all times in City Hall.
- Each committee room in use for the PPM will broadcast the meeting taking place in the Council Chambers.
- City Staff will be in each assigned room to assist members of the public.
- When appropriate, individual members of the public will have an opportunity to speak to the committee remotely, using the camera/microphone in the committee room. Floor markings will indicate where to stand.

Council Chambers

- Committee members and staff will be present in the Chambers (physically, or by remote attendance).
- There will be no public access to the Council floor.

[1] Notice of Collection of Personal Information – information is collected under the authority of the *Municipal Act, 2001*, as amended, and the *Planning Act,* 1990 RSO 1990, c.P. 13, and will be used by Members of Council and City of London staff in their consideration of this matter. Please see additional information on the enclosed Public Meeting Notice pages.

7098-7118 Kilbourne Road Revised Reports – EEPAC Review

Lauren Banks, Ian Whiteside, and Ian Arturo

Geotechnical Engineering Report Comments

1. Continuous groundwater flows to wetland area and Dingman Creek throughout the year with less than 1m water table variation. Unclear how short-term localized dewatering activities and/or sub-excavation will not have an impact on slope stability given moisture content and substrate size in the sampled boreholes, especially in sections D and F. Further, the organic thicket swamp is sensitive to changes in hydrological change as noted in the Scoped Hydrogeology Study Report. Dewatering is not supportable and basements should not be permitted.

Scoped Hydrogeology Study Report Comments

1. It is not clear why groundwater chemistry samples were unfiltered if this positively biased metals concentrations. This calls into question the exceedances of Aesthetic Objectives (AOs) and Operational Guidelines (OGs) observed on the site for metals that preferentially do not dissolve (e.g. aluminum, iron, and manganese).
2. The report notes a 17.5 % decrease on the local recharge and a 72.6% increase in runoff would be caused by the development. EEPAC's main concern is contamination of groundwater and wetland - mitigation options are in LID design prioritizing de-icing salt management and runoff management. However, introducing clauses around salt use for de-icing for residents seems to shift the responsibility of reducing contamination to residents rather than have a prior solution developed by the proponent. What ability is there in the conditions of development to ensure protection of the wetland features? Further, though the report assesses the magnitude of hydrologic changes will be low, but the wetland is highly sensitive to change in hydrology, so what does a 17.5 % decrease on the local recharge mean for this sensitive habitat? The report is silent on this issue.
3. Warmer water temperatures due to the infiltration of runoff water through LID system, and though there may not be an overall increase in groundwater temperature, would specific points of infiltration from the LID system impact the habitat quality in the wetland? This is also not addressed in the report.
4. De-icing with salt and subsequent contamination of ground/surface water is likely to be greater during freeze/thaw periods during winter months (assuming November to March) by salt runoff from roadways and use by residents. Beyond post-construction monitoring, what adjustments or enforcements can be made in the conditions of development if salt contamination is found to increase during year one of monitoring?
5. Consider implementing a plan for sodium and chloride reduction. For example, homeowner education for proper discharge of pools (including non-saltwater pools) and use of de-icing salts and working with the City of London to reduce de-icing salts on public and private roadways, where safely implementable. Frankly, a condition of the condominium agreement is that no pools should be permitted as it is likely they will discharge to the ESA.
6. Because the report suggests that the adjacent SWM facility might be a contributing factor to high sodium and chloride levels, the City of London should consider what corrective actions can be implemented if this turns out to be the case.

Proposed Residential Land Development/Ross Farm Subdivision
1140 Fanshawe Park Road East London,ON

Official Plan Amendment and Rezoning Planning Act Applications' review comments for the submitted Environmental Impact Assessment (EIS), Preliminary Stormwater Management (SWM) Servicing Report, Preliminary Geotechnical Investigation & Final Hydrogeological Assessment, Functional Servicing Report that were received by EEPAC in March and April 2022.

Reviewers: Ian Arturo, Katrina Moser, Susan Hall and Berta B. Krichker

Submitted April 19, 2022

Summary: ***EEPAC reviewed the proposed Official Plan Amendment and Rezoning Planning Act Applications to Minimize and Mitigate Potential Ecological/Environmental Adverse Impacts and Specifically related to identified existing wetland and all environmental areas, Flood lands, water resources management related to the protection of existing conditions that associated with proposed Residential Land Development/Subdivision at* 1140 Fanshawe Park Road East London. Based on our review EEPAC makes the following recommendations to the City of London:**

1. Ensure that the portions of the study area that include significant wetlands (>6.35 ha), woodlands, valleylands, significant wildlife habitat, fish habitat, habitat of endangered and threatened species, water resource systems and environmentally significant areas (Table 6 of the EIS) are protected and preserved. The City Plan recognizes the importance of such areas and ensures that "Development and site alteration shall not be permitted in provincially significant wetlands as identified on Map 5 or determined through environmental studies consistent with the provincial policy statement and in conformity with this plan" [Section 1332] and "Development or site alteration shall not be permitted within a wetland. There shall be no net loss of the wetland features or functions". [Section 1334] Development and site alteration shall not be permitted in significant woodlands, significant valleylands, significant wildlife habitat, wetlands and significant areas of natural and scientific interest unless it has been demonstrated that there will be no negative impacts on natural heritage features or their ecological functions" [Section 1392]. Therefore, EEPAC recommends the presently proposed development not be approved, and notes that each of these natural features is connected to and supported by other features in the study area. To protect the integrity of the entire ecosystem and its function and features requires the protection of all components; wetlands, woodlands, ponds, valleylands and others.

2. Ensure that the existing wetland (Grenfell Wetland) will be preserved and the proposed relocation of the existing wetland and a creation of a new wetland will **not** be permitted. Ensure that the existing wetland ecological/environmental condition, water resources functions and features will be preserved and maintained (i.e., there shall be no loss of wetland features and functions), as well make every effort to minimize potential adverse impacts that may occur from the proposed land development and construction activities associated with this proposed development. EIS and all servicing reports shall include all required references and modifications/changes that will incorporate the recommendations to preserve and protect the Grenfell.

3. Ensure that sufficient natural buffers/setbacks are identified and implemented in accordance with the City's EMG, London Plan, the UTRCA and provincial guidelines regulations and requirements to protect and maintain the existing wetland functions and features, as well as maintain all identified environmental areas that are required to be protected at the subject site. The technical justifications in the EIS and other submitted applicable reports will need to be modified and expanded to identify all required justifications and support information for the recommended required setback from the subject development to all identified environmental areas and wetlands to ensure no

adverse impacts on the existing wetland functions and features (shall be no loss of wetland features and functions) related to the ecological and water resources system, adjacent lands and surface/subsurface/groundwater functions, features, connections and correlation with the Stoney Creek system functions and performance.

4. Ensure that the existing species, specifically the Significant Wildlife Habitat (SWH), Habitat of Threatened and Endangered Species, or other species (that required protection) will be protected and all required measures, MNRF, DFO applicable ecological protocols will be implemented for handling these works on the subject lands. The EIS needs to include all required references for the proposed changes and justifications (proposed approach and applicable protocols) that will be implemented.

5. Ensure that the proposed Rezoning Application for the subject development land should include, but should not be limited to, the special provisions, which will identify the existing wetland protections related to ecological, water resources functions and features; existing SWH, Habitat of Threatened and Endangered Species, and other species that require protections identified in the EIS; sufficient buffers/setbacks to maintain and protect existing ecological/environmental functions, features of the existing wetland and identified environmental areas; and the detailed design of storm/drainage utilities and SWM services to deal with the water quality, quantity control and erosion protection control that will be in compliance with the Stoney Creek Subwatershed requirements and Municipal Class EA, MECP, MNRF, UTRCA and City's standards and requirements for this system.

Item #2 - The Existing Grenfell Wetland will be maintained and the proposed relocation and creation of a new wetland will not be permitted and approved by the City.

The proposed development plans include the proposed relocation of an existing wetland, Grenfell Wetland, and the creation of a new "wetland". The proposed location for the new wetland is to be located in a part of the environment protected block (s). Although the OMB for this wetland concluded that the present wetland evaluation information "does not meet the threshold for PSW", MNRF still show this wetland as a PSW. Also, PPS and London Plan contained polices and requirements that prevent development from occurring on lands deemed as significant wetland (locally and/or provincially significant). For example, from the London Plan, "Development, site alteration should not be permitted within wetland. There shall be no loss of wetland features and functions "

Taking in consideration the following critical factors:

- The Grenfell Wetland includes the Terrestrial Crayfish species which provides food for Queensnake, which have been observed in the area and is an endangered species. The EIS also notes SWH for the Queensnake in the subject area.

- The provincial and City's policies and requirements, which stipulate that there shall be no loss of wetland features and functions. The relocation of this 6.35 ha PSW will undoubtedly lead to a loss of wetland species, ecosystem services and functions.

- This wetland is located immediately adjacent to the Stoney Creek ecosystem and needs to function in cconnection with the Stoney Creek system; and

- The size of this wetland is significant and represents a size of 6.35 ha (pg. 42 of the EIS) plus buffers/setbacks land areas,

this wetland must be maintained and preserved.

EEPAC recommends that the existing wetland be preserved and the proposed wetland relocation not be permitted and/or approved. By maintaining and protecting the Grenfell wetland, the existing wetland ecological/environmental, water resource functions and features be preserved and maintained, no loss of wetland features and functions will

occur. EEPAC further recommends that the EIS and all servicing reports shall include all required references to the proposed recommendations and justifications be incorporated. The proposed land development planning and servicing design components will incorporate all required works and measures to protect the existing ecological/environmental and water resource conditions for the subject and surrounded lands.

Item #3 - SWH, Habitat of Threatened and Endangered Species, or other Required Protection

Habitat for several species that are protected under the Endangered Species Act have been reported within or in close proximity to the study area. Specifically protections of Fish Habitat and aquatic life are critical for the Silver Shiner and Black redhorse, within the Stoney Creek, live Butternut trees, SWH for the Queensnake and spiny softshell turtles. As well, two provincially rare species, Erigenia bulbosa and Viola striata were identified to be widespread.

EEPAC recommends that all identified SWH, Habitat of Threatened and Endangered Species, or species or their habitat requiring protection species will be:

- confirmed in the detailed field review prior to any final design report submission for any proposed development in the study area; and

- *protected, by identifying all required measures and required ecological MNRF, DFO and UTRCA protocols that will be implemented for handling these works for the subject lands, ensuring no adverse impacts on the species and the health of their habitat. EIS shall include all required references for the proposed changes and justifications (proposed approach and applicable protocols) that are recommended to be implemented.*

Item #4 - Buffers Setbacks for Existing Wetland and Identified Environmental Areas

Based on the presented information in the EIS report (specifically in section 5.0 and Table 6) that provided a list of Significant natural heritage features identified on the subject lands (36.8 ha) that are: Provincially Significant Wetlands, Significant Woodlands, Significant Valleylands, Significant Wildlife Habitat , Fish Habitat, Habitat of Threatened and Endangered Species, Water Resources Systems, Environmental Significant Areas (ESA), Potential Naturalization Areas and Nests of NBCA-protective birds as well as in others noted in the Hydrogeological, Geotechnical and servicing reports for the subject site, the sufficient natural buffers are extremely important and critical to preserve/maintain the existing ecological/environmental and water resources functions and features of the existing wetland and all identified environmental areas.

EEPAC recommends the proposed natural buffers/setbacks for each of these areas will be identified and be sufficient., based on the existing provincial, UTRCA and City's requirements and regulations. The technical justifications need to be provided to support the setback recommendations for this development and the proposed buffers/set backs need to be identified between the proposed development the existing wetland and all identified significant environmental areas.

The recommended *buffers/setbacks requirements shall be consistent with the City's London Plan Policies and requirements, completed and accepted by the City Council Subwatershed and Municipal Class EA studies for the subject area, MECP, MNRP and UTRCA Acts, Regulations and requirements. In accordance with the OWRA definitions, storm drainage and SWM systems, including the SWM Facilities, are considered to be sewer systems.*

Item #5 - Rezoning Application's Special provisions for the Subject Lands

EEPAC recommends that the proposed Rezoning Application for the subject properties should include the special provisions, which will be required for the proposed detailed design for the proposed subject site, to preserve and

maintain the existing wetland, identify the required natural buffers/setbacks for the wetland and all environmental areas, identify measures/protocols to protect Significant Wildlife Habitat , Fish Habitat, Habitat of Threatened and Endangered Species, Potential Naturalization Areas and Nests of NBCA-protective birds, erosion sediment control, as well as possible substantial dewatering process and MECP, MNRP, UTCA and potential DFO approvals requirements and water discharges that will be in compliance with the Stoney Creek Subwatershed system requirements, MECP, MNRP, DFO, UTRCA and City's standards and requirements for this system.

