APPENDIX B

Agency and First Nation Consultation
June 20, 2018

Chris Leitch, MCIP, RPP
Principal Planner, Transportation Planning
Regional Municipality of Durham
Planning and Economic Development Department
605 Rossland Road East, Fourth Floor
Whitby, ON L1N 6A3

Dear Chris,

Re: Dryden Boulevard Extension Environmental Assessment
Draft Environmental Study Report

Please find enclosed three (3) copies of the draft Environmental Study Report for the Region’s review and comment. We would ask that you please provide our office with your comments by July 19th, 2018. The Region’s latest comments (March 19, 2018) and our responses are included in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Region’s Comments</th>
<th>Responses</th>
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<td>Design Drawings</td>
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<tr>
<td>1. The 1% cross fall would ideally be carried a minimum of 20 m beyond the edge of the SB RTL to get the grade break sufficiently outside the intersection and minimize the risk of ponding/icing close to the intersection. Currently the 1% to 0.5% grade brake is shown between the through lane and RTL which is not acceptable. In hindsight, to further minimize the grade break at the Thickson centerline (given the east side will still have a 2% cross fall), as well as to help keep the profile as high as possible above the creek, replacing the 1% and 0.5% with a 0.75% grade from the centerline may be preferable.</td>
<td>The cross fall has been adjusted to 0.75%. Please refer to drawing D-02 in Appendix L.</td>
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2. Although the design vehicle used for the intersection turning movements may be appropriate for regular use, the SBR movement should be checked to confirm a WB-15/19 (e.g. moving truck) can make the turn with the median on Dryden (encroaching on the SB through lane is acceptable for these occasional turns). It is not expected to be a concern but prudent to check.

| The SBR movement for a WB15/19 has been checked and can be accommodated. A copy of the vehicle tracking is attached. |

3. With the addition of the NB LTL and SB RTL, a full street lighting analysis needs to be done within the limits of the turn lanes on Thickson Road to obtain proper lighting (as per the Region’s current standards). This is expected to require the addition of lights on the west side, and the consultant should follow-up with Traffic Engineering and Operations staff for more information.

| Lighting at the intersection will be reviewed during detailed design. |

4. Presumably additional field survey is being obtained north and south on Thickson to complete the design and better determine the impacts/mitigation prior to the PIC. The SBR will require the embankment to be widened into the bush and therefore these impacts would need to be included in the assessment along the need for additional ROW determined and obtained to provide the boulevard for future SW/MUP with appropriate offsets from the road and slope, as well as contain the embankment and ditch (if drainage warrants). The limits of grading and impacts to trees should be identified given this may be a concern for the CA and public.

| There was some topo information for a portion of wetland area. The wetland area is very flat therefore the topo information was extrapolated for the entire length of the right turn lane. A boulevard width of 4.30m was assumed and 3:1 slopes from the boulevard to the wetland area. The grading limits and property requirements are shown on drawing D-02 in Appendix L. Additional topo survey will be required during detailed design to further refine the design of the SBR and impacts to trees and the wetland. |

5. Proper cross-walks and terminations of sidewalk and MUP should be shown at the intersection for clarity.

| Information has been added to drawing D-02 in Appendix L. |
6. From a road safety perspective, we would like to reiterate our appeal for crossrides, but understand that if cycling facilities on the east leg of Dryden and the MUP on the west side of Thickson are not yet established, justification may not be met at this time. Please provide any updates from the Town regarding recommendations for the east leg geometry and Thickson MUP.

Thickson MUP will be constructed by the developer. The proposed bike lanes on Dryden extension will stop at the Thickson MUP. The Town will conduct a separate traffic study to look at installing on-road bike lanes on Dryden east of Thickson.

<table>
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<th>Transportation Assessment</th>
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<tr>
<td>7. Page 21, Section 3.2 – Transportation Network</td>
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<td>• Under Table 7: Future Network Assumptions, it should be noted that a MUP is planned to be constructed on one side of Brock Street as part of the widening project.</td>
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<td>• Appendix C and Map 4B of the Region’s TMP (December 2017) includes the widening of Taunton Road from 4/5 to 6/7 lanes, which includes a curbside HOV lane, from York-Durham Line to Simcoe Street. There are three projects are targeted for the 2027-2031 period as outlined in Appendix C to the TMP. However, if the project term wishes to err on the side of caution through the study area and not assume this project to be constructed by 2041, then that should be noted in this section.</td>
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<tr>
<td>Note was added re: the conservative nature of the capacity assumption and the role/impact of the additional HOV lane on the vehicle capacity.</td>
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<td>Note was added</td>
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8. The minutes from the November 23, 2017 project team meeting note, as an action item, that the Town provide Dillon/TMIG with the October 2017 update of the BA Group report traffic study for the Minto Ridge development. We cannot confirm whether this update was reviewed but do not have any concerns with the revised Transportation Assessment.

The October 27, 2017 BA Group report was considered and accounted for in building the foundations for the transportation assessment.

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<th>Water and Wastewater</th>
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<tr>
<td>9. We have no additional comments at this time.</td>
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<td>Thank you.</td>
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Sincerely,

THE MUNICIPAL INFRASTRUCTURE GROUP LTD.

Nathalie McCutcheon  
Director of Municipal Services  
nmccutcheon@tmig.ca

Encl: 3 copies of the draft Environmental Study Report

cc: Horace Look, Town of Whitby
June 19, 2018

Eric Cameron
Infrastructure Planner / Enforcement Officer
Central Lake Ontario Conservation Authority
100 Whiting Avenue
Oshawa, ON L1H 3T3

Dear Eric,

Re: Dryden Boulevard Extension Environmental Assessment
Draft Environmental Study Report

Please find enclosed three (3) copies of the draft Environmental Study Report for CLOCA’s review and comment. We would ask that you please provide our office with your comments by July 20, 2018.

Sincerely,

THE MUNICIPAL INFRASTRUCTURE GROUP LTD.

Nathalie McCutcheon
Director of Municipal Services
nmccutcheon@tmig.ca

Encl: 3 copies of the draft Environmental Study Report

cc: Horace Look, Town of Whitby
July 31, 2018

VIA EMAIL ONLY

Nathalie McCutcheon, P.Eng - nmccutcheon@tmig.ca
Director of Municipal Services
TMIG | The Municipal Infrastructure Group Ltd.

Horace Look, P.Eng. - lookh@whitby.ca
Project Engineer
Engineering and Infrastructure Services Division
Town of Whitby Public Works

Subject: Dryden Boulevard Extension - Municipal Class Environmental Assessment Draft Environmental Study Report – May 2018

Central Lake Ontario Conservation Authority (CLOCA) staff have had the opportunity to review the above captioned reports and are able to offer the followings comments at this time:

Re: Section 8 – Recommended Design

CLOCA staff have no objection to the proposed 22 metre single span bridge and road design upon review of the associated hydraulic analysis and stormwater management report (comments issued previously under separate cover). During detailed design, the use of low impact development (LID) features should be explored. The anticipated impacts to natural features can be adequately mitigated and compensated for, as detailed within the report.

Re: Section 9 – Mitigation Measures

CLOCA staff support the comprehensive mitigation measures proposed for this project. We would request the following changes be incorporated into the final Environmental Study Report:

9.1 – Plant Communities and Significant Wetlands
   • Please reference the Clean Equipment Protocol as the standard for ensuring machinery does not transfer invasive species into the study area.

9.2 – Compensation
• Compensation at an area ratio of 1:1 will be required as a condition of a CLOCA regulatory permit for development and should be implemented locally to the disturbance.
• CLOCA staff would support and encourage further naturalization and enhancement initiatives in this area.
• CLOCA does not generally accept open water ponds as compensation units.
• CLOCA will not accept the proposed compensation option of “Naturalization of a newly constructed SWM pond within the subdivision”.

9.6 – Fish and Fish Habitat

• The *Natural Environment Impact Assessment Report* (Appendix E) concludes this tributary of Pringle Creek “does not provide direct fish habitat”. However, this watercourse would be better described as providing seasonal fish habitat. Numerous fishes have been captured downstream of the study area and adult Rainbow Trout have been observed in the general area. This information should be incorporated into any necessary review requests from the Department of Fisheries and Oceans.
• The Ontario Ministry of Natural Resources and Forestry (MNRF) timing window guidelines for in-water works for Pringle Creek within the study area is coldwater (July 1st to September 15th)

Should you wish to discuss these comments further, please contact the undersigned. We look forward to further review of the final Environmental Study Report.

Eric Cameron
Infrastructure Planner/Enforcement Officer
June 26, 2017  

Horace Look (BY EMAIL ONLY)  
Project Engineer  
Town of Whitby  
575 Rossland Road East  
Whitby ON L1N 2M8  

Re:  Dryden Boulevard Extension (from Deverll Street to Thickson Road)  
Town of Whitby  
Municipal Class EA – Schedule B, road  
Response to Notice of Commencement  

Dear Mr. Look:  

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment and Climate Change (MOECC) acknowledges that the Town of Whitby has indicated that the study is following the approved environmental planning process for a Schedule B project under the Municipal Class Environmental Assessment (Class EA).

The attached “Areas of Interest” document provides guidance regarding the ministry’s interests with respect to the Class EA process. Please identify the areas of interest which are applicable to the project and ensure they are addressed. Proponents who address all of the applicable areas of interest can minimize potential delays to the project schedule.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge, real or constructive, of the existence or potential existence of an Aboriginal or treaty right and contemplates conduct that may adversely impact that right. Before authorizing this project, the Crown must ensure that its duty to consult has been fulfilled, where such a duty is triggered. Although the duty to consult with Aboriginal peoples is a duty of the Crown, the Crown may delegate procedural aspects of this duty to project proponents while retaining oversight of the consultation process.

The proposed project may have the potential to affect Aboriginal or treaty rights protected under Section 35 of Canada’s Constitution Act 1982. Where the Crown’s duty to consult is triggered in relation to the proposed project, the MOECC is delegating the procedural aspects of rights-based consultation to the proponent through this letter. The Crown intends to rely on the delegated consultation process in discharging its duty to consult and maintains the right to participate in the consultation process as it sees fit.

Based on information provided to date and the Crown’s preliminary assessment, the Crown has not identified any Indigenous communities as potentially affected by the proposed project at this time. However, if the proponent determines that there is archaeological potential for the site and there is a requirement for a stage 2 archaeological study, then local First Nations should be notified of this. The proponent can contact the ministry for advice on which First Nations should be consulted in this
instance.

If warranted, steps that the proponent may need to take in relation to Aboriginal consultation for the proposed project are outlined in the “Code of Practice for Consultation in Ontario’s Environmental Assessment Process” which can be found at the following link: https://www.ontario.ca/document/consultation-ontarios-environmental-assessment-process
Additional information related to Ontario’s Environmental Assessment Act is available online at: www.ontario.ca/environmentalassessments

Please also refer to the attached document “A Proponent’s Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities” for further information.

The proponent must contact the Director of Environmental Approvals Branch under the following circumstances subsequent to any discussions with Indigenous communities:
- Aboriginal or treaty rights impacts are identified to the proponent by the communities
- The proponent has reason to believe that the proposed project may adversely affect an Aboriginal or treaty right
- Consultation has reached an impasse
- A Part II Order request or elevation request is expected

The Director of the Environmental Approvals Branch can be notified either by email with the subject line “Potential Duty to Consult” to EAASIBGen@ontario.ca or by mail or fax at the address provided below:

<table>
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<tr>
<th>Email:</th>
<th><a href="mailto:EAASIBGen@ontario.ca">EAASIBGen@ontario.ca</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject:</td>
<td>Potential Duty to Consult</td>
</tr>
<tr>
<td>Fax:</td>
<td>416-314-8452</td>
</tr>
</tbody>
</table>
| Address:      | Environmental Approvals Branch  
                135 St. Clair Avenue West, 1st Floor  
                Toronto, ON, M4V 1P5 |

The MOECC will then assess the extent of any Crown duty to consult for the circumstances and will consider whether additional steps should be taken, including what role the proponent will be asked to play in them.

A draft copy of the Project File report should be sent to this office (in electronic version) prior to the filing of the final report, allowing a minimum of 30 days for the ministry’s technical reviewers to provide comments. Please also forward the Notice of Completion and final Project File report to me when completed.

Should you or any members of your project team have any questions regarding the material above, please contact me at emilee.oleary@ontario.ca or 416-326-3469.

Yours truly,

Emilee O’Leary
Regional Environmental Assessment Coordinator
Air, Pesticides and Environmental Planning

cc: Paul Martin, Supervisor, Technical Support Section, MOECC  
    Chris Hyde, Manager (A), York Durham District Office, MOECC  
    Nathalie McCutcheon, Project Manager, The Municipal Infrastructure Group
Attach: Areas of Interest
   A Proponent's Introduction to the Delegation of Procedural Aspects of consultation with Aboriginal Communities
AREAS OF INTEREST

It is suggested that you check off each applicable area after you have considered / addressed it.

☐ Source Water Protection (all projects)

The Clean Water Act, 2006 (CWA) aims to protect existing and future sources of drinking water. To achieve this, several types of vulnerable areas have been delineated around surface water intakes and wellheads for every municipal residential drinking water system that is located in a source protection area. These vulnerable areas are known as a Wellhead Protection Areas (WHPAs) and surface water Intake Protection Zones (IPZs). Other vulnerable areas that have been delineated under the CWA include Highly Vulnerable Aquifers (HVAs), Significant Groundwater Recharge Areas (SGRAs), Event-based modelling areas (EBAs), and Issues Contributing Areas (ICAs). Source protection plans have been developed that include policies to address existing and future risks to sources of municipal drinking water within these vulnerable areas.

Projects may include activities that, if located in a vulnerable area, could be a threat to sources of drinking water (i.e. have the potential to adversely affect the quality or quantity of drinking water sources) and the activity could therefore be subject to policies in a source protection plan. Where an activity poses a risk to drinking water, policies in the local source protection plan may impact how or where that activity is undertaken. Policies may prohibit certain activities, or they may require risk management measures for these activities. Municipal Official Plans, planning decisions, Class EA projects (where the project includes an activity that is a threat to drinking water) and prescribed instruments must conform with policies that address significant risks to drinking water and must have regard for policies that address moderate or low risks.

- As part of the project, the proponent should clearly document how the proximity of the project to sources of drinking water (municipal or other) and any delineated vulnerable areas was considered and assessed, whether there were any source protection plan policies that applied, and if so, how they impacted the project, as well as identify mitigating measures to address any negative environmental impacts to those sources (considering natural, economic and social/cultural environmental impacts). As you may be aware, in October 2015, the MEA Parent Class EA document was amended to include reference to the Clean Water Act (Section A.2.10.6) and indicates that proponents undertaking a Municipal Class EA project must identify early in their process whether a project is or could potentially be occurring with a vulnerable area. Given this requirement, the proponent should include a section in the Project File/ESR on source water protection.

- While most source protection plans focused on including policies for significant drinking water threats in the WHPAs and IPZs it should be noted that even though source protection plan policies may not apply in HVAs, these are areas where aquifers are sensitive and at risk to impacts and within these areas, activities may impact the quality of sources of drinking water for systems other than municipal residential systems.

- In order to determine if this project is occurring within a vulnerable area, proponents can use this mapping tool: http://www.applications.ene.gov.on.ca/swp/en/index.php The mapping tool will also provide a link to the appropriate source protection plan in order to identify what policies may be applicable in the vulnerable area.

- For further information on the maps or source protection plan policies which may relate to their project, proponents should contact the Project Manager for Drinking Water Source Protection at the appropriate source protection authority (i.e., conservation authority).
More Information
For more information on the Clean Water Act, source protection areas and plans, including specific information on the vulnerable areas and drinking water threats, please refer to Conservation Ontario’s website where you will also find links to the local source protection plan/assessment report.

A list of the prescribed drinking water threats can be found in section 1.1 of Ontario Regulation 287/07 made under the Clean Water Act. In addition to prescribed drinking water threats, some source protection plans may include policies to address additional “local” threat activities, as approved by the MOECC.

□ Climate Change

Ontario is leading the fight against climate change through the Climate Change Action Plan. Recently released, the plan lays out the specific actions Ontario will take in the next five years to meet its 2020 greenhouse gas reduction targets and establishes the framework necessary to meet its long-term targets. As a commitment of the action plan, the province has prepared a draft guide Consideration of Climate Change in Environmental Assessment in Ontario for projects and undertakings under the Environmental Assessment Act. This guide will support the province’s Climate Change Action Plan and Adaptation Strategy and will become part of the Environmental Assessment program’s Guides and Codes of Practice. The guide is found online at http://www.downloads.ene.gov.on.ca/envision/env_reg/er/documents/2016/012-5806%20english.pdf

• We encourage proponents to include a section on climate change in the Project File/ESR.

□ Planning and Policy

• Parts of the study area may be subject to the Oak Ridges Moraine Conservation Plan, Niagara Escarpment Plan, Greenbelt Plan, Lake Simcoe Protection Plan, or Growth Plan for the Greater Golden Horseshoe. Applicable policies should be referenced in the Project File/ESR, and the proponent should describe how the proposed study adheres to the relevant policies in these plans.

• The Provincial Policy Statement (2014) contains policies that protect Ontario’s natural heritage and water resources. Applicable policies should be referenced in the Project File/ESR, and the proponent should describe how this proposed project is consistent with these policies.

□ Air Quality, Dust and Noise

• If there are sensitive receptors in the surrounding area of this project, an air quality/odour impact assessment will be useful to evaluate alternatives, determine impacts and identify appropriate mitigation measures. The scope of the assessment can be determined based on the potential effects of the proposed alternatives, and typically includes source and receptor characterization and a quantification of local air quality impacts on the sensitive receptors and the environment in the study area. The assessment will compare to all applicable standards or guidelines for all contaminants of concern. Please contact this office to confirm the appropriate level of assessment, if not already advised.

• If a full Air Quality Impact Assessment is not required for the project, the Project File/ESR should still contain a discussion of the existing air quality conditions in the area. It should also still include a discussion of the potential air quality impacts that could arise from this project during both construction and operation, address all potential air quality impacts to present and future sensitive receptors, and discuss potential mitigation measures.

• As a common practice, “air quality” should be used an evaluation criterion for all road projects.
• Dust and noise control measures should be addressed and included in the construction plans to ensure that nearby residential and other sensitive land uses within the study area are not adversely affected during construction activities.


• The Project File/ESR should consider the potential impacts of increased noise levels during the operation of the completed project. The proponent should explore all potential measures to mitigate significant noise impacts during the assessment of alternatives.