EEPAC recommends additional details on monitoring protocols that show that monitoring will adequately assess and evaluate the continuation of the function and features of the wetlands and other significant features listed in the study area.

EEPAC requires to review the requested designs and monitoring designs.

Panel 2 (inside fold)

Where do Goldfish come from?

Goldfish are common aquarium pets that originally descended from East Asian carp When Goldfish are released in bodies of water in North America (ponds, rivers, streams, etc.), they cause major environmental problems as an invasive species. Goldfish do not belong in the natural environment in London.

Important Facts About Goldfish

- In ponds and in the wild, Goldfish can grow to be 12 to 14 inches (30 to 35 cm) and can weigh several pounds.
- If kept in containers in captivity, Goldfish likely remain smaller because they release a growth-inhibiting hormone into the water. In larger aquariums and bodies of water where the water is cycled often, the hormone is diluted and the fish will continue to grow.
- Goldfish live for 30-40 years if kept healthy.
- Aquariums lacking a pump or filter to circulate water will have low oxygen, causing fish to suffocate.
- Goldfish are messy – their container requires filtration and water changes.
- Keeping Goldfish inside a glass bowl is not recommended because of the small size and lack of oxygen circulation and filtration.

Panel 6 (back)

Frequently Asked Questions

I have a pet Goldfish and don't want it anymore, or can't take care of it. What should I do with my fish?

- Pet fish, dead or alive, should never be released outside or flushed down the drain under any circumstances. Dead fish can still transmit diseases and parasites to wild fish through water.
- You can rehome live fish by posting an ad online, such as using social media or a classified ad, and someone may take it from you. Some pet and aquarium stores in London may take your fish and resell them, but make sure to call the store in advance to ask if they offer this service.
- Consider offering your fish to a local school.
- If there are no viable alternatives, the most practical option may be to euthanize the fish. Humane methods to euthanize a Goldfish quickly, painlessly and without stress include using clove oil, a natural anesthetic (10 drops per liter of water) to overdose the fish, or using Alka Seltzer (2 tablets per liter of water) to remove oxygen from the water, rendering fish unconscious before they stop breathing.

Where can I learn more?
www.invasivespeciescentre.ca/goldfish
www.thamesriver.on.ca

Panel 1 (front)

—DRAFT—

Important information for pet Goldfish owners

What you need to know about pet Goldfish and the environment

UPPER THAMES RIVER CONSERVATION AUTHORITY

London CANADA

Prepared by the City of London
Environmental and Ecological Planning
Advisory Committee

Panel 3

What are Invasive Species?

Examples of invasive species introduced by humans to North America:

<Insert photos of

- *English ivy*
- *Norway maple*
- *Emerald ash borer beetle*
- *Lymantria dispar>*

An invasive species is an introduced organism that becomes overpopulated and harms its new environment.

In Canada, hundreds of non-native species of plants, animals and fungi have already been established by humans. A subset of these species are considered invasive because of their ability to spread.

Introduced invasive species are bad for the environment because:

- They compete with native plants and animals that evolved here, including species at risk of extinction;
- They introduce disease and pests that native species are sensitive to;
- They can drastically alter and deplete landscapes and ecosystems;
- They multiply quickly and can be expensive and difficult to manage
- Common ways that invasive species spread in the environment include: ‘
- Dumping yard waste, plant cuttings, other organic waste in natural areas;
- Dumping or flushing exotic pets like Goldfish, snails or aquarium plants;
- Gardening with invasive plant species next to natural areas;

Panel 4

Goldfish infestations are a growing problem in London

Goldfish infestations currently occur in London at Westminster Ponds and The Coves. Pet Goldfish that are dumped or flushed can harm native species in several ways:

- Growing and multiplying quickly;
- Eating other fish eggs, younglings;
- Eating vegetation and other animals that native species would feed on;
- Stirring up mud, causing cloudy water that disturbs native fish.

The City of London and UTRCA actively remove invasive Goldfish from ecosystems

What happens to pet Goldfish that are released outside?

- Some predators may hunt Goldfish.
- Fish may be killed by freezing, pollution or removed by conservation management

Panel 5

Before you buy a new pet, consider alternatives to Goldfish

15” Goldfish recovered from Lake Ontario.

Other types of fish and aquarium animals can be easier than Goldfish to keep as pets

Other tropical fish like guppies, danios *<insert photo>*

- Live 1-5 years
- Remain small in size
- Thrive in various water conditions
- Social (best kept in groups)

Betta fish *<insert photo>*

- Live 2-5 years
- Remain small in size, low-mess
- Solitary (best kept alone)

Aquatic African dwarf frogs *<insert photo>*

- Up to 5 years
- Remain small
- Breathe air from water’s surface
- Social (best kept in groups)

Wetlands in London, Ontario: Lessons Learned from 905 Sarnia Wetland and Recommendations for the Future

DRAFT 2

Attended Meeting April 29, 2020: James MacKay, Randy Trudeau, Susan Hall, Spencer Heuchan, Ian Arturo, Suba Sivakumar, Berta Krichker, Katrina Moser
Attended Meeting March 28, 2022: James MacKay, Randy Trudeau, Susan Hall, Ian Arturo, Suba Sivakumar, Berta Krichker, Katrina Moser, Sandy Levin

Background: Wetlands preserve ecological processes and function providing critical ecosystem and human services (OWES, 2014). Wetlands provide watershed protection, preserve biodiversity, and are important regulators of natural (C, N and water) cycles. They attenuate floods, provide economically valuable products, improve water quality and are important carbon stores contributing to climate resiliency. Despite their importance, in southern Ontario there has been a loss of 70% of wetland areas and in London wetland loss is greater than 85%.

The London Plan provides protection of all wetlands, however [it] does permit relocation/recreation of non-provincially significant wetlands in certain circumstances (see Policy 1334), even though wetland relocation or offsetting has proven to be overall unsuccessful at protecting wetlands in the US and Canada (Pouton and Bell, 2017).

Best Practises: Four Checklists

Checklist 1. Studying the Wetland Prior to Moving it: Baseline Conditions

The decision to move a wetland should only be made after the wetland site has been carefully studied. **This means studied for two to three years.** It is critical that there is in-depth knowledge of the site prior to inform any decisions regarding relocation of the pre-existing wetland. Such knowledge is also critical to ensuring a successful relocation and providing knowledge of pre-existing (baseline) conditions of the wetland for monitoring. The following questions should be addressed:

1. **How long has the wetland existed?**
2. **What is the bathymetry (area, water depth) of the wetland?**
3. **What is the sediment type and depth of the wetland?**
4. **What species live in the wetland?** A minimum of a two or three season survey, depending on whether the wetland is ephemeral, will be required to identify what is living in the wetland. Specifics of which surveys will be included will be determined at the EIS scoping meeting, but should include reptiles, amphibians, birds, fish, aquatic vegetation, including floating, submerged and emergent macrophytes and algae, and macro invertebrates. The latter have been shown to be useful indicators of wetland ecosystem health and are useful in biomonitoring (Anamaet et al., 2005; Spieles and Mitsch, 2000; USEPA, 2002). Surveys need to be balanced with minimizing disturbance to wildlife. Therefore, it will be important to assume that there is more there than identified by surveys to avoid surprises such as occurred at 905 Sarnia.

5. **What is the quality and character of the wetland waters, and surficial and groundwaters flowing into the wetland?** Water temperature and chemistry measurements are required to determine the pre-existing (baseline or pre-disturbance) conditions of the wetland. Water chemistry should be done following an approved design that captures both spatial and seasonal variability. This should include, at a minimum, pH, specific conductivity, TDS, nutrients (i.e., TP and TN), but could also include major ions, metals, organic pollutants etc.
6. **What is the relative importance of groundwater versus surficial flows to the wetland?** To understand the wetlands hydrologic budget, and particularly whether it is groundwater fed, a hydrogeological report must accompany the other surveys.
7. **What is the function of the wetland?** Assess the function of the wetland in terms of impact on flood management, water purification (removal of fertilizers), drought alleviation and mitigation of climate change.

Checklist 2. Site Selection for Relocation

Wetland site location must be carefully considered and informed by the studies done in section 1 above. In some cases, there must be a net gain to wetland function and the overall Natural Heritage System (Policy 1334 states where a wetland is between 0.1 ha and 0.5 ha, replacement may be considered at less than a one-to-one land area basis if there will be a net gain to wetland function and the overall natural heritage system). The following provides a checklist of critical considerations for site selection:

1. **Site selection is based on the availability of land and on policies that require the restored or created wetland to be in close proximity of a wetland loss** (usually due to migration considerations).
2. **Site selection must consider both present and future land uses**. Site selection is exceedingly important in terms of influencing the structure and function of the wetland and guaranteeing its longevity. It is imperative that once a wetland has been moved for one project, that "relocated" or offset wetland should not then itself become subject of another development project and be relocated again.
3. **Select a site with similar water depth**. The floor of the new wetland should be excavated such that it has varying depths to encourage the growth of various types of vegetation. New vegetation will grow in water depths of 1 metre or less. To achieve the ideal ratio of vegetation and open water, Ducks Unlimited advises that approximately 25 percent of the created wetland area be 1 m or more in depth. Excavating some deeper areas will allow some areas to remain free of vegetation and provide habitat for native fish.
4. **Select a site with a larger catchment and wetland area than the wetland being replaced**. To address the problem that restoration or re-creation projects rarely, if ever, produce an equally biodiverse and functional wetland, multipliers are employed to determine the scope of an offset project. Since wetlands are particularly valuable, the offset multiplier for wetlands is usually higher compared to other areas. *The London Plan* 1402 (3) states that "[replacement ratios greater than the one-for-one land area [are] required to mitigate the impacts of the proposed works" (*The London Plan*, 1402). Given the extent of wetland loss in London and the high ecological value they provide

the suggested multiplier ratio would be 3:1 for the loss or disturbance to a low to medium value wetland; and 4:1 for a high value wetland, particularly one that provided habitat for SAR species. Studies show that larger wetlands recover faster than smaller ones, and that smaller restored or created wetlands often become more isolated. Moreover, their lack of connectivity to larger systems greatly hinders the ability of local biota to restore the wetland to pre-impact functioning (Moreno-Mateos et al., 2012).

5. **Site investigations for the new wetland must include during spring runoff** to better understand water flows, and to calculate a more accurate estimate of the catchment area.
6. **Plan a wetland with an irregular shape.** Ducks Unlimited suggests that the new wetland be irregularly shaped such that it closely resembles a natural wetland (as opposed to a storm pond), providing coves to shelter species.
7. **A topographic survey is recommended to provide more accurate data about surface flow.** Should the survey determine that the site has less than 0.6 m drop, then excavating a basin is advised to ensure adequate surface flows to maintain the wetland.
8. **Test the soil/sediments at the potential site**. Wetlands are characterized by impermeable soils/sediments. Fine-textured soils/sediments -- not sandy or gravelly -- are suitable. Should the soil for the new site not prove suitable, clay soils can be brought in to line the basin so that the wetland can hold water. Although a created wetland may be structurally similar to a natural wetland, its hydrology may differ greatly if the permeability of the substrates is different (Kentula, 2002). Often the soils in created wetlands contain less organic matter than natural wetlands, which may affect plant growth. Using soils from a "donor" wetland or the impacted wetland to help create the new wetland may be able to increase the soil organic matter and provide the nutrients necessary for plant species, microbes and invertebrates (Kentula, 2002). Microbes in the wetland play a crucial role in biogeochemical reactions which cause nutrient cycling and sustain other higher plants and animals (Bodelier and Dedysh, 2013).
9. **The new wetland should be located near a significant woodland or other natural feature (i.e. stream) such that it is not isolated and can be an integral part of the natural landscape.**
10. **Select a site with similar hydrogeology to the original wetland (as identified in 1.2 and 1.5) to ensure similar water chemistry and water quality (as identified in 1.4) to safeguard the relocated species**. Ideally the new wetland site will be located in close proximity to the original site, or when that is not possible within the same watershed.
11. **Site selection will require a hydrogeologic survey of the new site to demonstrate that a wetland can be sustained**. These include inflows and outflows of groundwater and surface water, the resulting water levels and the timing and duration of soil saturation and flooding (Kentula, 2002).
12. **Site selection must ensure that the water quality of the wetland is maintained**. If there are chemical inputs from the surrounding area, these can overwhelm a wetland. Chemicals can alter the productivity and composition of the plant community of the wetland, possibly favouring nuisance species, and they may harm animal species that cannot survive and breed in chemically altered waters. For example, avoid locating a

wetland near roads where de-icing salts are used or near a golf course where fertilizers are used.

Checklist 3. Conditions for development

After the decision to create a new wetland is developed, the location determined, the following elements should be discussed with the proponent and included in the conditions of development (checklist 4 includes many details useful to this section):

1. **Timeline**. Timing is critical and there needs to be an agreed upon timeline with consideration of the development timelines, stabilization period, timing of species transfers (see below for additional information).
2. **An accepted report on baseline conditions**: including any direct sampling required such tadpole counts, "mucking about in the muck for turtles" – (it is also acceptable to assume such wildlife is present so that no in wetland sampling will be required).
3. **Width of buffer and composition of buffer vegetation** (see additional details below).
4. **Transfer protocols for wildlife and plants (terrestrial and aquatic).**
5. **Agreed to indicators of successful relocation.**
6. **Pre-construction requirements.** Development buildout requirements including but not limited to customized erosion and sedimentation controls and monitoring of the site, timing of species transfers (e.g., waiting for aquatic vegetation to be established), avoiding the establishment of invasive species including but not limited to phragmites and goldfish.
7. **Post construction compliance /adaptive monitoring**. This should include, but not be limited to duration, frequency, and reporting.
8. **Amount of any holdbacks or securities**. These are required to ensure successful implementation of the relocation of the wetland.
9. **There should be a requirement that any changes to the timeline or development phasing be subject to approval of the City.**
10. **Other conditions based on the preliminary work noted in previous steps may be required by the City.**

Checklist 4. Planning and Construction of the New Wetland Site

Planning and careful construction is critical to the success of the wetland and should include the following considerations:

1. **The construction of the new wetland site must be undertaken by a person with experience who has the required wetland knowledge base.** Ducks Unlimited may be a useful resource. See https://storymaps.arcgis.com/stories/c6d9fdf598b246dfbb21feca516fa6d4
2. **Considerations during the design phase should be based on the information and knowledge reported in stage 1.**
3. **Relocate the organic salvaged marsh surface (or SMS) from the impacted wetland to the new wetland.** The SMS contains a seed bank of marsh vegetation that could prove immensely beneficial to establishing a healthy and ecologically diverse wetland. SMS provides suitable chemical substrate for wetland seed germination and survival, as well as moist physical substrate (Hunt et al., 1996).

4. **Remove perimeter soil from new wetland site before spreading the excavated soil.** This new site perimeter soil should be removed from the site as it may alter the chemistry of the transferred wetland soil.
5. **Use small and lightweight excavation equipment employed during the project and avoid as much of the perimeter area as possible**; a narrow alleyway to the excavation area will help prevent significant soil compaction.
6. **The newly established wetland should be surrounded by a pollinator habitat and other habitat enhancements (ex. nesting boxes, snakes)**. For example, strategically placing branches or logs in and around the wetland will provide basking areas for frogs, turtles and ducklings.
7. **Plants for the re-created wetland should be native, fast colonizing and drought resistant to account for fluctuations in weather and climate and should closely to resemble those of similar, local wetlands**. Where possible, plants should be transferred from the original wetland to the new location. A variety of submergent and emergent plants should be planted, including a variety of shrubs and trees in the buffer areas to provide habitat for species as well as to ensure that water quality in the wetland is maintained. In the early years, the wetland must be closely monitored to ensure that invasive species are not permitted to colonize the area, particularly *Phragmites*.
8. **The Critical Function Zone (CFZ) is an important factor that should be included in any wetland relocation project**. The CFZ describes non-wetland areas within which biophysical functions and attributes directly related to the wetland occur. This could, for example, be adjacent upland grassland nesting habitat for waterfowl (that use the wetland to raise their broods). The CFZ could also encompass upland nesting habita**t** for turtles that otherwise occupy the wetland, foraging areas for frogs and dragonflies, or nesting habitat for birds that straddle the wetland-upland ecozone (e.g. Yellow Warbler). A groundwater recharge area that is important for the function of a wetland but located in the adjacent lands could also be considered part of the CFZ.
9. **Relocated wetlands require buffers** -- undisturbed vegetation adjacent to a wetland – to ensure a healthy wetland (Ducks Unlimited Canada (B)). Buffers provide habitat, food, corridors and breeding areas for species while also reducing the harmful effects of nearby development or activities on wetlands. A buffer of 20-50 meters beyond the CFZ will decrease sedimentation and improve water quality, while a buffer that extends beyond 50 meters is best for wildlife and water quality (Ducks Unlimited Canada (B)). The minimum buffer width will depend on the size of the wetland, the purpose of the buffer, the land use of the surround area, the soil type (less permeable soil will require larger buffers) and slope (Ducks Unlimited Canada (B)). For instance, a smaller, deeper, excavated wetland with minimal wildlife or hydrological value could require a buffer of only ten metres, while a wetland where the slope of the land is greater than 5 percent would require a buffer greater than 20 meters (Ducks Unlimited Canada, (B)). All these factors should be considered together when determining the buffer size. The buffer should consist of diverse, multi-layered vegetation, incorporating trees and shrubs. In all instances of created wetlands and their associated buffers, the vegetated buffer areas must be managed and maintained over the long-term to ensure that they are providing the maximum benefit to the wetland (Ducks Unlimited Canada (B)).

10. **Species transfers must be carefully planned and appropriate timelines developed to ensure that relocation of species occurs after the pond has stabilized and is occurring in a "safe" season to avoid interference of breeding species.** Species transfer should not occur until a year has passed since the creation of the new wetland to allow the environment to settle and to ensure that the water quality and nutrients can safely support wildlife. The planning phase should also consider timelines for species moves. For example, as learned from Sarnia 905, establishing appropriate aquatic vegetation ahead of the introduction of other species is critical. Monitoring of the site should confirm ideal conditions before any species transfers take place.
11. **Species transfer should occur slowly.** Species transfer should not occur during a single day or even week, but should be carried out over an extended period of time - and slowly - to ensure minimal negative impact and to increase the possibility of capturing more individuals from the original wetland site. Options for manual transfer for species include baited minnow trapping, dip netting, seine netting and hand picking. Once the individuals are captured, they are transferred to the new wetland in buckets. If insufficient resources are available to do manual transfers of species, other options are possible. For instance, if the new wetland site is sufficiently close to the old one, a trench could be dug from one site to the other to allow species to transfer naturally. Alternatively, the new wetland location could be situated near a stream or other water source to allow species to populate the created wetland on their own.
12. **Timing of the transfer is crucial**. The breeding time of certain species (i.e. the Western Chorus frog) as well as the schedules of burrowing animals (i.e. crayfish) must be accounted for throughout the process.
13. **Wetland relocation plans need to be carefully coordinated with development plans.** This will have to be planned and coordinated with the development construction plans. For example, fences, pathways and landscaping that might impact the new wetland must be completed efficiently to ensure wetland success.
14. **Appropriate signage is in place at the start of wetland construction to prevent invasive species.** Such signage should include education and by-law enforcement with respect to the release of exotic species into wetlands.

Checklist 5. Monitoring the New Wetland Site

A recent review done to inform Ontario policy on wetland offsetting, recognized that relocated wetlands can take up to 30 years to fully establish (Maron et al., 2012). With this in mind, long-term monitoring is a critical part of wetland relocation. All wetland relocations must include a monitoring plan which are required to be included in the conditions of development. This recommendation is critical given the lack of evidence that such altered and/or created wetlands recover full functionality and the long lags associated with wetlands' maturation. Before the monitoring process begins, developers and the City must clearly define what a "successful" relocation or restoration would entail for each *individual* project and outline a clear set of objectives for inclusion in the conditions of development. For example, under Policy 1334, the City may consider the replacement of wetlands rather than in situ protection where the features and functions of the wetland may be provided elsewhere **and would enhance or restore** (highlighting ed.) the Natural Heritage System.

Monitoring plans should be based on:

1. **Defining what a "successful" relocation or restoration would entail for each *individual* project and outline a clear set of objectives.** For instance, even if a site has revegetated, it could be functionally inadequate, and/or the plant composition may differ from the initial targets.
2. **Establishing methods to employ to determine the success of wildlife transfer and establishment.** Monitoring plans include measures of success and failure, and accountability and consequences for failed wetlands based on baseline conditions identified in Section 1.
3. **Monitoring plans that include surveys and measurements identical to those done in section 1 should be done at a minimum 1, 3 and 5 years after the establishment of the wetland and compared to the baseline conditions determined in section 1.**
4. **Monitoring plans that include remediation plans.** For example, if monitoring indicates that certain populations are in decline, additional individuals can be transferred into the compensation wetland (e.g. import tadpoles or broadcast more native seeds).
5. **Monitoring plans that include a rapid detection and rapid response** for problems such as invasive goldfish. Rapid detection may provide an opportunity for citizen science.
6. **Monitoring plans that consider nutrient controls.** For example, yard fertilizers could contribute unwanted nutrient loads to wetlands.

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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

April 13, 2022 2790

Scott Durnin
Associate Vice President, Facilities Management
Huron University College
1349 Western Road
London ON N6G 1H3

RE: 1349 Western Road, London
Focused Environmental Impact Study

Natural Resource Solutions Inc. (NRSI) was retained in February 2022 by Huron University College (hereafter 'Huron University') to complete a focused Environmental Impact Study (EIS) for a proposed parking lot development on the subject lands, located at 1349 Western Road, in the City of London, Ontario.

The subject lands (Map 1) are approximately 4.5ha in area, and are located on the west side of Western Road within the Huron University campus in London, Ontario. The subject lands are bounded to the east by Huron University Southwest Residence, to the south by Springett Parking Lot and a pedestrian walkway (Burnlea Walk), and to the west by the Huron University Wellness Centre. On the north boundary, the subject lands are adjacent to the Medway Valley Heritage Forest Environmentally Significant Area (ESA) and Significant Valleylands associated with Medway Creek, as per Map 5 of the City of London Official Plan (2021a). The subject lands are predominantly manicured lawn, parking lot, various Huron University buildings, and a tennis court, with trees interspersed along Burnlea Walk.

This EIS has been developed in accordance with the City of London's Environmental Management Guidelines (EMG) (City of London 2021b), and in agreement with the approved Environmental Study Scoping Checklist (ESSC) as determined in the meeting held with agency staff on March 31, 2022. For the purposes of this report, the term 'subject lands' refers to the property of interest owned by Huron University at 1349 Western Road, including the area of proposed development. The term "study area" refers to both the subject lands as well as lands within approximately 1km of the subject lands.

Through scoping meetings with the City of London, Huron University agreed to adhere to the recommended minimum buffers to Significant Woodlands (30m) in order to follow the 'Focused EIS' process, which waives the need for the completion of detailed field surveys and evaluation of significance.

As such, this Focused EIS includes a summary of the background review and scoping process, results of required field surveys, an assessment of potential environmental impacts and necessary mitigation/enhancement measures, as well as monitoring.

Project Scoping

Background information on the natural environmental features within the study area was gathered from the following sources:

- Upper Thames River Conservation Authority (UTRCA)
- Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF), Aylmer District
- City of London
- Natural Heritage Information Centre (NHIC) database (NDMNRF 2021a)
- Middlesex Natural Heritage System Study (UTRCA 2014)
- Medway Creek Watershed Report Card (UTRCA 2012)
- The London Plan (City of London 2021a)
- Medway Creek Community-Based Enhancement Strategy (Friends of Medway Creek and UTRCA 2009)
- Conservation Master Plan Phase II - Medway Valley Heritage Forest ESA (South) (Dillon Consulting 2018)
- Fisheries and Oceans Canada's Aquatic Species at Risk Maps (DFO 2021)
- Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada et al. 2008)
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2019)
- Atlas of the Mammals of Ontario (Dobbyn 1994)
- Ontario Butterfly Atlas (MacNaughton et al. 2018)
- Ontario Odonata Atlas (NDMNRF 2021c)

Species at Risk and Species of Conservation Concern

Wildlife species lists were compiled from background resources to provide information on species reported from the vicinity of the study area using the various atlases listed above. The atlases provide data based on 10x10km survey squares; information on species from the square that overlaps the study area was compiled (square 17MH77).
Based on these species lists, a number of Species at Risk (SAR) and Species of Conservation Concern (SCC) were identified as having records from within the vicinity of the study area. SAR are those listed on the Species at Risk in Ontario List (MECP 2021). These include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Species listed by COSSARO as Endangered or Threatened are protected by the *Endangered Species Act* (ESA), 2007, which includes protection to their habitat, and are referred to herein as "regulated SAR".

Species considered Special Concern are included in the definition of SCC, which includes the following:

- species designated provincially as Special Concern,
- species that have been assigned a conservation status (S-Rank) of S1 to S3 or SH by the NHIC, and
- species that are designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC), but not provincially by the COSSARO. If these species are listed under the *Species at Risk Act* (SARA) under Schedule 1 they are protected by the federal Act, but not provincially by the ESA.

A number of these species have the potential to occur within the subject lands, as shown in Appendix I, although only candidate habitat for bat species is present within the area of proposed development.