- Ecosystem Protection and Restoration

• Any impacts to ecosystem form and function must be avoided where possible. The Project File/ESR should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

• All natural heritage features should be identified and described in detail to assess potential impacts and to develop appropriate mitigation measures. The following sensitive environmental features may be located within or adjacent to the study area:

  - Areas of Natural and Scientific Interest (ANSIs)
  - Rare Species of flora or fauna
  - Watercourses
  - Wetlands
  - Woodlots

We recommend consulting with the Ministry of Natural Resources and Forestry (MNRF), Fisheries and Oceans Canada (DFO) and your local conservation authority to determine if special measures or additional studies will be necessary to preserve and protect these sensitive features. In addition, you may consider the provisions of the Rouge Park Management Plan if applicable.

- Surface Water

• The Project File/ESR must include a sufficient level of information to demonstrate that there will be no negative impacts on the natural features or ecological functions of any watercourses within the study area. Measures should be included in the planning and design process to ensure that any impacts to watercourses from construction or operational activities (e.g. spills, erosion, pollution) are mitigated as part of the proposed undertaking.

• Additional stormwater runoff from new pavement can impact receiving watercourses and flood conditions. Quality and quantity control measures to treat stormwater runoff should be considered for all new impervious areas and, where possible, existing surfaces. The ministry's Stormwater Management Planning and Design Manual (2003) should be referenced in the Project File/ESR and utilized when designing stormwater control methods. A Stormwater Management Plan should be prepared as part of the Class EA process that includes:

  - Strategies to address potential water quantity and erosion impacts related to stormwater draining into streams or other sensitive environmental features, and to ensure that adequate (enhanced) water quality is maintained
  - Watershed information, drainage conditions, and other relevant background information
- Future drainage conditions, stormwater management options, information on erosion and sediment control during construction, and other details of the proposed works
- Information on maintenance and monitoring commitments.

- Ontario Regulation 60/08 under the Ontario Water Resources Act (OWRA) applies to the Lake Simcoe Basin, which encompasses Lake Simcoe and the lands from which surface water drains into Lake Simcoe. If the proposed sewage treatment plant is listed in Table 1 of the regulation, the Project File/ESR should describe how the proposed project and its mitigation measures are consistent with the requirements of this regulation and the OWRA.

- Any potential approval requirements for surface water taking or discharge should be identified in the Project File/ESR. In particular, a Permit to Take Water (PTTW) under the OWRA may be required for any water takings that exceed 50,000 L/day. Certain water taking activities have been prescribed by the Water Taking EASR Regulation – O. Reg. 63/16. These prescribed water-taking activities require registration in the EASR instead of a PTTW.

**Groundwater**

- The status of, and potential impacts to any well water supplies should be addressed. If the project involves groundwater takings or changes to drainage patterns, the quantity and quality of groundwater may be affected due to drawdown effects or the redirection of existing contamination flows. In addition, project activities may infringe on existing wells such that they must be reconstructed or sealed and abandoned. Appropriate information to define existing groundwater conditions should be included in the Project File/ESR.

- If the potential construction or decommissioning of water wells is identified as an issue, the Project File/ESR should refer to Ontario Regulation 903, Wells, under the OWRA.

- Potential impacts to groundwater-dependent natural features should be addressed. Any changes to groundwater flow or quality from groundwater taking may interfere with the ecological processes of streams, wetlands or other surficial features. In addition, discharging contaminated or high volumes of groundwater to these features may have direct impacts on their function. Any potential effects should be identified, and appropriate mitigation measures should be recommended. The level of detail required will be dependent on the significance of the potential impacts.

- Any potential approval requirements for groundwater taking or discharge should be identified in the Project File/ESR. In particular, a Permit to Take Water (PTTW) under the OWRA may be required for any water takings that exceed 50,000 L/day. Certain water taking activities have been prescribed by the Water Taking EASR Regulation – O. Reg. 63/16. These prescribed water-taking activities require registration in the EASR instead of a PTTW.

**Contaminated Soils**

- Since the removal or movement of soils may be required, appropriate tests to determine contaminant levels from previous land uses or dumping should be undertaken. If the soils are contaminated, you must determine how and where they are to be disposed of, consistent with Part XV.1 of the Environmental Protection Act (EPA) and Ontario Regulation 153/04, Records of Site Condition, which details the new requirements related to site assessment and clean up. Please contact the ministry’s District Offices for further consultation if contaminated sites are present.
• Any current or historical waste disposal sites should be identified in the Project File/ESR. The status of these sites should be determined to confirm whether approval pursuant to Section 46 of the EPA may be required for land uses on former disposal sites.

• The location of any underground storage tanks should be investigated in the Project File/ESR. Measures should be identified to ensure the integrity of these tanks and to ensure an appropriate response in the event of a spill. The ministry’s Spills Action Centre must be contacted in such an event.

• The Project File/ESR should identify any underground transmission lines in the study area. The owners should be consulted to avoid impacts to this infrastructure, including potential spills.

□ Excess Materials Management


• All waste generated during construction must be disposed of in accordance with ministry requirements.

□ Servicing and Facilities

• Any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste must have an Environmental Compliance Approval (ECA) before it can operate lawfully. Please consult with the Environmental Approvals Access and Service Integration Branch (EAASIB) to determine whether a new or amended ECA will be required for any proposed infrastructure.

• We recommend referring to the ministry’s “D-Series” guidelines – Land Use Compatibility to ensure that any potential land use conflicts are considered when planning for any infrastructure or facilities related to wastewater, pipelines, landfills or industrial uses.

□ Mitigation and Monitoring

Contractors must be made aware of all environmental considerations so that all environmental standards and commitments for both construction and operation are met. Mitigation measures should be clearly referenced in the Project File/ESR and regularly monitored during the construction stage of the project. In addition, we encourage proponents to conduct post-construction monitoring to ensure all mitigation measures have been effective and are functioning properly.

• Design and construction reports and plans should be based on a best management approach that centres on the prevention of impacts, protection of the existing environment, and opportunities for rehabilitation and enhancement of any impacted areas.

• The proponent’s construction and post-construction monitoring plans must be documented in the Project File/ESR, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.
Consultation

- The Project File/ESR must demonstrate how the consultation provisions of the Class EA have been fulfilled, including documentation of all stakeholder consultation efforts undertaken during the planning process. This includes a discussion in the Project File/ESR that identifies concerns that were raised and describes how they have been addressed by the proponent throughout the planning process. The Class EA also directs proponents to include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments.

Class EA Process

- The Project File/ESR should provide clear and complete documentation of the planning process in order to allow for transparency in decision-making.

- If this project is a Master Plan: there are several different approaches that can be used to conduct a Master Plan, examples of which are outlined in Appendix 4 of the Class EA. The Master Plan should clearly indicate the selected approach for conducting the plan, in particular by identifying whether the levels of assessment, consultation and documentation are sufficient to fulfill the requirements for Schedule B or C projects. Please note that any Schedule B or C projects identified in the plan would be subject to Part II Order Requests under the Environmental Assessment Act (EAA), although the plan itself would not be.

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment. The Project File/ESR should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments) such that all potential impacts can be identified and appropriate mitigation measures can be developed. Any supporting studies conducted during the Class EA process should be referenced and included as part of the Project File/ESR.

- Please include in the Project File/ESR a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including MOECC's PTTW and ECAs, conservation authority permits, and approval under the Canadian Environmental Assessment Act (CEAA).

- Ministry guidelines and other information related to the issues above are available at http://www.ontario.ca/environment-and-energy/environment-and-energy. We encourage you to review all the available guides and to reference any relevant information in the Project File/ESR.
A PROPONENT'S INTRODUCTION TO THE DELEGATION OF PROCEDURAL ASPECTS OF CONSULTATION WITH ABORIGINAL COMMUNITIES

DEFINITIONS

The following definitions are specific to this document and may not apply in other contexts:

**Aboriginal communities** – the First Nation or Métis communities identified by the Crown for the purpose of consultation.

**Consultation** – the Crown’s legal obligation to consult when the Crown has knowledge of an established or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. This is the type of consultation required pursuant to s. 35 of the *Constitution Act, 1982*. Note that this definition does not include consultation with Aboriginal communities for other reasons, such as regulatory requirements.

**Crown** – the Ontario Crown, acting through a particular ministry or ministries.

**Procedural aspects of consultation** – those portions of consultation related to the process of consultation, such as notifying an Aboriginal community about a project, providing information about the potential impacts of a project, responding to concerns raised by an Aboriginal community and proposing changes to the project to avoid negative impacts.

**Proponent** – the person or entity that wants to undertake a project and requires an Ontario Crown decision or approval for the project.

I. PURPOSE

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that may adversely impact that right. In outlining a framework for the duty to consult, the Supreme Court of Canada has stated that the Crown may delegate procedural aspects of consultation to third parties. This document provides general information about the Ontario Crown’s approach to delegation of the procedural aspects of consultation to proponents.

This document is not intended to instruct a proponent about an individual project, and it does not constitute legal advice.
II. WHY IS IT NECESSARY TO CONSULT WITH ABORIGINAL COMMUNITIES?

The objective of the modern law of Aboriginal and treaty rights is the *reconciliation* of Aboriginal peoples and non-Aboriginal peoples and their respective rights, claims and interests. Consultation is an important component of the reconciliation process.

The Crown has a legal duty to consult Aboriginal communities when it has knowledge of an existing or asserted Aboriginal or treaty right and contemplates conduct that might adversely impact that right. For example, the Crown’s duty to consult is triggered when it considers issuing a permit, authorization or approval for a project which has the potential to adversely impact an Aboriginal right, such as the right to hunt, fish, or trap in a particular area.

The scope of consultation required in particular circumstances ranges across a spectrum depending on both the nature of the asserted or established right and the seriousness of the potential adverse impacts on that right.

Depending on the particular circumstances, the Crown may also need to take steps to accommodate the potentially impacted Aboriginal or treaty right. For example, the Crown may be required to avoid or minimize the potential adverse impacts of the project.

III. THE CROWN’S ROLE AND RESPONSIBILITIES IN THE DELEGATED CONSULTATION PROCESS

The Crown has the responsibility for ensuring that the duty to consult, and accommodate where appropriate, is met. However, the Crown may delegate the procedural aspects of consultation to a proponent.

There are different ways in which the Crown may delegate the procedural aspects of consultation to a proponent, including through a letter, a memorandum of understanding, legislation, regulation, policy and codes of practice.

If the Crown decides to delegate procedural aspects of consultation, the Crown will generally:

- Ensure that the delegation of procedural aspects of consultation and the responsibilities of the proponent are clearly communicated to the proponent;
- Identify which Aboriginal communities must be consulted;
- Provide contact information for the Aboriginal communities;
- Revise, as necessary, the list of Aboriginal communities to be consulted as new information becomes available and is assessed by the Crown;
- Assess the scope of consultation owed to the Aboriginal communities;
• Maintain appropriate oversight of the actions taken by the proponent in fulfilling the procedural aspects of consultation;
• Assess the adequacy of consultation that is undertaken and any accommodation that may be required;
• Provide a contact within any responsible ministry in case issues arise that require direction from the Crown; and
• Participate in the consultation process as necessary and as determined by the Crown.

IV. THE PROPONENT’S ROLE AND RESPONSIBILITIES IN THE DELEGATED CONSULTATION PROCESS

Where aspects of the consultation process have been delegated to a proponent, the Crown, in meeting its duty to consult, will rely on the proponent’s consultation activities and documentation of those activities. The consultation process informs the Crown’s decision of whether or not to approve a proposed project or activity.

A proponent’s role and responsibilities will vary depending on a variety of factors including the extent of consultation required in the circumstance and the procedural aspects of consultation the Crown has delegated to it. Proponents are often in a better position than the Crown to discuss a project and its potential impacts with Aboriginal communities and to determine ways to avoid or minimize the adverse impacts of a project.

A proponent can raise issues or questions with the Crown at any time during the consultation process. If issues or concerns arise during the consultation that cannot be addressed by the proponent, the proponent should contact the Crown.

a) What might a proponent be required to do in carrying out the procedural aspects of consultation?

Where the Crown delegates procedural aspects of consultation, it is often the proponent’s responsibility to provide notice of the proposed project to the identified Aboriginal communities. The notice should indicate that the Crown has delegated the procedural aspects of consultation to the proponent and should include the following information:

• a description of the proposed project or activity;
• mapping;
• proposed timelines;
• details regarding anticipated environmental and other impacts;
• details regarding opportunities to comment; and
• any changes to the proposed project that have been made for seasonal conditions or other factors, where relevant.
Proponents should provide enough information and time to allow Aboriginal communities to provide meaningful feedback regarding the potential impacts of the project. Depending on the nature of consultation required for a project, a proponent also may be required to:

- provide the Crown with copies of any consultation plans prepared and an opportunity to review and comment;
- ensure that any necessary follow-up discussions with Aboriginal communities take place in a timely manner, including to confirm receipt of information, share and update information and to address questions or concerns that may arise;
- as appropriate, discuss with Aboriginal communities potential mitigation measures and/or changes to the project in response to concerns raised by Aboriginal communities;
- use language that is accessible and not overly technical, and translate material into Aboriginal languages where requested or appropriate;
- bear the reasonable costs associated with the consultation process such as, but not limited to, meeting hall rental, meal costs, document translation(s), or to address technical & capacity issues;
- provide the Crown with all the details about potential impacts on established or asserted Aboriginal or treaty rights, how these concerns have been considered and addressed by the proponent and the Aboriginal communities and any steps taken to mitigate the potential impacts;
- provide the Crown with complete and accurate documentation from these meetings and communications; and
- notify the Crown immediately if an Aboriginal community not identified by the Crown approaches the proponent seeking consultation opportunities.

b) What documentation and reporting does the Crown need from the proponent?

Proponents should keep records of all communications with the Aboriginal communities involved in the consultation process and any information provided to these Aboriginal communities.

As the Crown is required to assess the adequacy of consultation, it needs documentation to satisfy itself that the proponent has fulfilled the procedural aspects of consultation delegated to it. The documentation required would typically include:

- the date of meetings, the agendas, any materials distributed, those in attendance and copies of any minutes prepared;
- the description of the proposed project that was shared at the meeting;
- any and all concerns or other feedback provided by the communities;
- any information that was shared by a community in relation to its asserted or established Aboriginal or treaty rights and any potential adverse impacts of the proposed activity, approval or disposition on such rights;
- any proposed project changes or mitigation measures that were discussed, and feedback from Aboriginal communities about the proposed changes and measures;
- any commitments made by the proponent in response to any concerns raised, and feedback from Aboriginal communities on those commitments;
- copies of correspondence to or from Aboriginal communities, and any materials distributed electronically or by mail;
- information regarding any financial assistance provided by the proponent to enable participation by Aboriginal communities in the consultation;
- periodic consultation progress reports or copies of meeting notes if requested by the Crown;
- a summary of how the delegated aspects of consultation were carried out and the results; and
- a summary of issues raised by the Aboriginal communities, how the issues were addressed and any outstanding issues.

In certain circumstances, the Crown may share and discuss the proponent’s consultation record with an Aboriginal community to ensure that it is an accurate reflection of the consultation process.

c) Will the Crown require a proponent to provide information about its commercial arrangements with Aboriginal communities?

The Crown may require a proponent to share information about aspects of commercial arrangements between the proponent and Aboriginal communities where the arrangements:

- include elements that are directed at mitigating or otherwise addressing impacts of the project;
- include securing an Aboriginal community’s support for the project; or
- may potentially affect the obligations of the Crown to the Aboriginal communities.

The proponent should make every reasonable effort to exempt the Crown from confidentiality provisions in commercial arrangements with Aboriginal communities to the extent necessary to allow this information to be shared with the Crown.

The Crown cannot guarantee that information shared with the Crown will remain confidential. Confidential commercial information should not be provided to the Crown as part of the consultation record if it is not relevant to the duty to consult or otherwise required to be submitted to the Crown as part of the regulatory process.

V. WHAT ARE THE ROLES AND RESPONSIBILITIES OF ABORIGINAL COMMUNITIES’ IN THE CONSULTATION PROCESS?
Like the Crown, Aboriginal communities are expected to engage in consultation in good faith. This includes:

- responding to the consultation notice;
- engaging in the proposed consultation process;
- providing relevant information;
- clearly articulating the potential impacts of the proposed project on Aboriginal or treaty rights; and
- discussing ways to mitigate any adverse impacts.

Some Aboriginal communities have developed tools, such as consultation protocols, policies or processes that provide guidance on how they would prefer to be consulted. Although not legally binding, proponents are encouraged to respect these community processes where it is reasonable to do so. Please note that there is no obligation for a proponent to pay a fee to an Aboriginal community in order to enter into a consultation process.

To ensure that the Crown is aware of existing community consultation protocols, proponents should contact the relevant Crown ministry when presented with a consultation protocol by an Aboriginal community or anyone purporting to be a representative of an Aboriginal community.

VI. WHAT IF MORE THAN ONE PROVINCIAL CROWN MINISTRY IS INVOLVED IN APPROVING A PROPONENT’S PROJECT?

Depending on the project and the required permits or approvals, one or more ministries may delegate procedural aspects of the Crown’s duty to consult to the proponent. The proponent may contact individual ministries for guidance related to the delegation of procedural aspects of consultation for ministry-specific permits/approvals required for the project in question. Proponents are encouraged to seek input from all involved Crown ministries sooner rather than later.
July 14, 2017 (EMAIL ONLY)

Nathalie McCutcheon  
Project Manager  
The Municipal Infrastructure Group  
E: nmccutcheon@tmig.ca

RE: MTCS file #: 0006841  
Proponent: Town of Whitby  
Subject: Notice of Commencement  
Location: Dryden Boulevard Extension from Deverell Street to Thickson Road

Dear Ms. McCutcheon:

Thank you for providing the Ministry of Tourism, Culture and Sport (MTCS) with the Notice of Commencement for your project. MTCS's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage, which includes:

- Archaeological resources, including land-based and marine;
- Built heritage resources, including bridges and monuments; and,
- Cultural heritage landscapes.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources. The recommendations below are for a Schedule C Municipal Class EA project, as described in the notice of study commencement.

While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Aboriginal communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Aboriginal communities includes a discussion about known or potential cultural heritage resources that are of value to these communities. Municipal Heritage Committees, historical societies and other local heritage organizations may also have knowledge that contributes to the identification of cultural heritage resources.