Significant Wildlife Habitat
A screening for the presence of Significant Wildlife Habitat (SWH) was completed for the study area. The Significant Wildlife Habitat Technical Guide (SWHTG) is a guideline document that outlines the types of habitats that the NDMNRF considers significant in Ontario, as well as criteria to identify these habitats (OMNR 2000, MNRF 2015). The SWHTG groups SWH into five broad categories: seasonal concentration areas, rare vegetation communities, specialized wildlife habitat, habitats of Species of Conservation Concern, and animal movement corridors. The SWH screening table is provided in Appendix II. A number of habitats have the potential to occur within the study area, but none overlap with the proposed development footprint.

Environmental Study Scoping Checklist
Based on the approach described above, the scope of the EIS was discussed during an initial consultation meeting held on February 22, 2022 between the proponent team, the City of London staff, and the City's Environmental and Ecological Planning Advisory Committee (EEPAC). The meeting was held to discuss the scope of the required ecological surveys, and a preliminary ESSC was completed. As identified above, Huron University agreed to adhere to a Focused EIS process, and a full ESSC meeting was completed on March 31, 2022. The final ESSC is provided in Appendix III, and was used to guide the scope of work provided in this report.

Field Methods and Results

As per the approved ESSC, field surveys were restricted to the completion of a woodland dripline assessment to establish the location of minimum buffers, as well as an assessment of potential habitat for SAR bats in areas where tree removal is proposed (along Burnlea Walk). In addition, a general review of SAR/SWH in the immediate vicinity of the development footprint was undertaken and any species observed during the site visit were recorded.
On April 6, 2022 NRSI biologists undertook the aforementioned field surveys, including the woodland dripline assessment, which forms the basis for the 30m Significant Woodland buffer (Map 2).

The Significant Woodland adjacent to the proposed development area is comprised of a canopy dominated by Sugar Maple (*Acer saccharum*) interspersed with occasional Black Cherry (*Prunus serotina*), Eastern Cottonwood (*Populus deltoides*), American Beech (*Fagus grandifolia*), Hackberry (*Celtis occidentalis*), Bitternut Hickory (*Carya cordiformis*), Bur Oak (*Quercus macrocarpa*), and Black Walnut (*Juglans nigra*) among other species. The understorey is largely dominated by Common Buckthorn (*Rhamnus cathartica*) and the ground cover also contains other invasive species including Common Privet (*Ligustrum vulgare*).

To address potential bat habitat presence within areas of tree removal, NRSI biologists undertook an assessment of suitable tree habitat features, including snags, cavities, and exfoliating bark in accordance with the NDMNRF protocols (OMNR 2011, MNRF 2017). The bat habitat assessment was completed during leaf-off conditions. NRSI biologists identified two candidate trees with potential bat roosting habitat; the locations of these trees are provided on Map 2. NRSI contacted the MECP to receive guidance on addressing potential habitat for bat SAR protected under the Endangered Species Act (2007). If the trees are to be removed during the bat active season, i.e., between April 1 and September 31, NRSI has proposed the completion of bat exit surveys and acoustic monitoring 24hrs prior to removal of these trees in order to confirm no negative impacts to these species or their habitat. If the trees can be removed outside of this timeframe, it is likely that no additional surveys are required.

During the site visit, all observations of wildlife were documented. This included actual direct observations of individuals, as well as signs of wildlife presence (i.e., tracks, scats, dens, nests etc.). All incidental species observations during field surveys, as well as species identified during initial background review of natural heritage information, have been included in species lists provided in Appendix IV-XI.

The adjacent Significant Woodlands provide a number of potential habitats for SAR as well as SWH as described in Appendices I and II, however, only habitat for bat SAR was found to be present within the proposed development area.

Proposed Undertaking and Impact Assessment

Proposed Undertaking

The proposed development is to include the expansion of existing parking areas northwards in order to facilitate and support the future construction of an additional residence in the current location of the existing 'Pay 'n Display Parking & Tour Parking' southeast of the existing 'Southwest Residence'. The proposed parking expansion will provide additional parkings spots in order to offset what is lost by the placement of the proposed residence. The existing tennis court which straddles the 30m buffer will be removed as part of this work. Stormwater management for the proposed parking lot is anticipated to be tied into the existing outlets and will be further assessed as part of the anticipated EIS for the new residence.

Net Effects Table

NRSI has prepared a list of potential impacts associated with the proposed development of the subject lands. These impacts, along with possible avoidance, mitigation, and/or compensation measures, have been summarized in a Net Effects Table (Table 1), as per the requirements of the City of London's EMG (City of London 2021b).

Table 1. Net Effects Table for 1349 Western Road Focused EIS

SOURCE OF IMPACT	POTENTIAL AREAS AFFECTED & POTENTIAL EFFECTS	AVOIDANCE, MITIGATION, COMPENSATION	NET EFFECTS & RATIONALE
1.0 Existing Impacts			
1.1 Lawn under Woodland Dripline	Manicured lawn - Prevention of seed dispersal from woodland edge. Prevention of establishment of native vegetation communities in buffers.	Enhancement plantings within the 30m buffer to complement the existing woodland community associated with Medway Creek ESA.	(+) NET POSITIVE EFFECT Implementation of buffers and enhancement plantings will provide greatly enhanced vegetation community and wildlife habitat.
1.2 Invasive species within woodland	Woodland - Buckthorn is pervasive through the understorey of the woodland associated with the ESA. Suppression of native seed recruitment for trees and shrubs within the understorey.	Monitoring of enhancement plantings within 30m buffer to ensure successful establishment. If required, active removal of invasive plant species to allow for greater establishment (as determined during post-construction monitoring). Native plantings impacted due to invasive encroachment will be replaced during the 2-year warranty period.	NO NET EFFECT No removals of invasive species within the woodland are currently planned.
2.0 Direct Impacts			
2.1 Tree removal	Burnlea Walk - Removal of approximately 12 large trees from the walkway that will result in reduction in canopy	Implement Tree Preservation Plan (TPP) to identify individual trees to be removed and retained as well as necessary compensation, in accordance with the City of London's tree bylaw (Bylaw C.P. 1555-252).	(-) NET NEGATIVE IMPACT (SHORT-TERM) (+) NET POSITIVE EFFECT (MEDIUM/LONG-TERM)

	cover, carbon sequestration, some habitat for wildlife (nesting birds, insects, small mammals, possibly bats).	Establish Tree Protection Fencing prior to construction activities, at minimum of the dripline +1m for any isolated trees to be retained. Enhancement planting of native tree and shrub plant species within the 30m buffer, as well as a native seed mix. Bird nest searches for any vegetation clearing during the primary nesting period (April 1-August 31). Bat acoustic monitoring of any trees with candidate bat habitat proposed for removal during the bat active period (April 1-September 30).	Compensation planting will provide greatly enhanced habitat in terms of tree cover and wildlife habitat following maturation.
2.2 Removal of Candidate Bat Trees	Burnlea Walk – Removal of two trees identified as candidate bat cavity habitat, resulting in loss of candidate bat habitat.	Prior to tree removal within the bat active season (April 1 - September 30), exit surveys and acoustic monitoring to be undertaken to confirm absence of bats. MECP has been contacted for input on additional mitigation measures.	<u>NO NET EFFECT</u> Monitoring of trees prior to removal to ensure no bat usage.
2.3 Natural Feature	Woodland edge – Damage to branches or soil compaction of roots	No encroachment within the established 30m Significant Woodland Buffer. Fence off 30m buffer prior to any site works. Post-construction monitoring of natural features on subject lands to ensure no lasting damage caused by construction.	<u>NO NET EFFECT</u> Potential impact to natural features on site can be mitigated or avoided with proper mitigation measures.

3.0 Indirect Impacts			
3.1 Increase in impervious surfaces	Manicured lawn, Woodland – Potential reduction in groundwater infiltration and increased runoff on subject lands.	Stormwater to be reviewed as part of a larger drainage assessment associated with the anticipated EIS for the proposed residence development. In general, it is anticipated that drainage will be tied into existing outlets.	<u>NO NET EFFECT</u> Potential impacts to runoff, infiltration can be mitigated with proper management measures.
3.2 Wildlife movement	Woodland – Potential for wildlife movement across subject lands and the adjacent ESA to be disrupted by construction activities.	Limit construction to daylight hours (approximately 7am-7pm). No encroachment within the established 30m Significant Woodland Buffer.	<u>NO NET EFFECT</u> Potential impacts to wildlife movement can be mitigated with timing and spatial restrictions to construction. Developed nature of subject lands already precludes much wildlife movement across the site.
3.3 Sediment erosion	Woodland – Erosion of exposed soil can cause sediment-laden surface runoff, impairing water quality of enhancement plantings and adjacent ESA.	Grading or other soil disturbing events should be timed outside of seasonally wet periods and high precipitation events (20mm in 24hrs). Erosion and sediment control fence is to be installed at the limit of the 30m Significant Woodland buffer prior to the start of construction.	<u>NO NET EFFECT</u> Erosion impacts can be mitigated or avoided with proper management measures.

3.4 Lighting	Woodland – Lighting from construction activities may disrupt wildlife movement and behaviour.	Any lighting equipment associated with construction activities should be turned off following cessation of daily construction activities. Lighting should be turned away from adjacent natural features so as to prevent 'lightwash'.	NO NET EFFECT Lighting impacts can be mitigated or avoided with proper management measures.
3.5 Noise disturbance	Woodland – Noise from construction activities may disrupt wildlife movement.	Noise impacts can be mitigated by restricting daily timing of construction activities to between 7:00 am and 7:00 pm.	NO NET EFFECT Noise impacts can be mitigated or avoided with proper management measures.
3.6 Dust and particulate	Woodland – Dust and particulate generated by construction activities can reduce vegetation health and disrupt wildlife.	Moistening areas of bare, dry soil with water as needed during construction activities to reduce the amount of dust produced.	NO NET EFFECT Particulate impacts can be mitigated or avoided with proper management measures.
3.7 Construction equipment maintenance	Woodland – Contaminant spills caused by washing, refueling and/or servicing construction machinery.	Construction equipment storage will be maintained off of subject lands. Maintenance to construction equipment will be restricted to outside of the buffer areas (30m away from the Significant Woodland edge). Follow the City of London's endorsed Clean Equipment Protocol (Halloran et al. 2013).	NO NET EFFECT Potential negative impacts by construction maintenance can be mitigated with proper training and protocols.

4.0 Induced Impacts			
4.1 Human disturbance	Woodland – Disturbance to the buffer and associated native plantings, disruption of wildlife movement.	Dense plantings within encroachment buffer should dissuade human traffic across area. If human disturbance continues within buffers (as determined by post-construction monitoring), deterrents such as temporary fencing or notice signs may be required.	<u>NO NET EFFECT</u> Potential impacts by human disturbance can be mitigated with proper deterrents and information.

Environmental Management Plan

NRSI has prepared an Environmental Management Plan (EMP) to address the potential impacts of the proposed development of the subject lands identified following field surveys. These recommendations are intended to mitigate and/or compensate for potential detrimental effects to the Significant Woodland, ESA, and other natural heritage features.

Enhancement Buffer

A 30m ecological buffer will be maintained between the proposed development and the Medway Creek Heritage Forest ESA woodland along the north edge of the subject lands.

The ecological buffer will be enhanced through plantings of native tree and shrub species following construction. Any areas within the 30m buffer that are disturbed during installation should be seeded with a native meadow seed mixture. However, broadscale tilling/removal of grass from the 30m buffer area is not recommended since tree root zones may be impacted, invasive species could be introduced by machinery, and the current layer of grass is acting as a temporary barrier to establishment of invasive species such as buckthorn from the adjacent ESA area.

The existing tennis court is to be removed and the area of disturbed soil re-seeded with a native meadow seed mix and additional tree/shrub plantings. It is recommended that this work be undertaken prior to other tree/shrub enhancement plantings to avoid soil compaction and potential impacts of equipment.

Plantings will be established within the ecological buffer to provide a buffer of vegetative cover between the subject lands and the ESA, with the goal of providing enhanced wildlife habitat and movement while simultaneously discouraging human foot traffic in the area. A list of recommended native plants for the ecological buffer can be found in Table 2. These species were found to be abundant in the adjacent Significant Woodland and will complement this feature well.

Table 2. Recommended Native Plant Species for Enhancement Planting

Species	Common Name
Acer saccharum	Sugar Maple
Celtis occidentalis	Hackberry
Cornus alternifolia	Alternate-leaf Dogwood
Prunus serotina	Black Cherry
Prunus virginiana	Choke Cherry
Quercus rubra	Red Oak
Tilia americana	American Basswood

Monitoring

The proposed monitoring program is to be established in order to monitor the effectiveness of the proposed mitigation and enhancement measures both during and following construction. Contingency measures have been provided where possible, with the understanding that this site will be adaptively managed to ensure the success of proposed mitigation and enhancement measures.

During Construction:

- Erosion and sediment fence monitoring to ensure soil disturbance from construction is mitigated, and apply sediment control measures if runoff enters natural areas. To be undertaken during periods of thaw and high precipitation events (≥20mm in 24hrs);
- Tree Protection Fence monitoring to ensure no encroachment. Pruning or trimming of trees damaged during construction activities to prevent further damage and stimulate recovery will be conducted as needed;
- Tree and vegetation removal to avoid the core bird nesting period (April 1- August 31) where possible. If this is not possible, avian nest searches are to be undertaken prior to any cutting or grubbing or vegetation (CWS 2013). Similarly, if tree removal of bat candidate trees does not respect the bat active period (April 1- September 30), then monitoring of these trees is to be undertaken prior to tree cutting;

Post-Construction:

- Monitoring of post-construction impacts and the success of buffer enhancement plantings are to be undertaken at the end of the 2-year warranty period and will include the following:
    - Monitoring of the success of planted native tree and shrub species within the 30m buffer. During monitoring events, the success of earlier plantings will be assessed to ensure establishment of native stock;
    - Review of invasive species impacts. During the monitoring at the end of the 2-year period, biologists will assess whether invasive species such as Common Buckthorn are becoming established within the buffer areas and whether this is impacting the planted stock. It is recommended that biologists carry a tree wrench to remove any small buckthorn shrubs that are present within these areas to prevent future spread. Depending on the degree of impacts, biologists will recommend follow-up action that could include herbicide application (Garlon Ready-to-use) or other treatment of Buckthorn; and
    - Monitoring for human disturbance. Should human foot traffic, ad hoc trails, dumping of waste/refuse be noticed within the buffer area, mitigation measures such as signage or temporary fencing should be considered until native vegetation establishes.

Summary

The proposed parking lot construction at 1349 Western Road will be located entirely outside of the established Significant Woodland buffer (30m). This Focused EIS provides an assessment of potential impacts from the construction and long-term presence of the parking lot at this site along with mitigation and enhancement measures to ensure that the adjacent Significant Woodland associated with Medway Valley ESA is not impacted by the proposed undertaking. The post-construction monitoring plan has been designed to monitor the effectiveness of these measures, including the establishment of buffer enhancement plantings. Providing the measures detailed within this Focused EIS are adhered to, no negative impacts are anticipated as a result of the proposed undertaking, and indeed, enhanced habitat will be provided for wildlife in the medium to long-term as buffer areas begin to establish.

Should you have any questions or comments regarding this Focused EIS, please do not hesitate to contact me.

Sincerely,

Natural Resource Solutions Inc.

Nathan Miller, M.Sc., P.Biol
Senior Biologist

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Maps

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Map 1

1349 Western Road

Subject Lands

Legend

Medway Creek Heritage ESA

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2790
Date: April 13, 2022

NAD83 - UTM Zone 17
Size: 11x17"
1:1,000

0 20 40 60 Metres

N

Map 2

1349 Western Road
Focused EIS

Natural Heritage Features and Parking Lot Development

Legend

- Candidate Bat SAR Tree (BAT)
- Significant Woodland Buffer (30m)
- Woodland Dripline (NRSI Surveyed April 6, 2022)

Proposed Development

- Parking Lot Development

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2790 Date: April 13, 2022	NAD83 - UTM Zone 17 Size: 11x17" **1:1,000**

0 20 40 60 Metres

N

477000 477100 477200

4761800 4761700 4761600

Medway Creek

Medway Creek Heritage Forest ESA

West Wing

Hellmuth hall Residence

Southwest Residence

BURNLEA WAY

BAT-002

BAT-001

Young House

Huron Permit Parking

Pay'n Display Parking & Tour Parking

Springett Parking Lot

Path: X:\2790_1349WesternRoad\NRSI_2790_Map2_NaturalHeritageFeatures_1K_2022_04_13_JX.mxd

Appendix I
Species at Risk and Species of Conservation Concern Habitat Assessment

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Observed by NRSI	Habitat Preference4,5	Suitable Habitats within Subject Property	Rationale
Birds										
Progne subis	Purple Martin	S3B					No	Open, trees areas such as farmland, parks, yards, marshes; usually near large bodies of water; colonial; nests in tree cavities, cliff ledges; most common in nest boxes; requires open space for foraging; prefers trees >15 cm dbh.	**Yes**	Open treed area with cultured meadow present within the subject lands
Chlidonias niger	Black Tern	S3B, S4M	SC	NAR	NS	No schedule	No	Large cattail marshes; marshy edges of rivers, lakes or ponds; wet open fens; wet meadows. Returns to same area to nest each year. Must have areas of shallow water (0.5 to 1m deep) and area of open water near nests. Generally found in marshes >20 ha in size.	No	Suitable habitat is not present within the subject lands
Chaetura pelagica	Chimney Swift	S3B	THR	T	T	Schedule 1	No	Commonly found in urban areas near buildings; nests in chimneys, hollow trees,and crevices of rock cliffs. Feeds over open water.	No	Suitable habitat is not present within the subject lands
Chordeiles minor	Common Nighthawk	S4B	SC	SC	T	Schedule 1	No	Open ground; clearings in dense forests (including burns and logged areas); rock barrens; peat bogs; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No	Suitable habitat is not present within the subject lands
Colinus virginianus	Northern Bobwhite	S1?B	END	E	E	Schedule 1	No	Grassland, prairie or hay fields with woody cover in form of thickets, tangles of vines, shrubs; fence rows or woodland edges; cropland growing corn, soybeans or small grains and clover or grass; well-drained sandy or loamy soil; pond edges.	No	Suitable habitat is not present within the subject lands
Contopus virens	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	No	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in intermediate-age mature forest stands with little understory vegetation.	**Yes**	Wooded areas present within the subject lands
Dolichonyx oryzivorus	Bobolink	S4B	THR	T	T	Schedule 1	No	Large (>10 ha), open expansive grasslands, pastures, hayfields, meadows or fallow fields with dense ground cover. Occassionally nest in large (>50 ha) fields of winter wheat and rye in southwestern Ontario.	No	Suitable habitat is not present within the subject lands
Hylocichla mustelina	Wood Thrush	S4B	SC	T	T	Schedule 1	No	Carolinian and Great Lakes-St. Lawrence forest zones. Undisturbed moist mature deciduous or mixed forest with deciduous sapling growth. Near pond or swamp. Must have some trees higher than 12 m.	No	Suitable habitat is not present within the subject lands
Sturnella magna	Eastern Meadowlark	S4B, S3N	THR	T	T	Schedule 1	No	Open pastures, hayfields, grasslands or grassy meadows with elevated singing perches (small trees, shrubs or fence posts). Also weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >10 ha, but will sometimes use smaller tracts.	No	Suitable habitat is not present within the subject lands
Reptiles and Amphibians										
Apalone spinifera	Eastern Spiny Softshell	S2	END	E	E	Schedule 1	No	Large rivers and lakes, as well as seasonally in streams, creeks, marshes, ponds, and oxbows, especially those near large rivers or lakes. Key habitat requirements: open areas for basking with basking structures, open sand or gravel nesting areas, shallow muddy or sandy substrates to bury in, deep pools for hibernation. These habitats may be spread over a large area as long as the turtles can travel between them.	No	Suitable habitat is not present within the subject lands
Chelydra serpentina	Snapping Turtle	S4	SC	SC	SC	Schedule 1	No	Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for basking, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for hibernation.	No	Suitable habitat is not present within the subject lands
Graptemys geographica	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	No	Large bodies of water such as rivers and lakes with soft bottoms, aquatic vegetation, abundant mollusc prey, and basking structures such as logs or rocks. Nesting occurrs in open areas with soft substrates such as sand or gravel. Hibernate on the bottom of deep areas of lakes or deep, slow-moving sections of rivers.	No	Suitable habitat is not present within the subject lands
Heterodon platirhinos	Eastern Hog-nosed Snake	S3	THR	T	T	Schedule 1	No	Open habitats, such as open woods, brushland or forest edges, with well-drained loose or sandy soils, well-drained substrates. Specializes in hunting and eating toads; occurs in habitats near or adjacent to wetland habitats where toads are present. Rocks, logs, stumps, etc. are used for shelter. Use snout to dig nests as well as to dig burrows for overwintering.	No	Suitable habitat is not present within the subject lands
Lampropeltis triangulum	Milksnake	S4	NAR	SC	SC	Schedule 1	No	Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites.	No	Suitable habitat is not present within the subject lands
Regina septemvittata	Queensnake	S2	END	E	E	Schedule 1	No	Rivers, streams and lakes with clear water, rocky or gravel bottoms, and an abundance of crayfish. Also in marsh and wetland habitats. Rarely found more than 5m from a shoreline. Requires shelter and basking objects both in the water and on shore such as rocks, logs, and vegetation. Hibernation sites include crevices or fissures in bedrock, small mammal burrows, openings along tree roots, or abutments of old bridges.	No	Suitable habitat is not present within the subject lands
Mammals										
Myotis lucifugus	Little Brown Myotis	S3	END	E	E	Schedule 1	No	Uses caves, quarries, tunnels, hollow trees or buildings for roosting. Winters in humid caves. Maternity sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges.	**Yes**	Two cavity trees along the southern edge f the subjhect lands may provide suitable habitat for SAR bat species
Butterflies										
Asterocampa celtis	Hackberry Emperor	S3					No	Found along wooded streams, forest glades and river edges, wooded roadsides, towns where hackberries, their exclusive caterpillar host plants, are common but it also may be found in upland areas.	**Yes**	Wooded areas with hackberry plants present within the subject lands
Asterocampa clyton	Tawny Emperor	S3					No	Found in densely wooded riparian areas, dry woods, open woods, cities, fencerows, parks where hackberries, their exclusive caterpillar host plants, are common.	No	Suitable habitat is not present within the subject lands
Danaus plexippus	Monarch	S2N,S4B	SC	E	SC	Schedule 1	No	Adults found in a diversity of habitats with a variety of wildflowers. Caterpillars are confined to meadows and open areas where milkweeds grow (larval food plants).	Possibly	Potentially suitable habitat is present within the subject lands
Erynnis brizo	Sleepy Duskywing	S1					No	Found along dry woodland edges and openings where their host plants, Scrub oak (Quercus ilicifolia) and other shrubby oaks occur.	Possibly	Potentially suitable habitat is present within the subject lands
Fish										
Lepomis peltastes pop. 2	Northern Sunfish (Great Lakes - Upper S	S3	SC	SC	SC	Schedule 1	No	Found in shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses with clear water, and sand or gravel substrate.	No	Suitable habitat is not present within the subject lands
Moxostoma duquesnei	Black Redhorse	S2	THR	T	T	Schedule 1	No	Pools and riffle areas of medium-sized rivers and streams, usually less than two metres deep. Usually few aquatic plants, a moderate to fast current, and a sandy or gravel bottom. In the spring, adults migrate to breeding habitat where eggs are laid on gravel in fast water.	No	Suitable habitat is not present within the subject lands
Notropis photogenis	Silver Shiner	S2S3	THR	T	T	Schedule 1	No	Moderate to large size streams with swift currents, free of weeds, with clean gravel or boulder bottoms. Gravel riffles needed for spawning (June-July).	No	Suitable habitat is not present within the subject lands

Appendix II
Significant Wildlife Habitat Assessment

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 7. Significant Wildlife Habitat Screening for 1349 Western Road

Significant Wildlife Habitat Type	Suitable Habitat Present Within Study Area?*	Suitable Habitat Present Within Subject Lands?*	Assessment Details
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	No	No	Flooded fields not present within Study Area
Waterfowl Stopover and Staging Areas (Aquatic)	No	No	Ponds, marshes, lakes, bays, coastal inlets, not present within Study Area. Medway Creek is located immediately adjacent, but is of insufficient size/composition to support large numbers of staging waterfowl.
Shorebird Migratory Stopover Area	No	No	Shorebird Stopover habitat in southern Ontario is largely associated with the Great Lakes and large wetlands or rivers. The creek is heavily forested and does not contain suitable shorebird stopover habitat.
Raptor Wintering Area	No	No	Insufficient upland meadow habitat in close proximity to woodlands.
Bat Hibernacula	No	No	Caves, mine shafts, underground foundations and Karsts not present within Study Area.
Bat Maternity Colonies	Possible	No	Woodland habitat within the Medway Valley ESA may provide suitable habitat for this SWH.
Turtle Wintering Area	Possible	No	The creek within Study Area may be deep enough to serve as a turtle wintering area.
Reptile Hibernaculum	Possible	No	Burrows, rock crevices and other natural locations suitable as reptile hibernaculum may be present within the Study Area.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	No	No	Areas with exposed soil banks, undisturbed or naturally eroding, are likely not present within the Study Area.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	No	No	Wetlands, lakes, islands, and peninsulas not present within the Study Area.
Colonially - Nesting Bird Breeding Habitat (Ground)	No	No	Rocky island or peninsula (natural or artificial) within proximity of a lake or large river not present withing ht Study Area.
Migratory Butterfly Stopover Areas	No	No	Study Area not within 5km of Lake Erie.
Landbird Migratory Stopover Areas	No	No	Study Area not within 5km of Lake Erie.
Deer Winter Congregation Areas	No	No	Woodlands within Study Area of insufficient size and composition.
Rare Vegetation Communities			
Cliff and Talus Slopes	No	No	Cliffs and Talus Slopes not present within Study Area.
Sand Barrens	No	No	A sand barren area not present within Study Area.
Alvar	No	No	Alvar not present within Study Area.
Old Growth Forest	Possible	No	Woodlands which are part of the Medway Creek ESA are within the Study Area and may meet the criteria for 'Old Growth'.