Archaeological Resources
Your EA project may impact archaeological resources and you should screen the project with the MTCS Criteria for Evaluating Archaeological Potential to determine if an archaeological assessment is needed. MTCS archaeological sites data are available at archaeology@ontario.ca. If your EA project area exhibits archaeological potential, then an archaeological assessment (AA) should be undertaken by an archaeologist licenced under the OHA, who is responsible for submitting the report directly to MTCS for review.

Built Heritage and Cultural Heritage Landscapes
The MTCS Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes should be completed to help determine whether your EA project may impact cultural heritage resources. The Clerk for the Town of Whitby can provide information on property registered or designated under the Ontario Heritage Act. Municipal Heritage Planners can also provide information that will assist you in completing the checklist.
If potential or known heritage resources exist, MTCS recommends that a Heritage Impact Assessment (HIA), prepared by a qualified consultant, should be completed to assess potential project impacts. Our Ministry’s Info Sheet #5: Heritage Impact Assessments and Conservation Plans outlines the scope of HIAs. Please send the HIA to MTCS for review, and make it available to local organizations or individuals who have expressed interest in review.

Environmental Assessment Reporting
All technical heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MTCS whether any technical heritage studies will be completed for your EA project, and provide them to MTCS before issuing a Notice of Completion. If your screening has identified no known or potential cultural heritage resources, or no impacts to these resources, please include the completed checklists and supporting documentation in the EA report or file.

Thank-you for consulting MTCS on this project: please continue to do so through the EA process, and contact me for any questions or clarification.

Sincerely,

Laura Hatcher
Heritage Planner
laura.e.hatcher@ontario.ca

Copied to: Horace Look, Project Engineer, Town of Whitby Public Works

It is the sole responsibility of proponents to ensure that any information and documentation submitted as part of their EA report or file is accurate. MTCS makes no representation or warranty as to the completeness, accuracy or quality of the any checklists, reports or supporting documentation submitted as part of the EA process, and in no way shall MTCS be liable for any harm, damages, costs, expenses, losses, claims or actions that may result if any checklists, reports or supporting documents are discovered to be inaccurate, incomplete, misleading or fraudulent.

Please notify MTCS if archaeological resources are impacted by EA project work. All activities impacting archaeological resources must cease immediately, and a licensed archaeologist is required to carry out an archaeological assessment in accordance with the Ontario Heritage Act and the Standards and Guidelines for Consultant Archaeologists.

If human remains are encountered, all activities must cease immediately and the local police as well as the Cemeteries Regulation Unit of the Ministry of Government and Consumer Services must be contacted. In situations where human remains are associated with archaeological resources, MTCS should also be notified to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.
## MEETING MINUTES

**PROJECT**  
Dryden Boulevard Extension

**WHITBY PROJECT NUMBER**  
RFP-118-2016

**DATE / TIME**  
November 23, 2017 / 1:00pm

**LOCATION**  
Region of Durham, 605 Rossland Road East, Whitby Room CLK-1R-12

**MEETING PURPOSE**  
Consultation Meeting with Region of Durham

### ATTENDEES

<table>
<thead>
<tr>
<th>Region</th>
<th>Chris Leitch, Glyn Reedman, Joshua de Boer, Paul Gee</th>
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<tr>
<td>Town of Whitby</td>
<td>Horace Look</td>
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<tr>
<td>Dillon</td>
<td>Paul Bumstead</td>
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<tr>
<td>TMIG</td>
<td>Nathalie McCutcheon</td>
</tr>
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### REGRETS

Prasenjit Roy, Aaron Christie, Joel Walker

### TMIG PROJECT NUMBER

17122

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<thead>
<tr>
<th>ITEM</th>
<th>DISCUSSION</th>
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<tr>
<td><strong>EA Overview</strong></td>
<td>The Town of Whitby retained TMIG to complete the Schedule B EA and Dillon was retained by the Town to complete the Transportation Assessment. The Notice of Study Commencement and PIC was send out in June 2017. The first PIC was held at the end of June and presented the need and justification for the project. A second PIC will be held in Jan/Feb 2018. The Dryden Road extension will cross a Provincially Significant Wetland. Minto Development is proposing a subdivision development north and south of the Dryden Blvd extension. The Region is aware of the development application and is currently reviewing the Traffic Report. Regional staff from Works and Planning noted that the Notice of Commencement/PIC #1 was not received. TMIG noted that the Region was on their mail-out list. In future, if confirmation is not received from Region on an EA study prior to a PIC event (particularly when Regional infrastructure is involved), the municipality and/or consultant should follow-up to confirm the Region's involvement in the study.</td>
<td>Info</td>
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<tr>
<td><strong>Region’s Comments on the Transportation Assessment</strong></td>
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</table>
- Page 9 (of Transportation Draft Report) – Provide Existing Conditions figure similar to Figure 9. – *Dillon to update.*  
- Page 18 – more detailed description of methodology used to generate horizon year forecasts required. Specifically, relationship between 2011 base model year, 2014/2015 counts, and 2041 forecasts. Elaborate on the nature and rationale behind the select link analysis and adjustments to forecasts. As well, provide an explanation regarding the methodology in developing p.m. forecasts, as data from the model is only from the a.m. – *Dillon to update.*  
- Page 13 and page 20 – add N-S screenline assessments to strategic screenline analysis Tables 5 and 8. – *Dillon to update.* | Dillon |

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MEETING MINUTES – 11-23-17 TMIG PROJECT NUMBER 17122
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<thead>
<tr>
<th>Item</th>
<th>Discussion</th>
<th>Action by</th>
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| 2    | **Preliminary Road Alignment and Thickson Intersection**  

- The Transportation Assessment Report recommended an eastbound left turn lane, an eastbound through lane and an eastbound through/right turn lane. The study also reviewed an interim solution which included an eastbound left turn lane and an eastbound through/right turn lane. The interim intersection configuration would operate at LOS F and the addition of the eastbound through lane would improve the intersection operation to LOS D. Subsequent to the meeting, the Town has requested that Dillon review the impact of reducing Dryden Blvd east of Thickson Road to two lanes (one lane in each direction) with bike lanes.

- Region asked whether a southbound right turn lane was required at the Thickson and Dryden intersection. As noted above, Dillon will review the warrant. It is the Region’s expectation that the Town will pay for the cost of the southbound right if it is required.

- A street has been added to Phase 2 of Minto Development that requires access to Thickson Road (approximately 200m south of Dryden Boulevard). The new street will accommodate EBLT/EBT/EBT. TMIG to review the configuration of the northbound left turn lane at Dryden Boulevard to ensure that the northbound left turn queue or proposed island do not obstruct the turning movements from this new street.

- The posted speed on Thickson Road is currently 70km/hr but the Region’s Road Safety Group is reviewing whether a reduction to 60km/hr is appropriate. For now, a 90km/hr design speed is to be used until the Region makes a decision on the speed reduction.

- The need to extend the bike lanes along Dryden Blvd east of Thickson Road was discussed. Town of Whitby is currently undertaking an Active Transportation Plan (ATP) Study and the Town will review and advise. Region would like to know how the cycle lanes on Dryden Boulevard will connect to Thickson Road.

- The Town is reviewing the need for a multi-use path along the west side of Thickson Road due to comments received from the public. Region advised that if the Town wishes to add bike facilities on a Regional Road right-of-way, they must formally submit the request to the Region for review and approval. | Dillon/Town |
### Item Discussion

1. The Region’s Road Safety Group would also like to see how the sidewalks and boulevard will be designed since this will have impact on the clear zone.
2. A 1% cross fall at the Thickson and Dryden intersection is ideal. TMIG to review and advise.
3. Need to correct profile and check of turning from Thickson Road to confirm R15 works.

#### Existing 600mm diameter feedermain

- A section of the existing 600mm diameter feedermain will likely be affected by the proposed bridge. The Town and TMIG are meeting with CLOCA on November 24, 2017 to discuss the bridge span options. The feedermain was traced in the field and surveyed. Dig ups have not been undertaken yet. Once the bridge span has been finalized, TMIG will determine the impacts to the existing feedermain and advise.
- Region to advise if future sanitary or water infrastructure required on Dryden Blvd. **Update:** Comments from Works – Engineering, Planning and Studies are provided below: We have an existing 600 mm watermain that is currently located within a 9m wide easement and, according to the attached drawing, the easement appears to be the north limits of Dryden Boulevard extension. Based on the information provided, we expect that the watermain will need to be relocated around the bridge within a new easement. The Consultant will need to include this work in their consideration of the impacts related to the scope of this project. The Town or Developer should make sure to include an allowance for the cost to relocate this watermain within their project budget.

#### Next Steps

1. Dillon to review the comments provided by the Region and finalize their Transportation Assessment Report
2. TMIG to update the preliminary road alignment based on the comments received from the Region and CLOCA. Drawing limits to be extended to show the turning lanes in each direction at the intersection of Thickson and Dryden. The revised drawings to be forwarded to the Region for their review and comment prior to the next PIC.

**Please Note:** If these minutes do not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.

**Distribution:** All Attendees

**Minutes Prepared by:**

Nathalie McCutcheon

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**MEETING MINUTES – 11-23-17 TMIG PROJECT NUMBER 17122**
MEETING MINUTES

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<thead>
<tr>
<th>PROJECT</th>
<th>Dryden Boulevard Extension</th>
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<tr>
<td>WHITBY PROJECT NUMBER</td>
<td>RFP-118-2016</td>
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<tr>
<td>DATE / TIME</td>
<td>November 24, 2017 / 10:00am</td>
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<tr>
<td>LOCATION</td>
<td>CLOCA office</td>
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<tr>
<td>MEETING PURPOSE</td>
<td>Consultation Meeting with CLOCA</td>
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<tr>
<th>ATTENDEES</th>
<th>CLOCA</th>
<th>Perry Sisson, Chris Jones, Ian Kelsey, Kathy Luttrell, Eric Cameron</th>
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<tr>
<td></td>
<td>Town of Whitby</td>
<td>Horace Look</td>
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<td>Golder</td>
<td>Amber Sabourin</td>
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<td>GeoMorphix</td>
<td>Kevin Tabata</td>
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<td>TMIG</td>
<td>Steve Hollingsworth, Nathalie McCutcheon</td>
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<tr>
<td>REGRETS</td>
<td>Richard Booth (Golder)</td>
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<td>TMIG PROJECT NUMBER</td>
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<th>ITEM</th>
<th>DISCUSSION</th>
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<tr>
<td>1</td>
<td><strong>EA Status</strong>&lt;br&gt;The Town of Whitby retained TMIG to complete the Schedule B EA. The Notice of Study Commencement and PIC was sent out in June 2017. The first PIC was held at the end of June and presented the need and justification for the project. There is a need for the extension of Dryden Boulevard from a traffic perspective. A second PIC will be held in Jan/Feb 2018. Since the site visit with CLOCA on June 21, 2017, field investigations have been undertaken as well as the preliminary road alignment and bridge options.</td>
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<td>2</td>
<td><strong>Preliminary Road Alignment and Bridge Options</strong>&lt;br&gt;The approximate width of the bridge is 23m but this width may change as a result of the need for multi-use path. Three bridge options were reviewed:&lt;br&gt;- Alternative 1: 1 span bridge (20m). The clearance under the bridge would range from 1.24 to 1.39m. The openness ratio ranges from 1.02 to 1.12.&lt;br&gt;- Alternative 2: 2 span bridge (20m; 20m). The clearance under the bridge would range from 1.13 to 1.39m. One of the piers would be located in the wetland. The openness ratio ranges from 1.02 to 1.12.&lt;br&gt;- Alternative 3: 3 span bridge (20m; 20m; 20m). Two piers would be located in the wetland. The clearance under the bridge would range from 0.66 to 1.45m. The openness ratio ranges from 0.78 to 1.10.</td>
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<td>ITEM</td>
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| 3    | **Transportation Assessment Study**  
  - The Transportation Assessment study was conducted by Dillon Consulting and the study confirmed the need for the extension to relieve congestion on Taunton Road and Rossland Road in the future.  
  - The configuration of bike lanes and multi-use path and sidewalk is still being determined by the Town of Whitby. An Active Transportation Study is currently underway. |          |
| 4    | **Hydraulics**  
  - The existing model was used but the output of the draft model (from ongoing Pringle Creek Masterplan) as well as existing topographic information was used to develop new cross sections in the proposed bridge. Three bridge alternatives (noted in Section 2) were modelled.  
  - All bridge alternatives provided sufficient hydraulic capacity.  
  - Alternative 1 (20m) resulted in an 8 to 10 cm increase in flood levels for a distance of approximately 40m upstream of the bridge.  
  - CLOCA advised that 0.3m freeboard is required. *Subsequent to the meeting, TMIG reviewed the model for Alternative 1. Immediately upstream of the crossing, where the model predicted a flood increases up to 10 cm, there is more than 0.3 m freeboard from the increased flood level to the rear lot grates.*  
  - CLOCA advised that the updated Pringle Creek model will soon be ready. |          |
| 5    | **Natural Environment**  
  - Golder completed their field investigation.  
  - CLOCA indicated that redbelly dace are present in this area and redside dace have historically been extirpated from this area.  
  - Information request has been made to the MNRF but Golder has not received any information yet.  
  - There are some uncommon species such as silky dogwood and purple-stem aster on the site. Once the road and bridge alignment has been set, Golder will field verify and categorize the species that will be affected by the project.  
  - Golder recommended that small/medium sized mammals be targeted for wildlife passage under the bridge. Deer passage at this location is not anticipated. Openness ratio target is 0.2 for medium size mammals. | Golder |
| 6    | **Geomorphology**  
  - There is no defined channel through the project area. Although, GeoMorphix did indicate that a path of concentrated flow was evident in the spring. The location will be identified on photos and provided to TMIG.  
  - A shallow, wide (10 m) swale can be designed at this location to maintain the concentrated flow path. The design will ultimately be guided by the topographic survey if it captures the flow path.  
  - Piers, if necessary, should be positioned to not conflict with the proposed swale.  
  - Head cut near the bridge is not likely since there is not enough energy. |          |
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<th>ITEM</th>
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<tr>
<td>7</td>
<td><strong>Other</strong></td>
<td>CLOCA</td>
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<td>• CLOCA indicated that there is existing silt fence on the Minto property from previous projects and the silt fence should be removed. CLOCA to forward photos and locations to the Town.</td>
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<td>8</td>
<td><strong>Next Steps</strong></td>
<td>TMIG</td>
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<td>• CLOCA requested TMIG to review the possibility of increasing the length of the single span option (i.e. Alternative 1 as noted in Item #2 above). It is hoped that by increasing the span length for the single span option, the minor hydraulic impacts resulting from the 20 m span can be lessened if not eliminated. If a span greater than 20m results in a reduction in the clearance under the bridge and the 20m span is preferred, CLOCA requested that the rational be documented.</td>
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<td>• CLOCA noted that the footprint of the single span bridge and its approaches will impact the existing wetland, and indicated that compensation will be required. CLOCA suggested that the location for compensation be coordinated with the Minto development.</td>
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<td>• A geotechnical investigation will be undertaken once the bridge span has been determined so that the boreholes can be situated at each end of the proposed bridge.</td>
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**PLEASE NOTE:** If these minutes do not agree with your records of the meeting, or if there are any omissions, please advise, otherwise we will assume the contents to be correct.
Hi Nathalie,

Thanks for circulating the revised design drawings and updated Transportation Assessment (December 2017). Regional staff reviewed these materials and have the following comments:

**Design Drawings**

1) The 1% crossfall would ideally be carried a minimum of 20 m beyond the edge of the SB RTL to get the grade brake sufficiently outside the intersection and minimize the risk of ponding/icing close to the intersection. Currently the 1% to 0.5% grade brake is shown between the through lane and RTL which is not acceptable. In hindsight, to further minimize the grade break at the Thickson centerline (given the east side will still have a 2% crossfall), as well as to help keep the profile as high as possible above the creek, replacing the 1% and 0.5% with a 0.75% grade from the centerline may be preferable.

2) Although the design vehicle used for the intersection turning movements may be appropriate for regular use, the SBR movement should be checked to confirm a WB-15/19 (e.g. moving truck) can make the turn with the median on Dryden (encroaching on the SB through lane is acceptable for these occasional turns). It is not expected to be a concern but prudent to check.

3) With the addition of the NB LTL and SB RTL, a full streetlighting analysis needs to be done within the limits of the turn lanes on Thickson to obtain proper lighting (as per the Region’s current standards). This is expected to require the addition of lights on the west side, and the consultant should follow-up with Traffic Engineering and Operations staff for more information.

4) Presumably additional field survey is being obtained north and south on Thickson to complete the design and better determine the impacts/mitigation prior to the PIC. The SBR will require the embankment to be widened into the bush and therefore these impacts would need to be included in the assessment along the need for additional ROW determined and obtained to provide the boulevard for future SW/MUP with appropriate offsets from the road and slope, as well as contain the embankment and ditch (if drainage warrants). The limits of grading and impact to trees should be identified given this may be a concern for the CA and public.

5) Proper cross-walks and terminations of sidewalk and MUP should be shown at the intersection for clarity.

6) From a road safety perspective, we would like to reiterate our appeal for crossrides, but understand that if cycling facilities on the east leg of Dryden and the MUP on the west side of Thickson are not yet established, justification may not be met at this time. Please provide any updates from the Town regarding recommendations for the east leg geometry and Thickson MUP.

**Transportation Assessment**

7) Page 21, Section 3.2 – Transportation Network

- Under Table 7: Future Network Assumptions, it should be noted that a MUP is planned to be constructed on one side of Brock Street as part of the widening project.
- Appendix C and Map 4B of the Region’s TMP (December 2017) includes the widening of Taunton Road from 4/5 to 6/7 lanes, which includes a curbside HOV lane, from York-Durham Line to Simcoe Street. There are three projects are targeted for the 2027-2031 period as outlined in Appendix C to the TMP. However, if the
project team wishes to err on the side of caution through the study area and not assume this project to be constructed by 2041, then that should be noted in this section.

8) The minutes from the November 23, 2017 project team meeting note, as an action item, that the Town provide Dillon/TMIG with the October 2017 update of the BA Group report traffic study for the Minto Ivy Ridge development. We cannot confirm whether this update was reviewed but do not have any concerns with the revised Transportation Assessment.

Water and Wastewater

9) We have no additional comments at this time.

Regards,
Chris
1. A 1% cross fall on Thickson Road was included in the design as shown in the attached plan & profile drawing (Dryden – Sketch 2.pdf).