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 7. Significant Wildlife Habitat Screening for 1349 Western Road

Significant Wildlife Habitat Type	Suitable Habitat Present Within Study Area?*	Suitable Habitat Present Within Subject Lands?*	Assessment Details
Tallgrass Prairie	No	No	Tallgrass Prairies not present within Study Area.
Savannah	No	No	Savannah Tallgrass Prairies not present within Study Area.
Other Rare Vegetation Communities	Possible	No	Possible rare vegetation communities in Medway Creek ESA within Study Area.
Specialized Wildlife Habitat			
Waterfowl Nesting Area	No	No	Wetlands and waterfowl nesting area likely not present within Study Area.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Possible	No	Potential for Osprey/ Bald Eagle nest within Study Area.
Woodland Raptor Nesting Habitat	No	No	Woodlands which are part of the Medway Creek ESA are within the Study Area, but do not contain sufficient interior forest habitat for raptor nesting.
Turtle Nesting Areas	Possible	No	Possible habitat for Midland Painted Turtle and Snapping Turtle within Study Area.
Seeps and Springs	Possible	No	Possibility for Seeps/Springs within Study Area.
Amphibian Breeding Habitat (Woodland)	No	No	No wetlands or standing water within the Study Area to support breeding amphibians.
Amphibian Breeding Habitat (Wetland)	No	No	No wetlands or standing water within the Study Area to support breeding amphibians.
Woodland Area-Sensitive Bird Breeding Habitat	No	No	No interior woodland habitat within the Study Area.
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	No	No	Wetland habitat not present within Study Area.
Open Country Bird Breeding Habitat	No	No	Large Grassland Area >30ha not present within Study Area.
Shrub/Early Successional Bird Breeding Habitat	No	No	Large natural field areas succeeding to shrub and thicket habitats >10ha not present within Study Area.
Terrestrial Crayfish	No	No	Wet meadow and edges of shallow marshes not present within Study Area.
Special Concern and Rare Wildlife Species	Possible	No	Potential for Special Concern and Provincially Rare (S1-S3, SH) plant and animal species within Study Area.
Animal Movement Corridors			
Amphibian Movement Corridors	No	No	No wetlands or standing water within the Study Area to support breeding amphibians.
Exceptions			

Significant Wildlife Habitat Assessment: Ecoregion 7E.

Table 7. Significant Wildlife Habitat Screening for 1349 Western Road

Significant Wildlife Habitat Type	Suitable Habitat Present Within Study Area?*	Suitable Habitat Present Within Subject Lands?*	Assessment Details
Bat Migratory Stopover Area	No	No	Long distance migratory bat stopover area not present within Study Area

*'Possible' SWH means that the SWH has the potential to occur but Candidate habitats have not been identified, 'Candidate' SWH means that the habitat is present but has not been studied to determine significance, 'Confirmed' SWH means that the SWH has been assessed and determined to be significant.

Appendix III
Scoping Checklist

APPENDIX B - Environmental Study Scoping Checklist

Application/Project Name: _____

Proponent: _____ **Date:** _____

Proposed Project Works: _____

Study Type: _____

Lead Consultant: _____

Key Contact: _____

Subconsultants: _____

Technical Review Team:

☐ Ecologist Planner: _____ ☐ Province – Species at Risk: _____

☐ Planner for the File: _____ ☐ Province - Other: _____

☐ Conservation Authority: _____ Contact: _____

☐ EEPAC: _____ ☐ Other: _____

☐ Project Manager, Environmental Assessment:_____

☐ First Nation(s): _____

Subject Lands and Study Area:

Location/Address and Size (ha) of Subject Lands:

_____

Study Area Size (approximate ha): _____ ☐ Map (attached): _____

Position of Site in Subwatershed: _____

Tributary Fact Sheet:_____

Is the proposed location within the vicinity of the Thames River (<120 m)? ☐ Yes ☐ No

If Yes, initiate engagement with local First Nation communities. Consultation activity to be provided at Application Review stage.

Policy:

☐ Study must demonstrate how it conforms to the Provincial Policy Statement

☐ Study must demonstrate how it conforms to *The London Plan*

Map 1 Place Types:

☐ Green Space ☐ Environmental Review

Other Place Types: _____

Map 4 Active Mobility Network:

☐ Pathway placement and future trail accesses shall be considered as part of this study.

Map 5 Natural Heritage System:

(Subject Lands and Study Area delineated on current aerial photographs)

☐ Provincially Significant Wetland Name: _____

☐ Wetlands ☐ Unevaluated Wetlands*

☐ Area of Natural & Scientific Interest Name: _____

☐ Environmentally Significant Area Name: _____

☐ Potential ESAs ☐ Upland Corridors

☐ Significant Woodlands ☐ Woodlands

☐ Significant Valleylands ☐ Valleylands

☐ Unevaluated Vegetation Patches ☐ Potential Naturalization Areas

Patch No. _____

** ELC (air photo interpretation and / or previous studies) may identify potential wetlands or other potential features not captured on Map 5.*

Map 6 Hazards and Natural Resources:

☐ Maximum Hazard Line ☐ Conservation Authority Regulation Limit (and text based regulatory limit) – Project falls under *Conservation Authority Act* Section 28

Required Field Investigations:

Aquatic:

☐ Aquatic Habitat Assessment: _____

☐ Fish Community (Collection): _____

☐ Spawning Surveys: _____

☐ Benthic Invertebrate Survey: _____

☐ Mussels: _____

☐ Other: _____

Wetlands:

☐ Wetland Delineation: _____

☐ Wetland Evaluation (OWES): _____

☐ Other: _____

Terrestrial (Wetland, Upland and Lowland):

☐ Vegetation Communities (ELC): _____

☐ Botanical Inventories ☐ Winter ☐ Spring ☐ Summer ☐ Fall

☐ Breeding Bird Surveys (type & frequency): _____

☐ Raptor Surveys: _____ ☐ Shoreline Birds: _____

☐ Crepuscular Surveys: _____ ☐ Grassland Surveys: _____

☐ Amphibian Surveys (type & frequency): _____

☐ Reptile Surveys:

- ☐ Turtle (type & frequency): _____
- ☐ Snake (type & frequency): _____
- ☐ Other (type & frequency): _____

☐ Bat Habitat, Cavity & Acoustic Surveys:_____

☐ Mammal Surveys: _____

- ☐ Winter Wildlife Surveys: _____

☐ Butterflies (Lepidoptera): _____

☐ Dragonflies / Damselflies (Odonata): _____

☐ Species at Risk Specific Surveys: _____

☐ Species of Conservation Concern Surveys: _____

☐ Significant Wildlife Habitat Surveys: _____

☐ Other field investigations: _____

Supporting Concurrent Studies/Investigations:

☐ Hydrogeological/Groundwater: _____

☐ Surface Water/Hydrology: _____

☐ Water Balance: _____

☐ Fluvial Geomorphological: _____

☐ Geotechnical: _____

☐ Tree Inventory: _____

☐ Other: _____

Evaluation of Significance:

Federal:

☐ Fish Habitat ☐ Other Federal: _____

☐ Species at Risk (*SARA*)

Provincial:

☐ Provincially Significant Wetlands
☐ Significant Valleylands
☐ Areas of Natural & Scientific Interest
☐ Water Resource Systems
☐ Species at Risk (*ESA*): _____
☐ Significant Woodlands
☐ Significant Wildlife Habitat Ecoregion 7E
☐ Fish Habitat

Municipal/London:

☐ Environmentally Significant Areas (ESAs), Potential ESAs
☐ Significant Woodlands, Woodlands
☐ Significant Valleylands, Valleylands
☐ Wetlands, Unevaluated Wetlands
☐ Significant Wildlife Habitat
☐ Unevaluated Vegetation Patches
☐ Other Vegetation Patches >0.5 ha
☐ Potential Naturalization Area
☐ Other: _____

Impact Assessment:

☐ Impact Assessment Required
☐ Net Effects Table Required

Environmental Management Recommendations:

☐ Environmental Management Plan: _____
☐ Specifications & Conditions of Approval: _____
☐ Other: _____

Environmental Monitoring:

☐ Baseline Monitoring: _____
☐ Construction Monitoring: _____
☐ Post-Construction Monitoring: _____

Additional Requirements and Notes:

Appendix IV
Vascular Flora Species Reported from the Study Area

Plant Species Reported from the Study Area - Western Road Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Middlesex	Medway Creek Community-based Enhancement Strategy	NHIC Data*	NRSI Observed
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	Oldham 2017	UTRCA 2009	NDMNRF 2022	NRSI Results From 2022
Gymnosperms	**Conifers**									
Cupressaceae	**Cypress Family**									
Thuja occidentalis	Eastern White Cedar	S5					X	X		
Pinaceae	**Pine Family**									
Pinus strobus	Eastern White Pine	S5					X	X		
Tsuga canadensis	Eastern Hemlock	S5					X	X		
Dicotyledons	**Dicots**									
Aceraceae	**Maple Family**									
Acer negundo	Manitoba Maple	S5					C	X		
Acer platanoides	Norway Maple	SE5					IU			X
Acer pseudoplatanus	Sycamore Maple	SE1						X		
Acer saccharum	Sugar Maple	S5					C	X		X
Cornaceae	**Dogwood Family**									
Cornus alternifolia	Alternate-leaved Dogwood	S5					X			X
Fagaceae	**Beech Family**									
Fagus grandifolia	American Beech	S4					C	X		X
Quercus macrocarpa	Bur Oak	S5					C			X
Quercus rubra	Northern Red Oak	S5					C			X
Juglandaceae	**Walnut Family**									
Carya cordiformis	Bitternut Hickory	S5					X			X
Juglans nigra	Black Walnut	S4?					X			X
Moraceae	**Mulberry Family**									
Morus alba	White Mulberry	SE5					IX			X
Oleaceae	**Olive Family**									
Ligustrum ovalifolium	California Privet	SE1								X
Rhamnaceae	**Buckthorn Family**									
Rhamnus cathartica	Common Buckthorn	SE5					IC			X
Rosaceae	**Rose Family**									
Physocarpus opulifolius	Eastern Ninebark	S5					X	X		
Prunus serotina	Black Cherry	S5					C	X		X
Prunus virginiana	Choke Cherry	S5					C			X
Salicaceae	**Willow Family**									
Populus deltoides	Eastern Cottonwood	S5					X			X
Populus tremuloides	Trembling Aspen	S5					X			X
Simaroubaceae	**Ailanthus Family**									
Ailanthus altissima	Tree-of-heaven	SE5					IR			X
Tiliaceae	**Linden Family**									
Tilia americana	American Basswood	S5					C			X
Ulmaceae	**Elm Family**									
Celtis occidentalis	Common Hackberry	S4					X			X
Monocotyledons	**Monocots**									
Araceae	**Arum Family**									
Arisaema dracontium	Green Dragon	S3		SC	SC	Schedule 3	U		X	
Liliaceae	**Lily Family**									
Erythronium americanum	Yellow Trout-lily	S5					X	X		
Maianthemum racemosum	Large False Solomon's Seal	S5					X	X		
Polygonatum biflorum	Giant Solomon's Seal	S4						X		

Trillium grandiflorum	White Trillium	S5					X	X		
TOTAL								**13**	**1**	**18**

*NHIC Atlas Square(s): 17MH76

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Appendix V
Bird Species Reported from the Study Area