2. A 3m wide multi-use path is proposed on the north side of Dryden Boulevard and a 1.5m wide sidewalk on the south side of Dryden. In addition, the Town is proposing a 2m on road bike lane on the north and south sides of Dryden Boulevard. The attached plan currently shows the 2m bike lanes terminating on the west side of Thickson Road and Dryden Boulevard. The Town plans to extend the on road bike lane east of Thickson Road in the future.

3. The Traffic Assessment report recommended a left turn bay with 25m storage (refer to Section 4.2.2). The northbound left turn lane on Thickson Road terminates approximately 10.5m north of the proposed Minto subdivision (phase 2). Please note a 90km design speed was used which resulted in a 25m Storage, 106m Deceleration, 70m taper. Region of Durham Left Turn Lanes Design Guideline S-300.040 was used to calculate the deceleration and taper lengths (bay taper).

4. Based on the Traffic Assessment report from Dillon (refer to p.38), a dedicated southbound right turn lane is required at Thickson Road and Dryden Boulevard. A 90km design speed was used which resulted in a right turn lane with 15m Storage, 70m Parallel, 75m Taper. The Region of Durham Right Turn Lanes Design Guideline S-300.050 was used to calculate the parallel and taper lengths.

5. TMIG reviewed the proposed 15m radii at the northwest and southwest corners of the intersection of Thickson Road and Dryden Blvd. We have included the vehicle tracking for a Heavy Single Unit Truck & a B-12 Standard Bus. As shown in Figures 1 to 4, there is minimal to no cross over into the through lanes.

**Existing 600mm diameter feedermain**

1. A portion of the existing 600mm diameter feedermain will likely be impacted by the bridge construction (Station 0+270 to 0+305).

Please note that the next PIC is scheduled for March 2018 so we would appreciate the Region’s comments as soon as possible. Please confirm receipt of this email.

Should you have any questions or require additional information, please give me a call.

Thank you,
dissemination, distribution, copying, conversion to hard copy, taking of action in reliance on or other use of this communication is strictly prohibited. If you are not the intended recipient and have received this message in error, please notify me by return e-mail and delete or destroy all copies of this message. THIS MESSAGE IS FOR THE USE OF THE INTENDED RECIPIENT(S) ONLY AND MAY CONTAIN INFORMATION THAT IS PRIVILEGED, PROPRIETARY, CONFIDENTIAL, AND/OR EXEMPT FROM DISCLOSURE UNDER ANY RELEVANT PRIVACY LEGISLATION. No rights to any privilege have been waived. If you are not the intended recipient, you are hereby notified that any review, re-transmission, dissemination, distribution, copying, conversion to hard copy, taking of action in reliance on or other use of this communication is strictly prohibited. If you are not the intended recipient and have received this message in error, please notify me by return e-mail and delete or destroy all copies of this message.

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Yes – thanks, Rebekah. I circulated the notice to Regional staff involved with the EA.

Regards,
Chris

---

Good afternoon Chris,

Can you please confirm receipt of this email?

Thank you.

Rebekah Burnett

Good morning,

Attached, please find the Town of Whitby Public Notice for the upcoming Community Open House regarding Dryden Boulevard Extension.

Best regards,
Rebekah Burnett
Office Administrator
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Thank you

From: Maxime Picard [mailto:maxime.picard@cnhw.qc.ca]  
Sent: May 22, 2018 9:19 AM  
To: Nathalie McCutcheon <nmccutcheon@tmig.ca>  
Subject: RE: Dryden Boulevard Extension EA

Well received.

Thanks Nathalie

Maxime,

Attached is the Archaeological Report that was completed for the study area and adjacent development site.

Please confirm receipt.

If you have any questions, please contact the undersigned.
From: Maxime Picard [mailto:maxime.picard@cnhw.qc.ca]
Sent: Monday, March 26, 2018 8:18 AM
To: Look, Horace
Subject: Dryden Boulevard Extension

Good morning Mr. Look,

We received the attached notice about the Dryden Boulevard Extension Project. At this stage of the study, does any archaeological assessment have been done yet?

Regards,

Maxime
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Nathalie McCutcheon

From: Nathalie McCutcheon  
Sent: May 22, 2018 9:15 AM  
To: 'dmowat@scugogfirstnation.com'  
Subject: Dryden Blvd Extension EA  
Attachments: 1670514-2000-M01 19Jun17_draft.pdf

Dave Mowat,

Attached is the Archaeological Report that was completed for the study area and adjacent development site.

Please confirm receipt.

If you have any questions, please contact the undersigned.

Thank you,

Nathalie McCutcheon, P.Eng  
Director of Municipal Services

TMIG | The Municipal Infrastructure Group Ltd.  
110 Scotia Court, Unit 27 | Whitby, Ontario L1N 8Y7  

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From: Dave Mowat [mailto:dmowat@scugogfirstnation.com]  
Sent: Wednesday, July 12, 2017 3:17 PM  
To: Look, Horace  
Subject: Dryden Blvd Extension

Good Afternoon:
Regarding the Dryden Boulevard Extension (from Deverell to Thickson) we would like to remain on your mailing list and will take a primary interest in the Archaeological Assessment when it is completed.

Thank you,

Dave Mowat  
Consultation, Lands and Membership Supervisor  
Mississaugas of Scugog Island First Nation  
22521 Island Rd.  
Port Perry, ON, L9L 1B6  
Phone: (905) 985-3337 ext. 263  
Fax: (905) 985-8828  
Email: dmowat@scugogfirstnation.com

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Chief James Marsden,

I wanted to get confirmation that you have received the attached notices for the Town of Whitby’s Environmental Assessment for the Dryden Boulevard Extension.

I have attached 2 PDFs, one being the notice of study commencement and Open House 1 and the second being the notice of Open House 2 that were mailed on June 7, 2017 and March 21, 2018.

Project details can be found at the following link: https://www.whitby.ca/en/townhall/currentstudies.asp?#drydenboulevard

Please send any comments to the team members mentioned on the notices.

Best Regards,

Josh Bozec
Engineer In Training

TMIG | The Municipal Infrastructure Group Ltd.
110 Scotia Court, Unit 27 | Whitby, Ontario L1N 8Y7
p: 905.738.5700 x515 | f: 905.738.0065 | tmig.ca

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Grand Chief Joel Abram,

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Ms. McLeod,

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Chief Donna Big Canoe,

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Chief Rodney Naganosh,

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Best Regards,

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Chief Phyllis Williams,

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Chief Mary McCue-King,

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Ms. Meyer,

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Chief Kelly LaRocca,

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Best Regards,

Josh Bozec
Engineer In Training

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Chief Stacey Laforme,

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Chief Jason Fisher,

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Best Regards,

Josh Bozec  
Engineer In Training

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Chief Scott McLeod,

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Chief Lester Anoquot,

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Ms. Sandy-McKenzie,

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Best Regards,

Josh Bozec
Engineer In Training

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Chief Laurie Carr,

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Josh Bozec
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Hi Nathalie –

CLOCA staff have completed a review of the Stormwater Management Report (TMIG, May 2018) for the Dryden Boulevard Extension.
We have no concerns with the Report. During detailed design for this project we recommend that LID measures be included in the conveyance channel design.

I trust this e-mail fulfills the Town of Whitby’s requirement for CLOCA review and approval.

Regards,

Eric Cameron
Infrastructure Planner / Enforcement Officer
Central Lake Ontario Conservation Authority
100 Whiting Ave.
Oshawa, ON L1H 3T3
Tel: 905 579 0411 ext 158
e-mail: ecameron@cloca.com

To go to our on-line mapping tool, click here

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Thank you.

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Merci.
Good morning Eric,

Attached is the Stormwater Management Report for the Dryden Blvd EA for your review and comment.

Please note the Bridge Hydraulics section of the attached report was previously reviewed by Perry.

Rosalie from our office has been in contact with Perry to discuss the stormwater management requirements for this project.

The Town is currently reviewing the draft ESR for this EA and we will be forwarding you a draft in a few weeks.

The Town is ready to issue a site alteration for the Ivy Ridge Development (SW-2016-02). It is our understanding from the Town that CLOCA must review and approve the SWM report for the Dryden Blvd EA prior to any earthworks commencing. At this time, we would ask that CLOCA please review the attached Stormwater Management Report and advise when we could expect comments.

Thank you,

Nathalie

Nathalie McCutcheon, P.Eng
Director of Municipal Services

TMIG | The Municipal Infrastructure Group Ltd.
110 Scotia Court, Unit 27 | Whitby, Ontario L1N 8Y7
p: 905.738.5700 x506 | c: 905.242.1012 | f: 905.738.0065 | tmig.ca
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APPENDIX C

Archaeology Assessment
Golder Associates Ltd. (Golder) was retained by the Regional Municipality of Durham through The Municipal Infrastructure Group (TMIG) to undertake a Stage 1 archaeological assessment in support of the Dryden Boulevard Extension Class Environmental Assessment (EA) (Map 1).

During the acquisition of background materials ahead of the Stage 1 archaeological assessment it was determined that archaeological assessments (Stages 1-4) have already been undertaken within the Dryden Blvd. extension Project Area. Below is a summary of the archaeological assessments recently undertaken within the Project Area; based on a review of...
these assessments, no further archaeological assessment is required. Copies of the Stages 1-4 archaeological assessment reports are attached.

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

Summary of Previous Archaeological Assessments

A Stage 1 archaeological assessment was conducted in 2016 ahead of potential development of the property the Dryden Blvd. Project Area bisects. The Stage 1 archaeological assessment included a review of background research and determined the property exhibited archaeological potential; Stage 2 archeological survey was recommended for the majority of the property, including the Dryden Blvd. Project Area. The center portion of the Dryden Blvd. Project Area was determined to be a low-laying poorly drained area and no further assessment was recommended; areas on either side of this poorly drained area were recommended for Stage 2 pedestrian survey at a five metre interval (Archaeological Assessments Ltd. 2016a).

The Stage 2 survey of the property identified one archaeological site; this site was located within the Dryden Blvd. Project Area (Archaeological Assessments Ltd. 2016b). The site was identified as an early to mid-19th century historical Euro-Canadian site measuring 60 metres north-south by 40 metres east-west; the site was named the Anderson site and registered under Borden number AIGr-475. Over 200 surface artifacts were identified at the site; given the date range and frequency of recovered artifacts Stage 3 archaeological assessment was recommended to further investigate the information potential and cultural heritage value of the site.

The Stage 3 archaeological assessment was conducted by excavating one-metre square units over the extent of AIGr-475 at a 10 metre interval, with an additional 40% of units excavated within the 10 metre interval to investigate areas of interest around the site (Archaeological Assessments Ltd. 2016b). A total of 38 Stage 3 units were excavated, with 1,793 19th century historical artifacts recovered. In addition to the recovered artifacts four potential subsurface cultural features were identified in Stage 3 units. The larger volume of recovered artifacts allowed the date range of the site to be narrowed to the 1830s-1840s. Given the pre-1850 date range of artifacts the site was determined to exhibit information potential and cultural heritage value or interest and Stage 4 archaeological mitigation of the site was recommended.

The Stage 4 archaeological mitigation of AIGr-475 was conducted in August 2016. The Stage 4 mitigation included the hand excavation of a block of 37 one-metre square units followed by the mechanical removal of topsoil over the site area (Archaeological Assessments Ltd. 2016c). During the mitigation six cultural features were identified including a root cellar, a refuse pit, an ash pit and three post moulds. To date only a preliminary excavation report has been produced for the Stage 4, with no artifacts counts recorded. Artifact counts, frequencies and an analysis of the site will be produced under a final excavation report, to be available at a later date. The
entire extent of AlGr-475 was subject to excavation and no further assessment is recommended for the site.

**Summary**

In 2016 Stages 1-4 archaeological assessments were completed within the Dryden Blvd. Project Area. All reports associated with these assessments have been reviewed and accepted by the MTCS; no further archaeological assessment is required for the Dryden Blvd. Project Area under the Class EA process.

**References Cited**

Archaeological Assessments Ltd.


**Golder Associates Ltd.**

Kendra Patton, Archaeologist

Hugh Daechsel, M.A., Principal, Senior Archaeologist

JLL/CP/Ih
If you need accessible formats or communication supports for this document, please contact the Town of Whitby at 905-430-4307 and provide the title of this document.

THE STAGE 1 ARCHAEOLOGICAL ASSESSMENT
OF THE TURK PROPERTY,
PART OF LOT 21, CONCESSION 3,
GEOGRAPHIC TOWNSHIP OF WHITBY,
TOWN OF WHITBY,
REGIONAL MUNICIPALITY OF DURHAM
(original)
THE STAGE 1 ARCHAEOLOGICAL ASSESSMENT OF
THE TURK PROPERTY,
PART OF LOT 21, CONCESSION 3,
GEOGRAPHIC TOWNSHIP OF WHITBY,
TOWN OF WHITBY,
REGIONAL MUNICIPALITY OF DURHAM
(original)

Prepared by

Archaeological Assessments Ltd.
2227 Wuthering Heights Way, Oakville, Ontario L6M 0A3
Telephone - 905-469-8690 Facsimile - 905-469-8702

Consulting Archaeologist: Rick Sutton
Archaeological Consulting Licence Number P013
P.I.F. Number P013-1137-2016
January 26, 2016
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## PROJECT PERSONNEL  
Project Director  Rick Sutton (License P013)  
Report Preparation  Rick Sutton (License P013)
EXECUTIVE SUMMARY

This report details the rationale, methods and results of the Stage 1 Archaeological Assessment of the Turk Property, Part of Lot 21, Concession 3, Geographic Township of Whitby, Town of Whitby, Regional Municipality of Durham. This project was conducted as a component of an application to develop these lands and in order to comply with the Planning Act (1996).

The 28 hectare subject property consists of agricultural lands, scrublands, forested areas and a former residential lot. The Stage 1 assessment was conducted in January, 2016.

The results of the Stage 1 assessment indicate that the majority of the subject property does have some potential for both aboriginal and Euro-Canadian archaeological resources. The subject property has archaeological potential because the majority of these lands consist of undisturbed well drained tablelands associated with a watercourse and early historical transportation routes. The property may also contain an unregistered 19th century Euro-Canadian homestead site. It is therefore recommended that the subject property should be subjected to a Stage 2 archaeological assessment prior to the development of this parcel of land. No soil disturbance or development activities should take place on the subject property until after a Stage 2 archaeological assessment has been completed.

For the Stage 2 assessment, all of the agricultural lands on the subject property will have to be ploughed and then pedestrian surveyed at 5 metre intervals. Any forested, scrubland or grass covered areas which cannot be ploughed will have to be shovel test pitted at 5 metres.
1.0 PROJECT CONTEXT

1.1 INTRODUCTION AND DEVELOPMENT CONTEXT

This report details the rationale, methods and results of the Stage 1 Archaeological Assessment of the Turk Property, Part of Lot 21, Concession 3, Geographic Township of Whitby, Town of Whitby, Regional Municipality of Durham. This project was conducted as a component of an application to develop these lands and in order to comply with the Planning Act (1996).

The assessment was conducted by Archaeological Assessments Ltd., under archaeological consulting licence No. P013 issued to Rick Sutton. The assessment was conducted in accordance with the provisions of the Ontario Heritage Act (Government of Ontario 1980) and the technical guidelines for archaeological assessments formulated by the Ministry of Tourism and Culture (MCL 2011). Permission for access to the property and to remove and curate artifacts was granted by the land owner. Archaeological Assessments Ltd. accepts responsibility for the long term curation of any artifacts recovered or documents produced as a result of the assessment.

1.2 ARCHAEOLOGICAL CONTEXT

Property Description
The 28 hectare subject property is located immediately northwest of the intersection of Rossland Road and Thickson Road (Figures 1, 2 and 3). Due to winter weather conditions, a property inspection was not conducted. The desktop Stage 1 assessment was conducted from January 21-22, 2016 by consultant archaeologist Rick Sutton (Licence P013).

An examination of satellite images, topographical and survey maps indicates that the subject property consists of agricultural lands, scrublands, forested lands and a former residential lot. The former residential lot fronts onto Rossland Road along the southern edge of the property and no longer contains any visible buildings.

The southern and central sections of the property contain several agricultural fields. A large area of forested lands and scrublands is located in the northern section of the property. A tributary of Pringle Creek runs from north to south through the centre of the property.

The subject property is located in the Iroquois Plain physiographic region. This region represents the lands that were underwater when post-glacial Lake Iroquois occupied the Lake Ontario basin ca. 10,000 B.C. (Chapman and Putnam 1984: 191). This lowland area bordering Lake Ontario is the shoreline of glacial Lake Iroquois (Chapman and Putnam 1984: 190). The soil is primarily sand overlying heavy clay subsoil at a depth of two to three feet (Chapman and Putnam 1984: 190).

General physiographic features which must be considered when identifying areas of archaeological potential include distance to water, local topography, soil conditions, and other resource specific features. In general, any lands located within 300 metres of any of these physiographic features should be considered to have archaeological potential (MTC 2011: 7). The MTC’s Standards and
Guidelines for Consultant Archaeologists (2011: 4-5) stipulate that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.

Other geographic characteristics that can indicate archaeological potential include: elevated topography (eskers, drumlins, large knolls, plateau), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. Resource areas are also considered to be characteristics that indicate archaeological potential (MTC 2011: 5).

Potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in south central Ontario after the Pleistocene era, proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

A tributary of Pringle Creek runs from north to south through the centre of the property. Consequently, the entire subject property is located within 300 metres of this watercourse and is therefore considered to have archaeological potential. The subject property also contains tablelands associated with well drained soils. This indicates that most of the subject property does have some potential for both aboriginal and 19th century Euro-Canadian archaeological sites.

**Previous Archaeological Research**

In order to provide context for evaluating archaeological planning concerns, a study area was established which included all lands situated within a 1km metre radius of the subject property. Data on previously registered sites located within the study area was obtained from Pastport, which is the Ontario Ministry of Tourism, Culture and Sport’s online digital data base. The on line search indicated that there are no previously registered archaeological sites located either on or immediately adjacent to the subject property. There are 4 previously registered archaeological sites located within a one kilometre radius of the subject property. The closest is the Hannon site (AlGr-126), which is located 900 metres northwest of the subject property. A cultural chronology that applies to the study area is presented in Table 2.