Bird Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	Other Observations
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	BSC et al. 2006	NDMNRF 2022	NRSI Results from 2022	
Anatidae	**Ducks, Geese & Swans**									
Aix sponsa	Wood Duck	S5B, S3N					CO			
Anas platyrhynchos	Mallard	S5					CO			
Branta canadensis	Canada Goose	S5					CO		**OB**	OB
Odontophoridae	**New World Quails**									
Colinus virginianus	Northern Bobwhite	S1?B	END	E	E	Schedule 1	PR			
Phasianidae	**Partridges, Grouse & Turkeys**									
Bonasa umbellus	Ruffed Grouse	S5					PO			
Meleagris gallopavo	Wild Turkey	S5					CO			
Phasianus colchicus	Ring-necked Pheasant	SNA					PO			
Columbidae	**Pigeons & Doves**									
Columba livia	Rock Pigeon	SNA					CO			
Zenaida macroura	Mourning Dove	S5					CO			
Cuculiformes	**Cuckoos & Anis**									
Coccyzus americanus	Yellow-billed Cuckoo	S4B					PO			
Coccyzus erythropthalmus	Black-billed Cuckoo	S4S5B					CO			
Caprimulgidae	**Goatsuckers**									
Chordeiles minor	Common Nighthawk	S4B	SC	SC	T	Schedule 1	PR			
Apodidae	**Swifts**									
Chaetura pelagica	Chimney Swift	S3B	THR	T	T	Schedule 1	CO	X		
Trochilidae	**Hummingbirds**									
Archilochus colubris	Ruby-throated Hummingbird	S5B					PR			
Rallidae	**Rails, Gallinules & Coots**									
Porzana carolina	Sora	S5B					PR			
Rallus limicola	Virginia Rail	S4S5B					PR			
Charadriidae	**Plovers & Lapwings**									
Charadrius vociferus	Killdeer	S4B					CO		**OB**	OB
Scolopacidae	**Sandpipers & Allies**									
Actitis macularia	Spotted Sandpiper	S5B					PR			
Scolopax minor	American Woodcock	S4B					CO			
Laridae	**Gulls, Terns & Skimmers**									
Chlidonias niger	Black Tern	S3B, S4M	SC	NAR	NS	No schedule	PO			
Ardeidae	**Herons & Bitterns**									
Ardea herodias	Great Blue Heron	S4					PO			
Botaurus lentiginosus	American Bittern	S5B					PR			
Butorides virescens	Green Heron	S4B					PR			
Cathartidae	**Vultures**									
Cathartes aura	Turkey Vulture	S5B, S3N					PR			
Pandionidae	**Osprey**									
Pandion haliaetus	Osprey	S5B							**OB**	OB
Accipitridae	**Hawks, Kites, Eagles & Allies**									
Accipiter cooperii	Cooper's Hawk	S4	NAR	NAR	NS	No schedule	CO			
Accipiter striatus	Sharp-shinned Hawk	S5	NAR	NAR	NS	No schedule	CO		**OB**	OB
Buteo jamaicensis	Red-tailed Hawk	S5	NAR	NAR	NS	No schedule	CO		**OB**	OB
Circus hudsonius	Northern Harrier	S5B, S4N	NAR	NAR	NS	No schedule	CO			
Strigidae	**Typical Owls**									
Asio otus	Long-eared Owl	S4					PO			

Bubo virginianus	Great Horned Owl	S4					CO			
Megascops asio	Eastern Screech-Owl	S4	NAR	NAR	NS	No schedule	PR			
Alcedinidae	**Kingfishers**									
Megaceryle alcyon	Belted Kingfisher	S5B, S4N					CO			
Picidae	**Woodpeckers**									
Colaptes auratus	Northern Flicker	S5					CO			
Dryobates pubescens	Downy Woodpecker	S5					CO		**OB**	OB
Dryobates villosus	Hairy Woodpecker	S5					CO			
Melanerpes carolinus	Red-bellied Woodpecker	S5					CO			
Sphyrapicus varius	Yellow-bellied Sapsucker	S5B, S3N					CO			
Falconidae	**Caracaras & Falcons**									
Falco sparverius	American Kestrel	S4					CO			
Tyrannidae	**Tyrant Flycatchers**									
Contopus virens	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	PR			
Empidonax minimus	Least Flycatcher	S5B					PO			
Empidonax traillii	Willow Flycatcher	S4B					CO			
Myiarchus crinitus	Great Crested Flycatcher	S5B					PR			
Sayornis phoebe	Eastern Phoebe	S5B					CO			
Tyrannus tyrannus	Eastern Kingbird	S4B					CO			
Vireonidae	**Vireos**									
Vireo gilvus	Warbling Vireo	S5B					PR			
Vireo olivaceus	Red-eyed Vireo	S5B					CO			
Corvidae	**Crows & Jays**									
Corvus brachyrhynchos	American Crow	S5					CO		**OB**	OB
Cyanocitta cristata	Blue Jay	S5					CO		**OB**	OB
Alaudidae	**Larks**									
Eremophila alpestris	Horned Lark	S4					PR			
Hirundinidae	**Swallows**									
Hirundo rustica	Barn Swallow	S4B	THR	SC	T	Schedule 1	CO	X		
Petrochelidon pyrrhonota	Cliff Swallow	S4S5B					CO			
Progne subis	Purple Martin	S3B					CO			
Stelgidopteryx serripennis	Northern Rough-winged Swallow	S4B					CO			
Tachycineta bicolor	Tree Swallow	S4S5B					CO			
Paridae	**Chickadees & Titmice**									
Poecile atricapillus	Black-capped Chickadee	S5					CO			
Sittidae	**Nuthatches**									
Sitta canadensis	Red-breasted Nuthatch	S5					PR			
Sitta carolinensis	White-breasted Nuthatch	S5					CO			
Certhiidae	**Creepers**									
Certhia americana	Brown Creeper	S5					CO			
Troglodytidae	**Wrens**									
Cistothorus palustris	Marsh Wren	S4B, S3N					CO			
Cistothorus platensis	Sedge Wren	S4B	NAR	NAR	NS	No schedule	PR			
Thryothorus ludovicianus	Carolina Wren	S4					CO			
Troglodytes aedon	House Wren	S5B					CO			
Troglodytes hiemalis	Winter Wren	S5B, S4N					PO			
Polioptilidae	**Gnatcatchers**									
Polioptila caerulea	Blue-gray Gnatcatcher	S4B					PO			
Turdidae	**Thrushes**									
Catharus fuscescens	Veery	S5B					PO			
Hylocichla mustelina	Wood Thrush	S4B	SC	T	T	Schedule 1	PR	X		
Sialia sialis	Eastern Bluebird	S5B, S4N	NAR	NAR	NS	No schedule	CO			
Turdus migratorius	American Robin	S5					CO		**OB**	OB
Mimidae	**Mockingbirds, Thrashers & Allies**									
Dumetella carolinensis	Gray Catbird	S5B, S3N					CO			

Toxostoma rufum	Brown Thrasher	S4B					PR			
Sturnidae	**Starlings**									
Sturnus vulgaris	European Starling	SNA					CO		**OB**	OB
Bombycillidae	**Waxwings**									
Bombycilla cedrorum	Cedar Waxwing	S5					CO			
Passeridae	**Old World Sparrows**									
Passer domesticus	House Sparrow	SNA					CO			
Fringillidae	**Finches & Allies**									
Haemorhous mexicanus	House Finch	SNA					CO		**OB**	OB
Spinus tristis	American Goldfinch	S5					CO		**OB**	OB
Emberizidae	**New World Sparrows & Allies**									
Melospiza georgiana	Swamp Sparrow	S5B, S4N					CO			
Melospiza melodia	Song Sparrow	S5					CO		**OB**	OB
Passerculus sandwichensis	Savannah Sparrow	S5B, S3N					CO			
Pipilo erythrophthalmus	Eastern Towhee	S4B, S3N					PR			
Pooecetes gramineus	Vesper Sparrow	S4B					PR			
Spizella passerina	Chipping Sparrow	S5B, S3N					CO			
Spizella pusilla	Field Sparrow	S4B, S3N					CO			
Zonotrichia albicollis	White-throated Sparrow	S5					PO			
Icteridae	**Troupials & Allies**									
Agelaius phoeniceus	Red-winged Blackbird	S5					CO			
Dolichonyx oryzivorus	Bobolink	S4B	THR	T	T	Schedule 1	CO			
Icterus galbula	Baltimore Oriole	S4B					CO			
Icterus spurius	Orchard Oriole	S4B					CO			
Molothrus ater	Brown-headed Cowbird	S5					CO			
Quiscalus quiscula	Common Grackle	S5					CO		**OB**	OB
Sturnella magna	Eastern Meadowlark	S4B, S3N	THR	T	T	Schedule 1	PR			
Parulidae	**Wood Warblers**									
Geothlypis trichas	Common Yellowthroat	S5B, S3N					PR			
Setophaga fusca	Blackburnian Warbler	S5B					PR			
Setophaga pensylvanica	Chestnut-sided Warbler	S5B					PR			
Setophaga petechia	Yellow Warbler	S5B					CO			
Setophaga ruticilla	American Redstart	S5B					PR			
Vermivora cyanoptera	Blue-winged Warbler	S4B					PO			
Cardinalidae	**Cardinals, Grosbeaks & Allies**									
Cardinalis cardinalis	Northern Cardinal	S5					CO		**OB**	OB
Passerina cyanea	Indigo Bunting	S5B					CO			
Pheucticus ludovicianus	Rose-breasted Grosbeak	S5B					CO			
Piranga olivacea	Scarlet Tanager	S5B					CO			
Total							**100**	**3**	**15**	**15**

*OBBA Atlas Square: 17MH76
**NHIC Atlas Square: 17MH76

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Appendix VI
Herpetofauna Species Reported from the Study Area

Reptile and Amphibian Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Medway Creek Community-based Enhancement Strategy	ORAA*	NHIC Data**
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	UTRCA 2009	Ontario Nature 2019	NDMNRF 2022
Turtles									
Apalone spinifera	Eastern Spiny Softshell	S2	END	E	E	Schedule 1			X
Chelydra serpentina	Snapping Turtle	S4	SC	SC	SC	Schedule 1		X	X
Chrysemys picta marginata	Midland Painted Turtle	S4		SC	SC	Schedule 1		X	X
Emydoidea blandingii	Blanding's Turtle (Great Lakes / St. Lawre	S3	THR	E	E	Schedule 1	X		
Graptemys geographica	Northern Map Turtle	S3	SC	SC	SC	Schedule 1		X	X
Snakes									
Heterodon platirhinos	Eastern Hog-nosed Snake	S3	THR	T	T	Schedule 1	X	X	
Lampropeltis triangulum	Milksnake	S4	NAR	SC	SC	Schedule 1		X	
Regina septemvittata	Queensnake	S2	END	E	E	Schedule 1	X	X	X
Storeria dekayi	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule		X	
Thamnophis sirtalis sirtalis	Eastern Gartersnake	S5						X	
Salamanders									
Ambystoma laterale	Blue-spotted Salamander	S4						X	
Necturus maculosus	Mudpuppy	S4	NAR	NAR	NS	No schedule		X	
Notophthalmus viridescens viridescens	Red-spotted Newt	S5						X	
Plethodon cinereus	Eastern Red-backed Salamander	S5						X	
Frogs and Toads									
Anaxyrus americanus	American Toad	S5						X	
Hyla versicolor	Gray Treefrog	S5						X	
Pseudacris crucifer	Spring Peeper	S5						X	
Lithobates catesbeianus	American Bullfrog	S4						X	
Lithobates clamitans	Green Frog	S5						X	
Lithobates palustris	Pickerel Frog	S4	NAR	NAR	NS	No schedule		X	
Lithobates pipiens	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule		X	
Lithobates sylvaticus	Wood Frog	S5						X	
Total							**3**	**20**	**5**

*ORAA Atlas Square: 17MH76
**NHIC Atlas Square: 17MH76

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Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2021. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.
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Government of Canada. 2021. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2021-12-01.
Available: https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10

Appendix VII
Mammal Species Reported from the Study Area

Mammal Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Medway Creek Community-based Enhancement Strategy	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	UTRCA 2009	Dobbyn 1994	NDMNRF 2022	NRSI Results from 2022
Didelphimorphia	**Opossums**									
Didelphis virginiana	Virginia Opossum	S4						X		
Eulipotyphla	**Shrews, Moles, Hedgehogs, and Allies**									
Blarina brevicauda	Northern Short-tailed Shrew	S5						X		
Chiroptera	**Bats**									
Eptesicus fuscus	Big Brown Bat	S4						X		
Lasiurus cinereus	Hoary Bat	S4						X		
Myotis lucifugus	Little Brown Myotis	S3	END	E	E	Schedule 1		X		
Lagomorpha	**Rabbits and Hares**									
Lepus europaeus	European Hare	SNA						X		
Sylvilagus floridanus	Eastern Cottontail	S5						X		
Rodentia	**Rodents**									
Castor canadensis	Beaver	S5						X		
Marmota monax	Woodchuck	S5						X		
Microtus pennsylvanicus	Meadow Vole	S5						X		
Ondatra zibethicus	Muskrat	S5						X		
Peromyscus leucopus	White-footed Mouse	S5						X		
Peromyscus maniculatus	Deer Mouse	S5						X		
Rattus norvegicus	Norway Rat	SNA						X		
Sciurus carolinensis	Eastern Gray Squirrel	S5						X		X
Tamias striatus	Eastern Chipmunk	S5						X		
Tamiasciurus hudsonicus	Red Squirrel	S5						X		
Canidae	**Canines**									
Vulpes vulpes	Red Fox	S5						X		
Mephitidae	**Skunks and Stink Badgers**									
Mephitis mephitis	Striped Skunk	S5						X		
Mustelidae	**Weasels and Allies**									
Neovison vison	American Mink	S4						X		
Procyonidae	**Raccoons and Allies**									
Procyon lotor	Northern Raccoon	S5						X		
Artiodactyla	**Deer and Bison**									
Odocoileus virginianus	White-tailed Deer	S5						X		
Total							**1**	**22**	**0**	**1**