**Table 1. Registered Archaeological Sites Located Within 1 km of the Subject Property**

<table>
<thead>
<tr>
<th>Borden</th>
<th>Site Name</th>
<th>Period</th>
<th>Affinity</th>
<th>Type</th>
<th>CHVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlGr-69</td>
<td>-</td>
<td>Post-Contact</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AlGr-452</td>
<td>John Farquharson Site</td>
<td>Post-Contact</td>
<td>Euro-Canadian</td>
<td>dump, homestead</td>
<td>Further CHVI</td>
</tr>
<tr>
<td>AlGr-126</td>
<td>Hannon</td>
<td>Post-Contact</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AlGr-1</td>
<td>McLeod</td>
<td>Woodland, Late</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Table 2. Cultural Chronology For Southern Ontario

<table>
<thead>
<tr>
<th>PERIOD</th>
<th>GROUP</th>
<th>TIME RANGE</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PALEO-INIAN</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>Fluted</td>
<td>9000 - 8500 B.C.</td>
<td>Big Game Hunters and Small Nomadic Groups</td>
</tr>
<tr>
<td>Late</td>
<td>Non-fluted</td>
<td>8500 - 7500 B.C.</td>
<td></td>
</tr>
<tr>
<td><strong>ARCHAIC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>Nettling</td>
<td>8000 - 7000 B.C.</td>
<td>Nomadic Hunters and Gatherers</td>
</tr>
<tr>
<td></td>
<td>Bifurcate Based</td>
<td>7000 - 6000 B.C.</td>
<td></td>
</tr>
<tr>
<td>Middle</td>
<td>Stemmed, Otter Creek</td>
<td>6000 - 2500 B.C.</td>
<td>Transition to Territorial Settlement</td>
</tr>
<tr>
<td></td>
<td>and Brewerton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Late</td>
<td>Narrow Point</td>
<td>2500 - 1800 B.C.</td>
<td>More Diverse Resource Base</td>
</tr>
<tr>
<td></td>
<td>Broad Point</td>
<td>1800 - 1500 B.C.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small Point</td>
<td>1500 - 800 B.C.</td>
<td></td>
</tr>
<tr>
<td><strong>WOODLAND</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>Meadowood and Middlesex</td>
<td>1000 - 300 B.C.</td>
<td>Introduction of Pottery</td>
</tr>
<tr>
<td>Middle</td>
<td>Point Peninsula</td>
<td>300 B.C.- 700 A.D.</td>
<td>Long Distance Trade</td>
</tr>
<tr>
<td>Transitional</td>
<td>Princess Point</td>
<td>500 - 900 A.D.</td>
<td>Early Agriculture</td>
</tr>
<tr>
<td>Late</td>
<td>Early Iroquoian</td>
<td>900 - 1275 A.D.</td>
<td>Transition to Village Life</td>
</tr>
<tr>
<td></td>
<td>Middle Iroquoian</td>
<td>1275 - 1400 A.D.</td>
<td>Large Villages and Dependence on Agriculture</td>
</tr>
<tr>
<td></td>
<td>Late Iroquoian</td>
<td>1400 - 1650 A.D.</td>
<td>Tribal Development, Warfare, European Contact</td>
</tr>
<tr>
<td><strong>HISTORIC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>Odawa, Ojibwa, Missisauaga</td>
<td>1700 - 1875 A.D.</td>
<td>Social Displacement</td>
</tr>
<tr>
<td>Late</td>
<td>Euro-Canadian</td>
<td>1800 A.D.-present</td>
<td>European Settlement</td>
</tr>
</tbody>
</table>

1.3 HISTORICAL CONTEXT

The MTC's Standards and Guidelines for Consultant Archaeologists (2011: 5) stipulate that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries, are considered to have archaeological potential. In general, any lands located within 300 metres of any of these cultural features should be considered to have archaeological potential (MTC 2011: 7). Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the Ontario Heritage Act or a federal, provincial, or municipal historic landmark or site, and properties that local histories or informants have identified with possible archaeological sites, historical events, activities, or occupations are also
considered to have archaeological potential. Any lands located within 100 metres of early historical transportation routes should also be considered to have archaeological potential (MTC 2010: 7).

Whitby Township was surveyed for settlement in 1792 and the first settlers arrived soon after (Beers 1877). The earliest settlers established themselves along Lake Ontario in the future communities of Whitby and Oshawa before rough roads were built into the inland areas of the township. What would become the downtown business centre of Whitby was established in the 1830’s and took advantage of the future town’s natural harbor. In 1852 Whitby Township became part of the newly formed County of Ontario (Beers 1877), and Whitby was chosen as the ‘County Town’ and was organized as a separate municipality in 1855 (Farewell 1907). A plank road from the Town to Port Perry also aided in its early growth, as it provided a method of transport for grain from the hinterland to Whitby Harbour (Winter & Huff 1967). It was followed by the construction of the Grand Trunk Railway through Whitby in 1856 (Winter & Huff 1967).

In its early period, the Town of Whitby featured a Post Office which served the Townships of Whitby and Pickering, as well as the Towns of Whitby and Oshawa (Farewell 1907). The Town was not only a focus of local business, but became a centre for manufacturing, education and religious activities (Farewell 1907). In 1858, Whitby Township was divided in half vertically, to create the new Township of East Whitby (Lots 1-18) to go along with a new, smaller Whitby Township in the west.

Information on potential Euro-Canadian archaeological planning concerns for the subject property was derived in part from an examination of Tremaine’s 1860 Map of Ontario County (Tremaine 1860) and the 1877 Illustrated Historical Atlas of Ontario County (Beers 1877). The Tremaine Map indicates that in 1860 the subject property was situated entirely on lands owned by James Anderson (Figure 4). No structures are shown to be within the subject property at that time, although these maps are not definitive, as they were subscription based. In 1860 the closest indicated structure is house located to the east of the southern end of the property, on lands belonging to William Flint.

The 1877 Historical Atlas Map of Whitby Township indicates that in 1877 the subject property continued to be occupied by James Anderson (Figure 5). His home is shown to have been located at the far southern end of the subject property, fronting onto Rossland Road. This section of the subject property may therefore contain an unregistered 19th century Euro-Canadian homestead site. The 19th century homestead is situated in the same general area that is now the location of a former residential lot that no longer contains any buildings. A Stage 2 archaeological assessment will be required in order to determine if any archaeological deposits associated with the 19th century occupation of this area remain intact or if they were destroyed by the subsequent development of this area.

Both the Tremaine Map (Figure 4) and the 1877 Historical Atlas Map (Figure 5) also show that both Rossland Road and Thickson Road were being used as early road corridors as early as 1860. Any lands on the subject property located within 100 metres of these roads are considered to have archaeological potential for Euro-Canadian sites dating back to that period.


### 2.0 FIELD METHODS

Due to winter weather conditions, a property inspection was not conducted. The desktop Stage 1 assessment was conducted from January 21-22, 2016 by consultant archaeologist Rick Sutton (Licence P013).

### 2.1 ANALYSIS AND CONCLUSIONS

For an assessment of the archaeological potential of any property, examining the extent of previous disturbance is an important factor in determining the potential for archaeological resources. Lands that have been subjected to intensive and deep land alterations due to previous development often no longer have any archaeological potential (MTC 2011:5). The most common forms of previous disturbance include building footprints, transportation corridors and infrastructure development, or quarrying activities. Other activities such as agricultural cultivation, gardening and minor landscaping do not generally affect archaeological potential (MTC 2010:5).

An examination of satellite images, topographical and survey maps indicates that the vast majority of the subject property consists of agricultural lands, forested lands and scrublands associated with a watercourse in a rural landscape. The only potentially disturbed lands are associated with a former residential lot that covers less than 1% of the subject property. The majority of the subject property is relatively undisturbed and therefore considered to have some archaeological potential (Figure 6). The only areas of the property that are considered to have a low archaeological potential are the low lying poorly drained lands associated with watercourse that runs through the centre of the property (Figure 6).

### 3.0 RECOMMENDATIONS & COMPLIANCE ADVICE

#### 3.1 Recommendations

The results of the Stage 1 assessment indicate that the majority of the subject property does have some potential for both aboriginal and Euro-Canadian archaeological resources. The subject property has archaeological potential because the majority of these lands consist of undisturbed well drained tablelands associated with a watercourse and an early historical transportation route. The property may also contain an unregistered 19th century Euro-Canadian domestic site. It is therefore recommended that the subject property should be subjected to a Stage 2 archaeological assessment prior to the development of this parcel of land. No soil disturbance or development activities should take place on the subject property until after a Stage 2 archaeological assessment has been completed.

For the Stage 2 assessment, all of the agricultural lands on the subject property will have to be ploughed and then pedestrian surveyed at 5 metre intervals. Any forested, scrubland or grass covered areas which cannot be ploughed will have to be shovel test pitted at 5 metres.
3.2 Compliance Advice

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

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

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


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

Figure 1. General Location of the Subject Property
(Department of Energy, Mines and Resources 1988 Oshawa 30 M/15)
Figure 2. Subject Property Concept Plan
Figure 3. Satellite Image of the Subject Property  (Google Earth 2015)
Figure 4. Tremaine’s 1860 Map of Ontario County Showing Location of the Subject Property (Tremaine 1860)

Figure 5. 1877 Illustrated Atlas Map of Whitby Township Showing Location of the Subject Property (Beers 1877)
Figure 6. Archaeological Potential of the Subject Property
5.0 REFERENCES CITED

Beers, J.H.

Chapman, L.J. and D.F. Putnam

Farewell, J. E.
1907  Ontario County: A Short Sketch of Its Settlement, Physical Features and Resources with Brief Historical Notes. Gazette Chronicle Press, Whitby.

Government of Ontario

Ministry of Tourism and Culture

Tremaine, George

Winter, Brian & Huff, Raymond
THE STAGE 2-3 ARCHAEOLOGICAL ASSESSMENT
OF THE MINTO (ROSSLAND) INC. PROPERTY,
PART OF LOT 21, CONCESSION 3,
GEOGRAPHIC TOWNSHIP OF WHITBY,
TOWN OF WHITBY,
REGIONAL MUNICIPALITY OF DURHAM

(Original)
THE STAGE 2-3 ARCHAEOLOGICAL ASSESSMENT OF
THE MINTO (ROSSLAND) INC. PROPERTY,
PART OF LOT 21, CONCESSION 3,
GEOGRAPHIC TOWNSHIP OF WHITBY,
TOWN OF WHITBY,
REGIONAL MUNICIPALITY OF DURHAM
(original)

Prepared by

Archaeological Assessments Ltd.
2227 Wuthering Heights Way, Oakville, Ontario L6M 0A3
Telephone - 905-469-8690  Facsimile - 905-469-8702

Consulting Archaeologist: Rick Sutton
Archaeological Consulting Licence Number P013
July 21, 2016
The Stage 2-3 Archaeological Assessment of The Minto (Rossland) Inc. Property, Part Of Lot 21, Concession 3, Geographic Township Of Whitby, Town Of Whitby, Regional Municipality Of Durham Archaeological Assessments Ltd.

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<td>Record of Finds</td>
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PROJECT PERSONNEL

Project Director Rick Sutton (License P013)
Field Director Chris Brown (License P361)
Report Preparation Rick Sutton (License P013), Chris Brown (License P361)
Field Assistants Chris Ball, Ian Dutcher, Mac Goranson, Andrew Holmes
EXECUTIVE SUMMARY

This report details the rationale, methods and results of the Stage 2-3 Archaeological Assessment of the Minto (Rossland) Inc. Property, Part of Lot 21, Concession 3, Geographic Township of Whitby, Town of Whitby, Regional Municipality of Durham. This project was conducted as a component of an application to develop these lands and in order to comply with the Planning Act (1996).

The 28 hectare subject property consists of agricultural lands, forested lands and a former residential lot. A Stage 1 archaeological assessment of the property was conducted by our firm earlier this year (AAL 2016). The results of the Stage 1 assessment indicated that the majority of the subject property had some potential for both aboriginal and Euro-Canadian archaeological resources.

The Stage 2 assessment was conducted in May, 2016. All of the agricultural lands were ploughed for the assessment and were pedestrian surveyed at 5 metre intervals. The forested areas were shovel test pitted at 5 metre intervals.

One archaeological site was located during the course of the Stage 2 assessment and has been registered as the Anderson site (AlGr-475). The Anderson site (AlGr-475) is an early to mid-19th century Euro-Canadian homestead. The Anderson site (AlGr-475) was considered to have some cultural heritage value and was subjected to a Stage 3 assessment in June and July, 2016.

A controlled surface collection and 38 one metre square test units were excavated at 5-10 metre intervals across the Anderson site (AlGr-475). The diagnostic artifacts recovered during the Stage 3 assessment indicate that the site was occupied in the 1830’s to the early 1840’s.

Given the relatively early date of occupation, the Anderson site (AlGr-475) is considered to have cultural value and will require Stage 4 excavation if it cannot be avoided and protected by the proposed development. This site will have to be subjected to Stage 4 mitigation and removed as a planning concern prior to the commencement of any development activities on this property.
1.0 PROJECT CONTEXT

1.1 INTRODUCTION AND DEVELOPMENT CONTEXT

This report details the rationale, methods and results of the Stage 2-3 Archaeological Assessment of the Minto (Rossland) Inc. Property, Part of Lot 21, Concession 3, Geographic Township of Whitby, Town of Whitby, Regional Municipality of Durham. This project was conducted as a component of an application to develop these lands and in order to comply with the Planning Act (1996).

The assessment was conducted by Archaeological Assessments Ltd., under archaeological consulting licence No. P013 issued to Rick Sutton. The assessment was conducted in accordance with the provisions of the Ontario Heritage Act (Government of Ontario 1980) and the technical guidelines for archaeological assessments formulated by the Ministry of Tourism and Culture (MCL 2011). Permission for access to the property and to remove and curate artifacts was granted by the land owner. Archaeological Assessments Ltd. accepts responsibility for the long term curation of any artifacts recovered or documents produced as a result of the assessment.

1.2 PROPERTY DESCRIPTION AND ARCHAEOLOGICAL CONTEXT

Property Description

The 28 hectare subject property is located immediately northwest of the intersection of Rossland Road and Thickson Road (Figures 1, 2 and 3). The Stage 2 assessment was conducted from May 16-18, 2016 under the field supervision of Chris Brown (Licence P361).

The southern and central sections of the property contain several agricultural fields. A large area of forested lands is located in the northern section of the property. Two tributary branches of Pringle Creek run in a general northwest-southeast direction, bisecting the property before exiting along its western edge in the southwestern section of the property. These watercourses are associated with low lying poorly drained areas. In general, the topography is gently rolling, featuring a number of small knolls and broad level areas. The southern edge of the subject property fronting onto Rossland Road contains a former residential lot. This residential lot contains a circular gravel laneway from Rossland Road along with large areas of exposed gravel and modern building debris.

The subject property is located in the Iroquois Plain physiographic region. This region represents the lands that were underwater when post-glacial Lake Iroquois occupied the Lake Ontario basin ca. 10,000 B.C. (Chapman and Putnam 1984: 191). This lowland area bordering Lake Ontario is the shoreline of glacial Lake Iroquois (Chapman and Putnam 1984: 190). The soil is primarily sand overlying heavy clay subsoil at a depth of two to three feet (Chapman and Putnam 1984: 190).
Archaeological Context

A Stage 1 archaeological assessment of the subject property was conducted by our firm earlier this year (AAL 2016). The results of the Stage 1 assessment indicated that the majority of the subject property did have some potential for both aboriginal and Euro-Canadian archaeological resources (Figure 6). The subject property had archaeological potential because the majority of these lands consist of undisturbed well drained tablelands associated with a watercourse and an early historical transportation route. The property may also have contained an unregistered 19th century Euro-Canadian domestic site (AAL 2016). It was therefore recommended that the subject property should be subjected to a Stage 2 archaeological assessment prior to the development of this parcel of land (AAL 2016).

Data on previously registered sites located within the study area was obtained from Pastport, which is the Ontario Ministry of Tourism, Culture and Sport’s online digital data base. The on line search indicated that there are no previously registered archaeological sites located either on or immediately adjacent to the subject property. There are 4 previously registered archaeological sites located within a one kilometre radius of the subject property (AAL 2016). The closest is the Hannon site (AlGr-126), which is located 900 metres northwest of the subject property.

Table 1. Registered Archaeological Sites Located Within 1 km of the Subject Property

<table>
<thead>
<tr>
<th>Borden</th>
<th>Site Name</th>
<th>Period</th>
<th>Affinity</th>
<th>Type</th>
<th>CHVI</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlGr-69</td>
<td>-</td>
<td>Post-Contact</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AlGr-452</td>
<td>John Farquharson Site</td>
<td>Post-Contact</td>
<td>Euro-Canadian</td>
<td>dump, homestead</td>
<td>Further CHVI</td>
</tr>
<tr>
<td>AlGr-126</td>
<td>Hannon</td>
<td>Post-Contact</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>AlGr-1</td>
<td>McLeod</td>
<td>Woodland, Late</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

1.3 HISTORICAL CONTEXT

Introduction
The subject property is located on Part of Lot 21, Concession 3, in the Geographic Township of Whitby. Whitby Township was surveyed for settlement in 1792 and the first settlers arrived soon after (Beers 1877). The earliest settlers established themselves along Lake Ontario in the future communities of Whitby and Oshawa before rough roads were built into the inland areas of the township. What would become the downtown business centre of Whitby was established in the 1830’s and took advantage of the future town’s natural harbor. In 1852 Whitby Township became part of the newly formed County of Ontario (Beers 1877), and Whitby was chosen as the ‘County Town’ and was organized as a separate municipality in 1855 (Farewell 1907). A plank road from the Town to Port Perry also aided in its early growth, as it provided a method of transport for grain from the hinterland to Whitby Harbour (Winter & Huff 1967). It was followed by the construction of the Grand Trunk Railway through Whitby in 1856 (Winter & Huff 1967).

In its early period, the Town of Whitby featured a Post Office which served the Townships of Whitby and Pickering, as well as the Towns of Whitby and Oshawa (Farewell 1907). The Town
was not only a focus of local business, but became a centre for manufacturing, education and religious activities (Farewell 1907). In 1858, Whitby Township was divided in half vertically, to create the new Township of East Whitby (Lots 1-18) to go along with a new, smaller Whitby Township in the west.

**Land Ownership History**

The subject property is located in Lot 22, Concession 3, Whitby Township, in Ontario County. Historically, the subject property is made up of the southern three-quarters of the eastern portion of Lot 22.

The Abstract Index Book for Whitby Township (Volume A: 49) reveals that the 200 acre Lot 21 was initially patented to King’s College in 1828. It was sold to William Anderson in 1851. That same year, the northern 50 acres were sold to William G. Wilkinson, while the southern three quarters of the east half of the lot was sold to James Anderson. The northern 50 acres was willed to Samuel G. Wilkinson in 1864, while the southern portion of the west half was deeded to William Flint in 1872. The southeastern portion of the lot was willed to William Anderson (the younger) in 1891 and confirmed by a quitclaim by 1894.

**Table 2.** Land Ownership History of Lot 21, Concession 3, Whitby Township, Ontario County (Abstract Index Book, East Whitby Township, Vol. A: 49)

<table>
<thead>
<tr>
<th>Date</th>
<th>Type</th>
<th>Grantor</th>
<th>Grantee</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1828</td>
<td>Patent</td>
<td>Crown</td>
<td>King’s College</td>
<td>All 200 acres</td>
</tr>
<tr>
<td>1851</td>
<td>Bargain &amp; Sale</td>
<td>The University of Toronto</td>
<td>William Anderson</td>
<td>125 acres</td>
</tr>
<tr>
<td>1851</td>
<td>Bargain &amp; Sale</td>
<td>William Anderson &amp; wife</td>
<td>James Anderson</td>
<td>75 acres, East ½ of South ¾</td>
</tr>
<tr>
<td>1851</td>
<td>Bargain &amp; Sale</td>
<td>William Anderson &amp; wife</td>
<td>William G. Wilkinson</td>
<td>50 acres</td>
</tr>
<tr>
<td>1855-1872</td>
<td>Deed Poll</td>
<td>David Buchan (Bursor)</td>
<td>William Flint</td>
<td>75 acres, West ½ of South ¾</td>
</tr>
<tr>
<td>1876</td>
<td>Will</td>
<td>William Flint</td>
<td></td>
<td>75 acres, West ½ of South ¾</td>
</tr>
<tr>
<td>1864-1891</td>
<td>Will</td>
<td>James Anderson &amp; Margaret</td>
<td></td>
<td>Part</td>
</tr>
<tr>
<td>1891</td>
<td>Executor’s Deed</td>
<td>George Leask, executor</td>
<td>William Anderson</td>
<td>Part, East ½</td>
</tr>
<tr>
<td>1894</td>
<td>Will</td>
<td>Harriet Jackson</td>
<td></td>
<td>Part</td>
</tr>
<tr>
<td>1892-1894</td>
<td>Quitclaim</td>
<td>Margaret Anderson</td>
<td>William Anderson</td>
<td>75 acres, East ½ of South ¾</td>
</tr>
<tr>
<td>1900</td>
<td>Bargain &amp; Sale</td>
<td>Edgerton Jackson et al</td>
<td>Maria L. Jackson</td>
<td>75 acres, West ½ of South ¾</td>
</tr>
<tr>
<td>1900</td>
<td>Release</td>
<td>William F. Shaw et al</td>
<td>Maria L. Jackson</td>
<td>75 acres, West ½ of South ¾</td>
</tr>
<tr>
<td>1907-1909</td>
<td>Will</td>
<td>Maria L. Jackson</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Census Information**

The earliest available census returns for Whitby Township date to 1842, but as they are aggregate only, no detailed locational information can be obtained. The next census returns date to 1851. Unfortunately, the agricultural returns for the western portion of Whitby Township (which contains the subject property) have not survived.

In 1861, James Anderson owned the section of Lot 21 where the subject property is located. James Anderson occupied 100 acres in Lot 21, 75 of which were cultivated, with 55 acres under
crop, 19 acres of pastureland, one acre of orchards/garden and 25 acres of wooded or wild lands (1861 Census of Canada West, West Whitby Township: 55). A notation indicates that James Anderson rented the southern half of his lands by the acre. James Anderson is listed as a 45-year-old Scottish farmer, who lived with his Scottish wife Margaret (40), their three Canadian-born children (Emily, 16; William, 14; Margaret I, 9) and Ellen Reardon (Irish, 19) in a one storey brick house (1861 Census of Canada West, West Whitby Township: 26).

Survey of Historic Mapping
Information on potential Euro-Canadian archaeological planning concerns for the subject property was derived in part from an examination of Tremaine’s 1860 Map of Ontario County (Tremaine 1860) and the 1877 Illustrated Historical Atlas of Ontario County (Beers 1877). The Tremaine Map indicates that in 1860 the subject property was situated entirely on lands owned by James Anderson (Figure 4). No structures are shown to be within the subject property at that time, although these maps are not definitive, as they were subscription based. Also, any homesteads abandoned by 1860 what not be shown on this map. In 1860 the closest indicated structure is house located to the east of the southern end of the property, on lands belonging to William Flint.

The 1877 Historical Atlas Map of Whitby Township indicates that in 1877 the subject property continued to be occupied by James Anderson (Figure 5). His home is shown to have been located at the far southern end of the subject property, fronting onto Rossland Road. No archaeological evidence of this 19th century homestead was found during the Stage 2 assessment. The potential Anderson homestead was in the same location as an existing former residential lot that contains a recently demolished house. It appears that any potential 19th century deposits were destroyed by subsequent development in this area.

Conclusions
The archival research along with the results of the Stage 2-3 assessment suggest that the Anderson site (AlGr-475) represents the location of a first generation homestead occupied by William or James Anderson. The site was only occupied for a relatively short period of time in the 1830’s and 1840’s prior to the construction of a larger homestead for the family fronting onto Rossland Road.

2.0 STAGE 2 FIELD ASSESSMENT

2.1 FIELD METHODS

The Stage 2 assessment of the subject property was conducted under the field supervision of Chris Brown (License P361), Archaeological Assessments Ltd., from May 16-18, 2016 under sunny skies with mild temperatures. All of the agricultural fields were ploughed for the assessment and were well weathered with excellent visibility at the time of the survey. All of the agricultural fields were pedestrian surveyed at 5 metre intervals, and represent approximately 74% of the subject property (Figure 7). When an archaeological site or artifact was encountered, the pedestrian survey interval was reduced to one metre within a 25 metre radius of each site or artifact.
The forested areas in the northern section of the property and the former residential lot along the southern edge were all shovel test pitted at 5 metre intervals and represent approximately 6% of the subject property (Figure 7). Each test pit measured more than 30 cm (one foot) in diameter and was excavated 5cm into the subsoil. The soil from each test pit was screened through 6mm mesh in order to look for artifacts. Test pits were placed to within one metre of any hard scaped areas. Each test pit was then backfilled.

Low lying poorly drained areas associated with the watercourses on the subject property have no archaeological potential and were not shovel test pitted. These areas represent approximately 20% of the subject property (Figure 7).

2.2 RECORD OF FINDS

One archaeological site was located during the course of the Stage 2 assessment and has been registered as the Anderson site (AlGr-475). The Anderson site (AlGr-475) is an early to mid-19th century Euro-Canadian homestead. The Anderson site (AlGr-475) consists of 200+ historic surface artifacts spread over an area measuring 60 metres north-south by 40 metres east-west. The site is located in the central section of the subject property along the eastern edge of a ploughed agricultural field overlooking a watercourse to the east.

The site is situated on the crest and on the eastern slope of a moderate knoll, overlooking low lying poorly drained lands and a watercourse to the east. The topography is level in the central site area, and then slopes down gently in the eastern and southern section of the site. Most of the visible ceramic surface artifacts were then collected for washing and cataloguing. Approximately half of the surface artifacts were left in situ and consisted mostly of window and bottle glass, scrap metal and brick fragments. Red survey flags were left in place to mark the location of each artifact in advance of a future Stage 3 assessment of the site. The location and dimensions of the surface scatter were recorded with a hand held GPS unit (see supporting document).

A total of 52 ceramic surface artifacts were collected and include 22 pieces of white ware, 14 hand painted ware, 10 transfer printed ware, 4 fragmented unidentified ceramics and 2 blue scalloped edged ware. All of the decorated ceramics were made with white ware. All of the transfer printed ceramics had blue floral motifs. The hand painted wares included 10 with blue painted floral motifs and 3 with early palette polychrome floral motifs.

Overall, the ceramic assemblage from the Anderson site (AlGr-475) suggests that the site was occupied between the 1830’s and the early 1840’s. Whiteware became the primary white earthenware in Ontario after 1830. Scalloped edged ware was common before 1850 (Kenyon 1980). Transfer printed ceramics were popular throughout most of the 19th century. Blue hand painted floral ceramics are common throughout the first half of the 19th century (Kenyon 1980). Early palette polychrome painted wares were in use up to 1840 (Kenyon 1980).
Table 3. Anderson Site (AlGr-475) Stage 2 Artifact Counts and Provenience

<table>
<thead>
<tr>
<th>UNIT</th>
<th>WHI</th>
<th>ED</th>
<th>PA</th>
<th>TR</th>
<th>CUN</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>22</td>
<td>2</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>52</td>
</tr>
</tbody>
</table>

Legend

WHI – Plain Whiteware  
ED - Edged Ware  
PA - Hand Painted Ware  
TR - Transfer Printed  
CUN – Unidentified Ceramics

Table 4. Anderson Site (AlGr-475) Stage 2 Artifact Catalogue

<table>
<thead>
<tr>
<th>Cat #</th>
<th>Unit</th>
<th>Class</th>
<th>Material</th>
<th>Type</th>
<th>Comment</th>
<th>Form</th>
<th>*Common Date Ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-22</td>
<td>Surface</td>
<td>HC</td>
<td>Ceramic</td>
<td>Whiteware</td>
<td>plain fragments</td>
<td>unknown</td>
<td>1830-1870</td>
</tr>
<tr>
<td>23-24</td>
<td>Surface</td>
<td>HC</td>
<td>Ceramic</td>
<td>Edged Ware</td>
<td>blue scalloped</td>
<td>plates</td>
<td>1820-1850</td>
</tr>
<tr>
<td>25-35</td>
<td>Surface</td>
<td>HC</td>
<td>Ceramic</td>
<td>Hand Painted</td>
<td>blue floral hand painted</td>
<td>unknown</td>
<td>1830-1850</td>
</tr>
<tr>
<td>36-38</td>
<td>Surface</td>
<td>HC</td>
<td>Ceramic</td>
<td>Hand Painted</td>
<td>polychrome floral hand painted</td>
<td>unknown</td>
<td>1830-1840</td>
</tr>
<tr>
<td>39-48</td>
<td>Surface</td>
<td>HC</td>
<td>Ceramic</td>
<td>Transfer Printed</td>
<td>printed blue floral motif</td>
<td>unknown</td>
<td>1830-1870</td>
</tr>
<tr>
<td>49-52</td>
<td>Surface</td>
<td>HC</td>
<td>Ceramic</td>
<td>Unidentified</td>
<td>small exfoliated sherds</td>
<td>unknown</td>
<td>-</td>
</tr>
</tbody>
</table>

*(Adams 1993) & (Kenyon 1991) All decorated ceramics on white ware unless otherwise indicated  
HC- Household Ceramic; AEH- Architectural Elements and Hardware; HG-Household Glass; PER-Personal

The documentary record for the Stage 1-2 assessment includes 21 digital photographs, one property map, two pages of field notes and one banker’s box of 52 artifacts.

2.3 ANALYSIS AND CONCLUSIONS

The results of the Stage 1-2 archaeological assessment indicate that the Anderson site (AkGw-475) represents the location of a homestead that was likely occupied sometime between the 1830’s and early 1840’s. As per the MTC’s Standards and Guidelines for Consultant Archaeologists (2011: 35), 19th century domestic archaeological sites where most of the time span of occupation dates to before 1870 are considered to have cultural heritage value and will require Stage 4 mitigation. The Stage 4 mitigation must be preceded by a Stage 3 assessment in order to collect more information regarding the site’s precise location, limits, integrity, date of occupation and function. For this type of site this would involve conducting a controlled surface collection and test excavations. A series of one metre square test units should be excavated at 10 metre intervals across the site. Additional units, amounting to 40% of the initial grid total, should also be excavated in areas of interest within the site (MTC 2011: 28).
3.0 STAGE 3 ASSESSMENT OF THE ANDERSON SITE (AlGr-475)

3.1 FIELD METHODS

A Stage 3 assessment of the Anderson site was conducted under the field supervision of Chris Brown (License P361) in June and July, 2016 under mild weather conditions with a mixture of sun and cloud. A temporary datum was established in the central section of the site (300N 100E) and was tied into a fixed property datum (Figure 8). A five metre grid system was then established in the area where the site was located. A Stage 3 controlled surface collection of the site was conducted on June 2, 2016 under a mixture of sun and cloud and mild temperatures. The Stage 3 controlled surface collection consisted of an intensive surface examination at one metre intervals of a large area with a minimum radius of 50 metres surrounding the surface artifacts, and the recording of all artifact locations with a transit and stadia rod. All of the visible surface artifacts were then collected for washing and cataloguing. The Stage 3 controlled surface collection resulted in the recovery of a total of 252 surface artifacts (Figure 8). The field crew did not record detailed information regarding each individual surface artifact type due to the fact that all of the surface artifacts were considered to be diagnostic of the early to mid-19th century.

The Stage 3 test excavations were conducted under the field supervision of Chris Brown (License P361) from June 30 to July 13, 2016 under a mixture of sun and cloud and warm temperatures. A total of 27 one metre square test units were then excavated at 10 metre intervals across the site (Figure 8). As per the MTC’s Standards and Guidelines for Consultant Archaeologists (2011: 28) for sites of this type that will require Stage 4 excavation, another eleven units (40% or more of the grid unit total) were placed in between the 10 metre interval test units in areas of interest (Units 285N 90E, 290N 95E, 295N 90E, 295N 95N, 305N 105E, 305N 110E, 305N 115E, 310N 105E, 310N 115E, 315N 105E & 315N 110E).

All of the soils from each square were screened through 6mm mesh to facilitate the recovery of artifacts. The units varied in depth from 16-51cm and consisted of a sandy loam ploughzone. The test units in the eastern section of the site adjacent to the low lying poorly drained area beside the watercourse were deeper (33-51cm), and contained soils with a higher silt content. All of the units were excavated into the first 5cm of the subsoil. A total of 38 one metre square test units were excavated across the site. All of the test units were positive with artifact counts ranging from 1-164 per unit (Figure 8). Four potential subsurface cultural features were observed, recorded and photographed in Units 285N 90E, 290N 110E, 295N 95E and 310N 115E (Figure 9). Geotextile fabric was placed over the unit floors and they were then backfilled. A high artifact count of 164 in Unit 295N 90E suggests that this area of the site may contain a small plough disturbed midden.

3.2 RECORD OF FINDS

The artifact assemblage recovered from the Anderson site is summarized in Table 5. More details regarding artifact provenience and characteristics are provided in Tables 6 and 7. As indicated in Table 7, a total of 1,793 artifacts were recovered from the site during the Stage 3 investigations. The assemblage consists of household ceramics (n= 1046: 58.3%), followed by architectural elements and miscellaneous hardware (n=719: 40.1%), household glass (n=23: 1.3%) and
personal material (n=5: 0.3%). The artifact categories, typologies and diagnostic data are derived from Adams (1993) and (Kenyon 1991).

**Ceramics**
The most common ceramic type within the ceramic assemblage was white ware (n=664: 63.5%), followed by transfer printed ware (n=122: 11.6%), small fragmented unidentified ceramics (n=78: 7.5%), hand painted ware (n=69: 6.6%), red earthenware (n=54: 5.1%), plain pearlware (n=31: 2.9%), edged ware (n=25: 2.4%), and banded ware (n=3: 0.3%). All of the decorated ceramics were on white ware unless otherwise indicated.

Most of the transfer printed wares had a blue floral motif (n=117), along with a few blue willow motifs (n=3), brown floral motifs (n=1) and black motifs (n=1). The hand painted wares included blue floral motifs (n=38) and polychrome floral patterns (n=31). Most of the edged ware was blue scalloped edged (n=20), followed by green scalloped edged (n=5). The 3 pieces of banded ware included two with blue or brown bands and one with a cat eye motif.

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Overall, the ceramic assemblage from the Anderson site is typical of a site occupied primarily in the 1830’s to early 1840’s. White ware is generally one of the dominant ceramics on sites that date between the 1830’s and the 1850’s. White ware replaced pearlware, which was in use up until 1850. The dominance of white ware in this assemblage suggests that the occupation of the site postdates 1830. The absence of ironstone, sponged ware, and flow ware indicates that the site was abandoned by the mid 1840’s when these ceramic types were first introduced (Kenyon 1991). Scalloped edged ware was common before 1850 (Kenyon 1991). All of the polychrome hand painted ceramics in the assemblage all date to the early palette period which ended around 1840 (Kenyon 1991). Blue hand painted ceramics generally date to the first half of the 19th century.

### Architectural Elements and Miscellaneous Hardware
Architectural elements and miscellaneous hardware recovered from the site include very small brick fragments (n=664), window glass (n=36), cut iron nails (n=11), unidentified nails (n=4), wrought nails (n=2) and horseshoe nails (n=2). Wrought nails were in use up until 1830 when they were replaced by cut nails were in use from 1830 to 1890.

### Household Glass
The 23 pieces of bottle glass include green (n=18), aqua (n=3) and clear (n=2). All of the bottle glass consisted of small unanalyzable fragments. Their manufacturing technique could not be determined.

### Personal Material
The personal items recovered from the site included 2 pipe bowls, 1 plain pipe stem, a metal utensil handle and one white glass button. One of the pipe bowls was plain and one was fluted. Glass buttons were introduced in the early 1840’s (Adams 1993).