*Mammal Atlas Square Numbers: MT76
**NHIC Atlas Squares: 17MH76

References

Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2021. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.
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Appendix VIII
Lepidoptera Species Reported from the Study Area

Butterfly Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	Macnaughton et al. 2022	NDMNRF 2022
Hesperiidae	**Skippers**							
Anatrytone logan	Delaware Skipper	S4					X	
Ancyloxypha numitor	Least Skipper	S5					X	
Epargyreus clarus	Silver-spotted Skipper	S4					X	
Erynnis baptisiae	Wild Indigo Duskywing	S4					X	
Erynnis brizo	Sleepy Duskywing	S1					X	
Euphyes dion	Dion Skipper	S4					X	
Euphyes vestris	Dun Skipper	S5					X	
Pholisora catullus	Common Sootywing	S4					X	
Poanes hobomok	Hobomok Skipper	S5					X	
Poanes viator	Broad-winged Skipper	S4					X	
Polites mystic	Long Dash Skipper	S5					X	
Polites peckius	Peck's Skipper	S5					X	
Polites themistocles	Tawny-edged Skipper	S5					X	
Pompeius verna	Little Glassywing	S4					X	
Thymelicus lineola	European Skipper	SNA					X	
Wallengrenia egeremet	Northern Broken Dash	S5					X	
Papilionidae	**Swallowtails**							
Papilio cresphontes	Giant Swallowtail	S4					X	
Papilio glaucus	Eastern Tiger Swallowtail	S5					X	
Papilio polyxenes	Black Swallowtail	S5					X	
Pieridae	**Whites and Sulphurs**							
Colias eurytheme	Orange Sulphur	S5					X	
Colias philodice	Clouded Sulphur	S5					X	
Pieris oleracea	Mustard White	S4					X	
Pieris rapae	Cabbage White	SNA					X	
Lycaenidae	**Harvesters, Coppers, Hairstreaks, Blues**							
Celastrina neglecta	Summer Azure	S5					X	
Celastrina sp.	Azure species	SNA					X	
Cupido comyntas	Eastern Tailed Blue	S5					X	
Feniseca tarquinius	Harvester	S4					X	
Lycaena epixanthe	Bog Copper	S4S5					X	
Lycaena hyllus	Bronze Copper	S5					X	
Satyrium acadica	Acadian Hairstreak	S4					X	
Satyrium calanus	Banded Hairstreak	S4					X	
Satyrium caryaevorus	Hickory Hairstreak	S4					X	
Satyrium liparops	Striped Hairstreak	S5					X	
Nymphalidae	**Brush-footed Butterflies**							
Aglais milberti	Milbert's Tortoiseshell	S5					X	
Asterocampa celtis	Hackberry Emperor	S3					X	
Asterocampa clyton	Tawny Emperor	S3					X	
Cercyonis pegala	Common Wood-Nymph	S5					X	
Coenonympha tullia	Common Ringlet	S5					X	
Danaus plexippus	Monarch	S2N,S4B	SC	E	SC	Schedule 1	X	
Euphydryas phaeton	Baltimore Checkerspot	S4					X	
Junonia coenia	Common Buckeye	SNA					X	
Lethe anthedon	Northern Pearly-Eye	S5					X	
Lethe appalachia	Appalachian Brown	S4					X	
Lethe eurydice	Eyed Brown	S5					X	
Libytheana carinenta	American Snout	SNA					X	
Limenitis archippus	Viceroy	S5					X	
Limenitis arthemis arthemis	White Admiral	S5					X	
Limenitis arthemis astyanax	Red-spotted Purple	S5					X	
Megisto cymela	Little Wood-Satyr	S5					X	
Nymphalis l-album	Compton Tortoiseshell	S5					X	
Phyciodes cocyta	Northern Crescent	S5					X	
Phyciodes tharos	Pearl Crescent	S4					X	
Polygonia comma	Eastern Comma	S5					X	
Polygonia interrogationis	Question Mark	S5					X	
Speyeria aphrodite	Aphrodite Fritillary	S5					X	
Speyeria cybele	Great Spangled Fritillary	S5					X	
Vanessa atalanta	Red Admiral	S5B					X	
Vanessa cardui	Painted Lady	S5B					X	
Vanessa virginiensis	American Lady	S5					X	
Total							**59**	**0**

*TEA Atlas Square: 17MH76
**NHIC Atlas Square: 17MH76

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Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2021. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2021-07-29. Available: https://www.ontario.ca/page/get-natural-heritage-information

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Appendix IX
Odonata Species Reported from the Study Area

Odonate Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Odonate Atlas*	NHIC Data**
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	OOAD 2022	NDMNRF 2022
Calopterygidae	**Broadwinged Damselflies**							
Calopteryx maculata	Ebony Jewelwing	S5					X	
Hetaerina americana	American Rubyspot	S4					X	
Lestidae	**Spreadwings**							
Lestes disjunctus	Northern Spreadwing	S5					X	
Lestes rectangularis	Slender Spreadwing	S5					X	
Coenagrionidae	**Narrow-winged Damselflies**							
Argia fumipennis violacea	Violet Dancer	S5					X	
Argia moesta	Powdered Dancer	S5					X	
Enallagma exsulans	Stream Bluet	S5					X	
Ischnura posita	Fragile Forktail	S4					X	
Ischnura verticalis	Eastern Forktail	S5					X	
Libellulidae	**Skimmers**							
Libellula pulchella	Twelve-spotted Skimmer	S5					X	
Sympetrum semicinctum	Band-winged Meadowhawk	S4					X	
Total							**11**	**0**

**Odonate Atlas Square Numbers: 17MH76*
***NHIC Atlas Squares: 17MH76*

References

Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2021. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.
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Species list from atlas square 17MH76 queried on February 28, 2022.
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Appendix X
Fish Species Reported from the Study Area

Fish Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Medway Creek Community-based Enhancement Strategy	Fisheries and Oceans SAR Data	NHIC Data*
		NDMNRF 2021	MECP 2022	ernment of Canada 2	ernment of Canada 2	ernment of Canada 2	UTRCA 2009	DFO 2021	NDMNRF 2022
Cyprinidae	**Carps**								
Cyprinus carpio	Common Carp	SNA					X		
Leuciscidae	**Minnows**								
Campostoma anomalum	Central Stoneroller	S4	NAR	NAR	NS	No schedule	X		
Chrosomus eos	Northern Redbelly Dace	S5					X		
Cyprinella spiloptera	Spotfin Shiner	S4					X		
Hybognathus hankinsoni	Brassy Minnow	S5					X		
Luxilus chrysocephalus	Striped Shiner	S4	NAR	NAR	NS	No schedule	X		
Luxilus cornutus	Common Shiner	S5					X		
Lythrurus umbratilis	Redfin Shiner	S4	NAR	NAR	NS	No schedule	X		
Nocomis biguttatus	Hornyhead Chub	S4	NAR	NAR	NS	No schedule	X		
Nocomis micropogon	River Chub	S4	NAR	NAR	NS	No schedule	X		
Notropis photogenis	Silver Shiner	S2S3	THR	T	T	Schedule 1	X	X	X
Notropis rubellus	Rosyface Shiner	S4	NAR	NAR	NS	No schedule	X		
Notropis volucellus	Mimic Shiner	S5					X		
Pimephales notatus	Bluntnose Minnow	S5	NAR	NAR	NS	No schedule	X		
Pimephales promelas	Fathead Minnow	S5					X		
Rhinichthys atratulus	Blacknose Dace	S5					X		
Rhinichthys cataractae	Longnose Dace	S5					X		
Semotilus atromaculatus	Creek Chub	S5					X		
Catostomidae	**Suckers**								
Carpiodes cyprinus	Quillback	S4					X		
Catostomus commersonii	White Sucker	S5					X		
Hypentelium nigricans	Northern Hog Sucker	S4					X		
Moxostoma anisurum	Silver Redhorse	S4					X		
Moxostoma duquesnei	Black Redhorse	S2	THR	T	T	Schedule 1	X	X	
Moxostoma erythrurum	Golden Redhorse	S4	NAR	NAR	NS	No schedule	X		
Moxostoma macrolepidotum	Shorthead Redhorse	S5					X		
Ictaluridae	**North American Catfishes**								
Ameiurus melas	Black Bullhead	S4					X		
Noturus flavus	Stonecat	S4					X		
Esocidae	**Pikes**								
Esox lucius	Northern Pike	S5					X		
Umbridae	**Mudminnows**								
Umbra limi	Central Mudminnow	S5					X		
Salmonidae	**Trouts and Salmons**								
Oncorhynchus mykiss	Rainbow Trout	SNA					X		
Gasterosteidae	**Sticklebacks**								
Culaea inconstans	Brook Stickleback	S5					X		
Centrarchidae	**Sunfishes and Basses**								
Ambloplites rupestris	Rock Bass	S5					X		
Lepomis cyanellus	Green Sunfish	S4	NAR	NAR	NS	No schedule	X		
Lepomis gibbosus	Pumpkinseed	S5					X		
Lepomis megalotis	Longear Sunfish	SNR					X		
Lepomis peltastes pop. 2	Northern Sunfish (Great Lakes - Upper St.	S3	SC	SC	SC	Schedule 1		X	
Micropterus dolomieu	Smallmouth Bass	S5					X		
Micropterus salmoides	Largemouth Bass	S5					X		
Pomoxis nigromaculatus	Black Crappie	S4					X		
Percidae	**Perches and Darters**								
Etheostoma blennioides	Greenside Darter	S4	NAR	NAR	SC	Schedule 3	X		
Etheostoma caeruleum	Rainbow Darter	S4					X		
Etheostoma flabellare	Fantail Darter	S4					X		
Etheostoma microperca	Least Darter	S4	NAR	NAR	NS	No schedule	X		
Etheostoma nigrum	Johnny Darter	S5					X		
Perca flavescens	Yellow Perch	S5					X		
Percina maculata	Blackside Darter	S4					X		
Total							**45**	**3**	**1**

*NHIC Atlas Square(s): 17MH76

References

Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF). 2021. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.
All Species List Updated: 2021-07-29. Available: https://www.ontario.ca/page/get-natural-heritage-information

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Available: https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10

Appendix XI
Mussel Species Reported from the Study Area

Mussel Species Reported from the Study Area - Western Rd Focused EIS (Project #2790)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA STATUS	SARA SCHEDULE	Medway Creek Community-based Enhancement Strategy	Fisheries and Oceans SAR Data	NHIC Data
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	UTRCA 2009	DFO 2021	NDMNRF 2022
Unionida	**Native Freshwater Mussels**								
Ambleminae									
Elliptio dilatata	Spike	S5					X		
Fusconaia flava	Wabash Pigtoe	S2S3					X		
Anodontinae									
Alasmidonta marginata	Elktoe	S3					X		
Alasmidonta viridis	Slippershell Mussel	S3					X		
Anodontoides ferussacianus	Cylindrical Papershell	S4					X		
Lasmigona compressa	Creek Heelsplitter	S5					X		
Lasmigona costata	Fluted-shell	S5					X		
Pyganodon grandis	Giant Floater	S5					X		
Strophitus undulatus	Creeper	S5					X		
Lampsilinae									
Actinonaias ligamentina	Mucket	S4					X		
Lampsilis cardium	Plain Pocketbook	S4					X		
Lampsilis fasciola	Wavy-rayed Lampmussel	S2	THR	SC	SC	Schedule 1	X	X	X
Lampsilis siliquoidea	Fatmucket	S5					X		
Ptychobranchus fasciolaris	Kidneyshell	S1	END	E	E	Schedule 1	X		
Villosa iris	Rainbow	S1	SC	SC	SC	Schedule 1	X		
Total							**15**	**1**	**1**

*NHIC Atlas Squares: 17MH76

References

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1349 Western Road, London

Focused Environmental Impact Study

Received from consultants April 13, 2022

Reviewed for EEPAC by S. Levin and B. Samuels

Appreciate the 30 m buffer

Please clarify when the two year warranty period ends and when the monitoring begins

Encourage further removal of buckthorn along north side of Burnlea Way to reduce the number of sources of reintroduction of buckthorn

If there is a future need to install signage regarding the renaturalization, the following sign could be referred to:

https://www.dropbox.com/s/q8f69nrj77bscc9/MVHF_Interpretive_Sign_Design1_V3.pdf?dl=0