The documentary record for the Stage 3 assessment of the Anderson site (AlGr-475) includes 11 digital photographs, a site field map, 3 square summary record forms, four potential feature figures, one page of field notes and one banker’s box of 1,793 artifacts.
### Table 6. Anderson Site (AlGr-475) Artifact Counts and Provenience

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**Legend**

- BRI - brick
- RED - red earthenware
- WHI - white ware
- PPL - pearl ware
- ED - edged ware
- PA - hand painted ware
- TR - transfer printed ware
- BAN - banded ware
- CUN - unidentified ceramics
- PST - pipe stems
- PBL - pipe bowls
- GWI - window glass
- GBO - bottle glass
- NCU - cut nails
- NUN - unidentified nails
- NWR - wrought nails
- NHA - horseshoe nails
- PER - personal items
Table 7. Anderson Site (AlGr-475) Stage 3 Artifact Catalogue

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*(Adams 1993) & (Kenyon 1991) All decorated ceramics on white ware unless otherwise indicated
HC- Household Ceramic; AEH-Architectural Elements and Hardware; HG-Household Glass; PER-Personal
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*(Adams 1993) & (Kenyon 1991) All decorated ceramics on white ware unless otherwise indicated | HC- Household Ceramic; AEH-Architectural Elements and Hardware; HG-Household Glass; PER-Personal, FAU- Faunal
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*Adams 1993 & (Kenyon 1991) All decorated ceramics on white ware unless otherwise indicated

HC- Household Ceramic; AEH-Architectural Elements and Hardware; HG-Household Glass; PER-Personal; FAU-Faunal
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*(Adams 1993) & (Kenyon 1991) All decorated ceramics on white ware unless otherwise indicated
HC- Household Ceramic; AEH-Architectural Elements and Hardware; HG-Household Glass; PER-Personal; FAU-Faunal
3.3 ANALYSIS AND CONCLUSIONS

The results of the Stage 3 assessment indicate that the Anderson site (AlGr-475) represents the location of a homestead occupied for a relatively brief period of time between the 1830’s and early 1840’s. As per the Ministry of Cultures (now MTCS) Standards and Guidelines for Consultant Archaeologists (2011: 35), domestic Euro-Canadian archaeological sites in southern Ontario which were primarily occupied before 1870 (80% or more), have cultural heritage value and require Stage 4 mitigation. Consequently, the Anderson site (AkGw-475) will require Stage 4 excavation if it cannot be avoided and preserved.
4.0 RECOMMENDATIONS & COMPLIANCE ADVICE

4.1 Recommendations

As detailed in this report, one archaeological site was located during the course of the Stage 2 assessment and consisted of an early to mid-19th century Euro-Canadian homestead. The site was registered as the Anderson site (AkGw-475).

The results of our Stage 3 assessment of the Anderson site (AkGw-475) indicates that this site has cultural value and will require Stage 4 excavation if it cannot be avoided and protected by the proposed development. The location of the site in relationship to the proposed site plan indicates that avoidance and protection are not a viable option. Consequently, the site will require Stage 4 excavation in order to remove it as a planning concern. This site will have to be excavated and removed as a planning concern prior to the commencement of any development activities on this property.

The results of the Stage 3 assessment indicate that the Anderson site (AkGw-475) contains a small plough disturbed midden and sub-surface cultural features. The Stage 4 excavation should consist of the block excavation by hand of a series of one metre squares in the midden area until the artifacts counts per unit are reduced to the double digits. Once the block excavation of the midden has been completed, the topsoil from the site will be stripped by a gradall and any subsurface cultural features and post moulds will be excavated by hand. All aspects of the Stage 4 excavations and reporting must conform to the Ministry of Culture’s Standards and Guidelines for Consultant Archaeologists (MTC 2011).

4.2 Compliance Advice

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

It is an offence under Sections 48 and 69 of the Ontario Heritage Act for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological fieldwork on the site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the Ontario Heritage Act.
Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.


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

### 5.0 MAPS

![Map of Whitby](image)

*Figure 1. General Location of the Subject Property*  
(Department of Energy, Mines and Resources 1988 Oshawa 30 M/15)
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Government of Ontario

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PRELIMINARY REPORT ON THE STAGE 4 EXCAVATION
OF THE ANDERSON SITE (AIGr-475),
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PRELIMINARY REPORT ON THE STAGE 4 EXCAVATION OF THE ANDERSON SITE (AlGr-475), MINTO (ROSSLAND) INC. PROPERTY, PART OF LOT 21, CONCESSION 3, GEOGRAPHIC TOWNSHIP OF WHITBY, TOWN OF WHITBY, REGIONAL MUNICIPALITY OF DURHAM (original)

Prepared by

Archaeological Assessments Ltd.
2227 Wuthering Heights Way, Oakville, Ontario L6M 0A3
Telephone - 905-469-8690 Facsimile - 905-469-8702

Consulting Archaeologist: Rick Sutton
Archaeological Consulting Licence Number P013
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PROJECT PERSONNEL
Project Director Richard Sutton (License P013)
Field Director Chris Brown (License P361)
Report Preparation Richard Sutton (License P013), Chris Brown (License P361)
Field Assistants Chris Bell, Ian Dutcher, Max Goranson, Andrew Holmes
EXECUTIVE SUMMARY

This preliminary report details the rationale, methods and results of the Stage 4 Excavation of the Anderson Site (AlGr-475), Minto (Rossland) Inc. Property, Part of Lot 21, Concession 3, Geographic Township of Whitby, Town of Whitby, Regional Municipality of Durham. The Anderson site (AlGr-475) is an early to mid-19th century Euro-Canadian homestead. An archaeological assessment was required by the Planning Act (1996) prior to the development of these lands.

Our firm conducted a Stage 2 field assessment of the 28 hectare property that contains the Anderson site (AlGr-475) earlier this year (AAL 2016b). The Anderson site (AlGr-475) was the only archaeological site that was found on the subject property (AAL 2016b).

Our firm carried out a Stage 3 assessment of the Anderson site (AlGr-475) in June and July, 2016 (AAL 2016b). The results of the Stage 3 assessment indicated that the Anderson site (AlGr-475) had cultural heritage value and would require Stage 4 mitigation.

The Stage 4 excavation of the Anderson site (AlGr-475) was conducted in August, 2016 and has now been completed. The first step in the Stage 4 excavation was the block excavation by hand of 37 one metre units in a possible plough disturbed midden. The site was then stripped of its topsoil by a gradall and all of the subsurface features were excavated by hand. The site contained six cultural features including a root cellar, a refuse pit, an ash pit and three post moulds. The results of the excavation indicate that the site represented the location of a homestead occupied by William or James Anderson in the 1830’s and 1840’s.

The Anderson site (AlGr-475) has now been completely excavated and represented the only outstanding archaeological planning concern on this 28 hectare development property. Accordingly, there are no other further concerns for impacts to archaeological resources on these lands. No further archaeological assessment of this parcel of land is required.
1.0 PROJECT CONTEXT

1.1 INTRODUCTION AND DEVELOPMENT CONTEXT

This preliminary report details the rationale, methods and results of the Stage 4 Excavation of the Anderson Site (AlGr-475), Minto (Rossland) Inc. Property, Part of Lot 21, Concession 3, Geographic Township of Whitby, Town of Whitby, Regional Municipality of Durham. The Anderson site (AlGr-475) is an early to mid-19th century Euro-Canadian homestead. An archaeological assessment was required by the Planning Act (1996) prior to the development of these lands.

Permission for access to the property and to remove and curate artifacts was granted by the land owner. All fieldwork was conducted under archaeological consulting licence No. P013, issued to Rick Sutton. The assessment was conducted in accordance with the provisions of the Ontario Heritage Act (Government of Ontario 1980), and with the technical guidelines for archaeological assessments formulated by the Ministry of Tourism and Culture (MTC 2011). Archaeological Assessments Ltd. accepts responsibility for the long term curation of any artifacts recovered or documents produced as a result of the assessment. A more detailed final Stage 4 excavation report will be prepared and submitted to the Ministry of Tourism, Culture and Sport by January 11, 2018.

1.2 ARCHAEOLOGICAL CONTEXT AND PROPERTY DESCRIPTION

The 28 hectare subject property which contains the site is located immediately northwest of the intersection of Rossland Road and Thickson Road (Figures 1 and 2). The Anderson Site (AlGr-475) is an early to mid-19th century Euro-Canadian homestead spread over an area measuring 60 metres north-south by 40 metres east-west in a ploughed field. The site is located in the central section of the subject property along the eastern edge of a ploughed agricultural field overlooking a watercourse to the east. The site is situated on the crest and on the eastern slope of a moderate knoll, overlooking low lying poorly drained lands and a watercourse to the east. The Stage 4 excavation was conducted under the supervision of Chris Brown (P361), Archaeological Assessments Ltd., between August 2 and August 23, 2016.

Previous Archaeological Research

A Stage 1 archaeological assessment of the subject property was conducted by our firm earlier this year (AAL 2016a). The results of the Stage 1 assessment indicated that the majority of the subject property had some potential for both aboriginal and Euro-Canadian archaeological resources. The subject property had archaeological potential because the majority of these lands consist of undisturbed well drained tablelands associated with a watercourse and an early historical transportation route. The property may also have contained an unregistered 19th century Euro-Canadian domestic site fronting onto Rossland Road (AAL 2016). It was therefore recommended that the subject property should be subjected to a Stage 2 archaeological assessment prior to the development of this parcel of land (AAL 2016a).

Our firm conducted a Stage 2 field assessment of the 28 hectare property that contains the Anderson Site (AlGr-475) in May, 2016 (AAL 2016b). All of the agricultural lands were ploughed for the assessment and were pedestrian surveyed at 5 metre intervals (Figure 3). The forested areas were shovel test pitted at 5 metre intervals.
Only one archaeological site was located during the course of the Stage 2 assessment and was registered as the Anderson site (AlGr-475). This site was considered to be a potentially significant archaeological resource and it was recommended that it would require a Stage 3 assessment in order to determine its cultural heritage value (AAL 2016b).

Our firm carried out a Stage 3 assessment of the Anderson site (AlGr-475) in June and July, 2016 (AAL 2016b). The results of the Stage 3 assessment indicated that the Anderson site (AlGr-475) had cultural value and would require Stage 4 mitigation. Avoidance and protection was not a viable option for the site due to its location in an area which will be impacted by the proposed development. Consequently, it was recommended that the Anderson site (AlGr-475) would require Stage 4 excavation in order to remove it as a planning concern prior to the commencement of any development activities on this property (AAL 2016b).

1.3 HISTORICAL CONTEXT

The Anderson site (AlGr-475) is located on Part of Lot 21, Concession 3, in the Geographic Township of Whitby. Whitby Township was surveyed for settlement in 1792 and the first settlers arrived soon after (Beers 1877). The earliest settlers established themselves along Lake Ontario in the future communities of Whitby and Oshawa before rough roads were built into the inland areas of the township. What would become the downtown business centre of Whitby was established in the 1830’s and took advantage of the future town’s natural harbor. In 1852 Whitby Township became part of the newly formed County of Ontario (Beers 1877). In 1858, Whitby Township was divided in half vertically, to create the new Township of East Whitby (Lots 1-18) to go along with a new, smaller Whitby Township in the west.

The Abstract Index Book for Whitby Township reveals that the 200 acre Lot 21 was initially patented to King’s College in 1828. It was sold to William Anderson in 1851. That same year, the northern 50 acres were sold to William G. Wilkinson, while the southern three quarters of the east half of the lot was sold to James Anderson. The northern 50 acres was willed to Samuel G. Wilkinson in 1864, while the southern portion of the west half was deeded to William Flint in 1872. The southeastern portion of the lot was willed to William Anderson (the younger) in 1891 and confirmed by a quitclaim by 1894.

The earliest available census returns for Whitby Township date to 1842, but as they are aggregate only, no detailed locational information can be obtained. The next census returns date to 1851. Unfortunately, the agricultural returns for the western portion of Whitby Township (which contains the subject property) have not survived.

In 1861, James Anderson owned the section of Lot 21 where the subject property is located. James Anderson occupied 100 acres in Lot 21, 75 of which were cultivated, with 55 acres under crop, 19 acres of pastureland, one acre of orchards/garden and 25 acres of wooded or wild lands (1861 Census of Canada West, West Whitby Township: 55). A notation indicates that James Anderson rented the southern half of his lands by the acre. James Anderson is listed as a 45-year-old Scottish farmer, who lived with his Scottish wife Margaret (40), their three Canadian-born children (Emily, 16; William, 14; Margaret I, 9) and Ellen Reardon (Irish, 19) in a one storey brick house.
Information on potential Euro-Canadian archaeological planning concerns for the subject property was derived in part from an examination of Tremaine’s 1860 Map of Ontario County (Tremaine 1860) and the 1877 Illustrated Historical Atlas of Ontario County (Beers 1877). The Tremaine Map indicates that in 1860 the subject property was situated entirely on lands owned by James Anderson. No structures are shown to be within the subject property at that time. The 1877 Historical Atlas Map of Whitby Township indicates that in 1877 the subject property continued to be occupied by James Anderson. His home is shown to have been located at the far southern end of the subject property, fronting onto Rossland Road. No archaeological evidence of this 19th century homestead was found during the Stage 2 assessment. The potential Anderson homestead was in the same location as an existing former residential lot that contains a recently demolished house. It appears that any potential 19th century deposits were destroyed by subsequent development in this area (AAL 2016b).

The archival research along with the results of the Stage 2-3 assessment suggest that the Anderson site (AlGr-475) represents the location of a first generation homestead occupied by William or James Anderson (AAL 2016b). The site was only occupied for a relatively short period of time in the 1830’s and 1840’s prior to the construction of a larger homestead for the family fronting onto Rossland Road.

2.0 RESULTS OF THE STAGE 3 ASSESSMENT

Stage 3 test excavations were carried out at the Anderson site by our firm in June and July, 2016 (AAL 2016b). The Stage 3 assessment consisted of a controlled surface collection and test excavations. The Stage 3 controlled surface collection resulted in the recovery of a total of 252 surface artifacts (Figure 4). A total of 38 one metre square test units were then excavated at 5-10 metre intervals across the site (Figure 4). All of the test units were positive with artifact counts ranging from 1-164 per unit (Figure 4). Four potential subsurface cultural features were observed, recorded and photographed in Units 285N 90E, 290N 110E, 295N 95E and 310N 115E (Figure 4). A high artifact count of 164 in Unit 295N 90E suggested that this area of the site may contain a small plough disturbed midden.

A total of 1,793 artifacts were recovered as a result of the Stage 3 assessment (AAL 2016b). The assemblage consists of household ceramics (n= 1046: 58.3%), followed by architectural elements and miscellaneous hardware (n=719: 40.1%), household glass (n=23: 1.3%) and personal material (n=5: 0.3%). The most common ceramic type within the ceramic assemblage was white ware (n=664: 63.5%), followed by transfer printed ware (n=122: 11.6%), small fragmented unidentified ceramics (n=78: 7.5%), hand painted ware (n=69: 6.6%), red earthenware (n=54: 5.1%), plain pearlware (n=31: 2.9%), edged ware (n=25: 2.4%), and banded ware (n=3: 0.3%). Overall, the ceramic assemblage from the Anderson site is typical of a site occupied primarily in the 1830’s to the early 1840’s. Given the relatively early date of occupation, the Anderson site (AlGr-475) was considered to have cultural value and it was recommended that the site would require Stage 4 mitigation (AAL 2016b).
3.0 THE STAGE 4 EXCAVATION OF THE ANDERSON SITE (AlGr-475)

The Stage 4 excavation of the Anderson site (AlGr-475) was conducted under the supervision of Chris Brown (P361), Archaeological Assessments Ltd., between August 2 and August 23, 2016, under a mixture of sun and cloud and warm temperatures. The first step in this process was the block excavation by hand of the possible plough disturbed midden area. A total of 37 one metre units were block excavated in the midden area (Figure 5). All of the soils from each square were screened through 6mm mesh to facilitate the recovery of artifacts. All of the units were excavated into the first 5cm of the subsoil. The units varied in depth from 21-29cm and consisted of a sandy loam plough zone. All of the block excavation units were positive with artifact counts ranging from 65-171 per unit (Figure 5). The block excavations were discontinued when the artifact counts reached approximately 100 artifacts or less per unit.

The topsoil was then stripped from the site by a gradall on August 10-11, 2016 under a mixture of sun and cloud and warm temperatures. The topsoil stripping was monitored at all times by the field director. The area which was stripped of topsoil measured approximately 50 metres north-south by 50 metres east-west (Figure 6). Following the removal of the topsoil, a 5 metre grid system was re-established over the site. The stripped areas were then more closely examined by shovel shining, and where necessary, trowelling.

The next step in the excavation process was the recording of the exact position and limits of all of the potential features which were discovered while shovel shining. The plan view of all features was recorded using triangulation relative to the five metre grid. Once the features had been recorded in plan view, they were sectioned. Profiles were then drawn and photographed. All excavated feature fill was screened through 6mm mesh in order to maximize artifact recovery.

A total of eleven potential features were identified. Following their excavation, it was determined that six of the features were cultural, with the other potential features consisting of rodent burrows and root burns. The six cultural features included a root cellar (Feature #11), a refuse pit (Feature #10), an ash pit (Feature #9) and three post moulds (Features #2, 3, 7). All of the features were completely excavated. The characteristics of the most prominent features are briefly discussed below.

**Root Cellar:**
The root cellar (Feature #11) is located in the central section of the site. The feature is roughly rectangular, oriented north-south, with dimensions of 365cm north-south by 350cm east-west. At the surface Feature #4 is composed mainly of dark brown soil mottled with charcoal and subsoil. Due to its large size, two opposing quadrants (Quad B and Quad C) were excavated in order to obtain representative profiles. Following the drawing and photographing of the exposed profiles, Quad A and Quad D were then excavated.

The profiles obtained show Feature #11 had a general basin-shape, with moderately-sloping sides and a relatively flat bottom at a maximum depth of 64cm. Two main fill layers were identified, and fill consisted of combinations of dark and medium brown sandy soil, subsoil and charcoal. The feature was heavily intruded upon by rodent burrows. Ceramic, glass, metal, bone artifacts and personal items were recovered. A total of 4 soil samples were taken from both fill layers in Quad B.
and Quad C. Feature #11 represents a root cellar placed underneath the floor of a house and used for the storage of perishable foodstuffs.

**Refuse Pit:**
Feature #10 is located in the northeast section of the site and represents a refuse pit. In plan view, Feature #10 is roughly rectangular in shape with a length of 144cm and a width of 57cm. Soil on the surface of the feature consisted of a central area of dark brown soil mottled with charcoal and subsoil, surrounded by an irregular ring of subsoil heavily mottled with dark brown soil, clay and orange soil. In profile, Feature #10 had a stepped bowl shape, with a depth of 23cm. Glass artifacts and brick material were recovered. Feature #10 represents a refuse pit, used for the disposal of waste.

**Ash Pit:**
Feature #9 is located in the northeast section of the site and represents an ash pit. In plan view, Feature #9 is roughly circular in shape with a length of 61 and a width of 52. Soil on the surface of the feature consisted of dark brown soil mottled with charcoal, ash and subsoil. In profile, Feature #9 had a bowl shape, with a depth of 18cm and featured an 8cm-thick ash lens along the bottom of the western portion. Faunal and brick material were recovered. Feature #9 represents an ash pit.

The artifact assemblage recovered from the Stage 4 block excavations, six features, as well as the flotation samples, are currently being processed. The artifact assemblage includes ceramics, glass, metal and faunal items. The artifact assemblage will be described in detail in the final Stage 4 report to be submitted to MTCS by January 11, 2018.

### 4.0 RECOMMENDATIONS & COMPLIANCE ADVICE

#### 4.1 RECOMMENDATIONS

As indicated in this preliminary report, the subject property contained one archaeological site with cultural heritage value that was subjected to Stage 4 excavation in August, 2016. The Anderson site (AIGr-475) is a early to mid-19th century Euro-Canadian homestead. The Anderson site (AIGr-475) has now been completely excavated and represented the only archaeological planning concerns on this 28 hectare parcel of land. Accordingly, there are no other further concerns for impacts to archaeological resources on these lands. No further archaeological assessment of this parcel of land is required.

#### 4.2 COMPLIANCE ADVICE

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

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

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


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

**Figure 1.** General Location of the Subject Property
(Department of Energy, Mines and Resources 1988 Oshawa 30 M/15)
Figure 2. Subject Property Concept Plan
Figure 3. Results of the Stage 2 Archaeological Assessment (AAL 2016b)
Figure 4. Results of the Stage 3 Assessment of the Anderson Site (AlGr-475) (AAL 2016b)

Figure 5. Results of the Stage 4 Block Excavations of the Anderson Site (AlGr-475)
Figure 6. Anderson Site (AIGr-475) Stage 4 Settlement Patterns
6.0 IMAGES

Plate 1. Stage 4 Block Excavations, view northwest

Plate 2. Gradall Topsoil Stripping, view south

Plate 3. F #11 (Root Cellar) Profile, Quad C, view north

Plate 4. F #6 (Root Cellar) Profile, Quad B, view west
7.0 REFERENCES CITED

Archaeological Assessments Ltd.


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Farewell, J. E.
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Government of Ontario

Ministry of Tourism and Culture

Tremaine, George

Winter, Brian & Huff, Raymond
APPENDIX D

Cultural and Heritage Assessment
Executive Summary

Based on background research, municipal consultation, and field investigations, this cultural heritage screening for the Dryden Boulevard Extension Schedule C Environmental Assessment determined that:

- There are no cultural heritage resources in the Study Area.

Golder therefore recommends that:

- The project be undertaken as proposed with no further cultural heritage studies or mitigation measures required.

Background

In April 2017, The Municipal Infrastructure Group (T.M.I.G) retained Golder to undertake a Cultural Heritage Screening Report (C.H.S.R). The C.H.S.R is part of a Schedule C Class Environmental Assessment (E.A) for the proposed extension of Dryden Boulevard from Deverell Street to Thickson Road in the Town of Whitby, Region of Durham, Ontario (the Study Area; Figure 1).

The objective of the CHSR was to determine whether cultural heritage resources of value or interest (C.H.V.I) were present in the Study Area and recommend if the project will require subsequent cultural heritage evaluation reports (C.H.E.Rs) or heritage impact assessments (H.I.As). The guidelines for
C.H.S.Rs are provided in the Ministry of Tourism, Culture and Sport (M.T.C.S) Ontario Heritage Tool Kit series (2006) and Check Sheet for Environmental Assessments: Screening for Impacts to Built Heritage and Cultural Heritage Landscapes (2016).

Figure 1: Aerial imagery of the Study Area, mapping courtesy TMIG.
Study Area and Method

The Study Area is a rectangle oriented approximately east-west and covers 2.92 hectares (225 m × 130 m) between Dryden Boulevard East and Dryden Boulevard West. Forming the east boundary is the centreline of Thickson Road, while the west boundary includes an emergency access route at the east end of Barnabas Street and north of Dryden Boulevard West, and the cul-de-sac of Dehart Drive south of Dryden Boulevard West (Figure 1).

The screening for cultural heritage resources in the Study Area involved the following tasks:

Task 1: Desktop research

Federal, provincial, and municipal heritage registers, inventories, and databases were reviewed to identify known cultural heritage resources in the Study Area. This included review of the:

- Canadian Register of Historic Places (www.historicplaces.ca);
- Ontario Heritage Foundation Online Plaque Guide (http://www.heritagetrust.on.ca/Resources-and-Learning/Online-Plaque-Guide.aspx) and Ontario Places of Worship Inventory (http://www.heritagetrust.on.ca/Ontario-s-Places-of-Worship/Inventory);
- Ontario Ministry of Government and Consumer Services (O.M.G.C.S) Database of Registered Cemeteries (https://www.consumerbeware.mgs.gov.on.ca/esearch/cemeterySearch.do?eformsId=0); and,

Other online sources consulted were:

- Ontario’s Historical Plaques (http://www.ontarioplaques.com/Menu_Map.html, data correlated with

**Task 2: Stakeholder consultation**

Golder corresponded with the Planning and Development Department at the Town of Whitby by telephone and email on June 23, 2017 about the potential for cultural resources in the Study Area, to identify further sources of information on cultural heritage in the municipality and confirm that the data in the online municipal inventory was current and valid. In addition to responding to Golder’s queries, the Town searched records for all parcels within and adjacent to the Study Area (Figure 2).

Figure 2: Areas (outlined in read) searched by the Town of Whitby for properties of known or potential cultural heritage value or interest.
Task 3: Field investigation

Cultural Heritage Specialist Christopher Lemon conducted field investigations on June 26, 2017, which included photographing the Study Area with a Nikon D.5.3.0.0 digital single reflex camera and recording photo locations and field observations (Figure 3 and Figure 4).

Figure 3: Panoramic view from the northwest corner of the Study Area, facing southeast.

Figure 4: Panoramic view from the southeast corner of the Study Area, facing northwest.
Task 4: MTCS Check Sheet

Based on the information compiled during Tasks 1 & 2, the M.T.C.S Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes (2016) was completed for the Study Area (Appendix A).

Results & Recommendations

Tasks 1 to 4 determined that:

- There are no known or potential cultural heritage resources in, or adjacent to, the Study Area.

Additionally, the Study Area was determined not to be a potential cultural heritage landscape or element of a cultural heritage landscape since it does not meet the criteria for cultural heritage landscapes suggested by M.T.C.S (1980; 2006) and is not considered a cultural heritage landscape by the Town of Whitby. Golder therefore recommends that:

- The project be undertaken as proposed with no further cultural heritage studies or mitigation measures required.

Closure

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

Golder Associates Ltd.

Henry Cary, Ph.D., CAHP
Cultural Heritage Specialist / Archaeologist
HC/HD

Hugh Daechsel, M.A.
Principal
References

Ministry of Tourism, Culture and Sport (MTCS)


Appendix A

MTCS Criteria for Evaluating Potential for Built Heritage Resources and Cultural Heritage Landscapes for the Dryden Boulevard Extension Schedule C Environmental Assessment.
The **purpose of the checklist** is to determine:

- if a property(ies) or project area:
  - is a recognized heritage property
  - may be of cultural heritage value
- it includes all areas that may be impacted by project activities, including – but not limited to:
  - the main project area
  - temporary storage
  - staging and working areas
  - temporary roads and detours

**Processes covered** under this checklist, such as:

- *Planning Act*
- *Environmental Assessment Act*
- *Aggregates Resources Act*
- *Ontario Heritage Act* – Standards and Guidelines for Conservation of Provincial Heritage Properties

**Cultural Heritage Evaluation Report (CHER)**

If you are not sure how to answer one or more of the questions on the checklist, you may want to hire a qualified person(s) (see page 5 for definitions) to undertake a cultural heritage evaluation report (CHER).

The CHER will help you:

- identify, evaluate and protect cultural heritage resources on your property or project area
- reduce potential delays and risks to a project

**Other checklists**

Please use a separate checklist for your project, if:

- you are seeking a Renewable Energy Approval under Ontario Regulation 359/09 – [separate checklist](#)
- your Parent Class EA document has an approved screening criteria (as referenced in Question 1)

Please refer to the Instructions pages for more detailed information and when completing this form.
Dryden Boulevard Extension Schedule B Environmental Assessment

Dryden Boulevard from Deverell Street to Thickson Road, Town of Whitby, Region of Durham

TMIG

Hammad Khan, TMIG, 110 Scotia Court, Unit 27, Whitby, ON, L1N 8Y7

Screening Questions

1. Is there a pre-approved screening checklist, methodology or process in place?
   - Yes  No
   - If Yes, please follow the pre-approved screening checklist, methodology or process.
   - If No, continue to Question 2.

Part A: Screening for known (or recognized) Cultural Heritage Value

2. Has the property (or project area) been evaluated before and found not to be of cultural heritage value?
   - Yes  No
   - If Yes, do not complete the rest of the checklist.
   - The proponent, property owner and/or approval authority will:
     - summarize the previous evaluation and
     - add this checklist to the project file, with the appropriate documents that demonstrate a cultural heritage evaluation was undertaken
   - The summary and appropriate documentation may be:
     - submitted as part of a report requirement
     - maintained by the property owner, proponent or approval authority
   - If No, continue to Question 3.

3. Is the property (or project area):
   - identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value?  Yes  No
   - a National Historic Site (or part of)?  Yes  No
   - designated under the Heritage Railway Stations Protection Act?  Yes  No
   - designated under the Heritage Lighthouse Protection Act?  Yes  No
   - identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office (FHBRO)?  Yes  No
   - located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?  Yes  No

   If Yes to any of the above questions, you need to hire a qualified person(s) to undertake:
   - a Cultural Heritage Evaluation Report, if a Statement of Cultural Heritage Value has not previously been prepared or the statement needs to be updated
   - If a Statement of Cultural Heritage Value has been prepared previously and if alterations or development are proposed, you need to hire a qualified person(s) to undertake:
    - a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts
   - If No, continue to Question 4.
### Part B: Screening for Potential Cultural Heritage Value

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Does the property (or project area) contain a parcel of land that:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. is the subject of a municipal, provincial or federal commemorative or interpretive plaque?</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>b. has or is adjacent to a known burial site and/or cemetery?</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>c. is in a Canadian Heritage River watershed?</td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>d. contains buildings or structures that are 40 or more years old?</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

### Part C: Other Considerations

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. is considered a landmark in the local community or contains any structures or sites that are important in defining the character of the area?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>b. has a special association with a community, person or historical event?</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>c. contains or is part of a cultural heritage landscape?</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

If Yes to one or more of the above questions (Part B and C), there is potential for cultural heritage resources on the property or within the project area.

You need to hire a qualified person(s) to undertake:
- a Cultural Heritage Evaluation Report (CHER)

If the property is determined to be of cultural heritage value and alterations or development is proposed, you need to hire a qualified person(s) to undertake:
- a Heritage Impact Assessment (HIA) – the report will assess and avoid, eliminate or mitigate impacts

If No to all of the above questions, there is low potential for built heritage or cultural heritage landscape on the property.

The proponent, property owner and/or approval authority will:
- summarize the conclusion
- add this checklist with the appropriate documentation to the project file

The summary and appropriate documentation may be:
- submitted as part of a report requirement e.g. under the *Environmental Assessment Act, Planning Act* processes
- maintained by the property owner, proponent or approval authority
Instructions

Please have the following available, when requesting information related to the screening questions below:

- a clear map showing the location and boundary of the property or project area
- large scale and small scale showing nearby township names for context purposes
- the municipal addresses of all properties within the project area
- the lot(s), concession(s), and parcel number(s) of all properties within a project area

For more information, see the Ministry of Tourism, Culture and Sport’s Ontario Heritage Toolkit or Standards and Guidelines for Conservation of Provincial Heritage Properties.

In this context, the following definitions apply:

- **qualified person(s)** means individuals – professional engineers, architects, archaeologists, etc. – having relevant, recent experience in the conservation of cultural heritage resources.
- **proponent** means a person, agency, group or organization that carries out or proposes to carry out an undertaking or is the owner or person having charge, management or control of an undertaking.

1. **Is there a pre-approved screening checklist, methodology or process in place?**

An existing checklist, methodology or process may already be in place for identifying potential cultural heritage resources, including:

- one endorsed by a municipality
- an environmental assessment process e.g. screening checklist for municipal bridges
- one that is approved by the Ministry of Tourism, Culture and Sport (MTCS) under the Ontario government’s Standards & Guidelines for Conservation of Provincial Heritage Properties [s.B.2.]

**Part A: Screening for known (or recognized) Cultural Heritage Value**

2. **Has the property (or project area) been evaluated before and found not to be of cultural heritage value?**

Respond ‘yes’ to this question, if all of the following are true:

A property can be considered not to be of cultural heritage value if:

- a Cultural Heritage Evaluation Report (CHER) - or equivalent - has been prepared for the property with the advice of a qualified person and it has been determined not to be of cultural heritage value and/or
- the municipal heritage committee has evaluated the property for its cultural heritage value or interest and determined that the property is not of cultural heritage value or interest

A property may need to be re-evaluated, if:

- there is evidence that its heritage attributes may have changed
- new information is available
- the existing Statement of Cultural Heritage Value does not provide the information necessary to manage the property
- the evaluation took place after 2005 and did not use the criteria in Regulations 9/06 and 10/06

**Note:** Ontario government ministries and public bodies [prescribed under Regulation 157/10] may continue to use their existing evaluation processes, until the evaluation process required under section B.2 of the Standards & Guidelines for Conservation of Provincial Heritage Properties has been developed and approved by MTCS.

To determine if your property or project area has been evaluated, contact:

- the approval authority
- the proponent
- the Ministry of Tourism, Culture and Sport

3a. **Is the property (or project area) identified, designated or otherwise protected under the Ontario Heritage Act as being of cultural heritage value e.g.:**

i. designated under the **Ontario Heritage Act**

- individual designation (Part IV)
- part of a heritage conservation district (Part V)
Individual Designation – Part IV

A property that is designated:

- by a municipal by-law as being of cultural heritage value or interest [s.29 of the *Ontario Heritage Act*]
- by order of the Minister of Tourism, Culture and Sport as being of cultural heritage value or interest of provincial significance [s.34.5]. **Note:** To date, no properties have been designated by the Minister.

Heritage Conservation District – Part V

A property or project area that is located within an area designated by a municipal by-law as a heritage conservation district [s. 41 of the *Ontario Heritage Act*].

For more information on Parts IV and V, contact:

- municipal clerk
- *Ontario Heritage Trust*
- local land registry office (for a title search)

### ii. subject of an agreement, covenant or easement entered into under Parts II or IV of the *Ontario Heritage Act*

An agreement, covenant or easement is usually between the owner of a property and a conservation body or level of government. It is usually registered on title.

The primary purpose of the agreement is to:

- preserve, conserve, and maintain a cultural heritage resource
- prevent its destruction, demolition or loss

For more information, contact:

- *Ontario Heritage Trust* - for an agreement, covenant or easement [clause 10 (1) (c) of the *Ontario Heritage Act*]
- municipal clerk – for a property that is the subject of an easement or a covenant [s.37 of the *Ontario Heritage Act*]
- local land registry office (for a title search)

### iii. listed on a register of heritage properties maintained by the municipality

Municipal registers are the official lists - or record - of cultural heritage properties identified as being important to the community.

Registers include:

- all properties that are designated under the *Ontario Heritage Act* (Part IV or V)
- properties that have not been formally designated, but have been identified as having cultural heritage value or interest to the community

For more information, contact:

- municipal clerk
- municipal heritage planning staff
- municipal heritage committee

### iv. subject to a notice of:

- intention to designate (under Part IV of the *Ontario Heritage Act*)
- a Heritage Conservation District study area bylaw (under Part V of the *Ontario Heritage Act*)

A property that is subject to a **notice of intention to designate** as a property of cultural heritage value or interest and the notice is in accordance with:

- section 29 of the *Ontario Heritage Act*
- section 34.6 of the *Ontario Heritage Act*. **Note:** To date, the only applicable property is Meldrum Bay Inn, Manitoulin Island. [s.34.6]

An area designated by a municipal by-law made under section 40.1 of the *Ontario Heritage Act* as a **heritage conservation district study area**.

For more information, contact:

- municipal clerk – for a property that is the subject of notice of intention [s. 29 and s. 40.1]
- *Ontario Heritage Trust*
v. included in the Ministry of Tourism, Culture and Sport’s list of provincial heritage properties

Provincial heritage properties are properties the Government of Ontario owns or controls that have cultural heritage value or interest.

The Ministry of Tourism, Culture and Sport (MTCS) maintains a list of all provincial heritage properties based on information provided by ministries and prescribed public bodies. As they are identified, MTCS adds properties to the list of provincial heritage properties.

For more information, contact the MTCS Registrar at registrar@ontario.ca.

<table>
<thead>
<tr>
<th>3b. Is the property (or project area) a National Historic Site (or part of)?</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Historic Sites are properties or districts of national historic significance that are designated by the Federal Minister of the Environment, under the Canada National Parks Act, based on the advice of the Historic Sites and Monuments Board of Canada.</td>
</tr>
<tr>
<td>For more information, see the National Historic Sites website.</td>
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</tbody>
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<thead>
<tr>
<th>3c. Is the property (or project area) designated under the Heritage Railway Stations Protection Act?</th>
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<tbody>
<tr>
<td>The Heritage Railway Stations Protection Act protects heritage railway stations that are owned by a railway company under federal jurisdiction. Designated railway stations that pass from federal ownership may continue to have cultural heritage value.</td>
</tr>
<tr>
<td>For more information, see the Directory of Designated Heritage Railway Stations.</td>
</tr>
</tbody>
</table>

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<tr>
<th>3d. Is the property (or project area) designated under the Heritage Lighthouse Protection Act?</th>
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</thead>
<tbody>
<tr>
<td>The Heritage Lighthouse Protection Act helps preserve historically significant Canadian lighthouses. The Act sets up a public nomination process and includes heritage building conservation standards for lighthouses which are officially designated.</td>
</tr>
<tr>
<td>For more information, see the Heritage Lighthouses of Canada website.</td>
</tr>
</tbody>
</table>

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<tr>
<th>3e. Is the property (or project area) identified as a Federal Heritage Building by the Federal Heritage Buildings Review Office?</th>
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<tbody>
<tr>
<td>The role of the Federal Heritage Buildings Review Office (FHBRO) is to help the federal government protect the heritage buildings it owns. The policy applies to all federal government departments that administer real property, but not to federal Crown Corporations.</td>
</tr>
<tr>
<td>For more information, contact the Federal Heritage Buildings Review Office.</td>
</tr>
<tr>
<td>See a directory of all federal heritage designations.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>3f. Is the property (or project area) located within a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site?</th>
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</thead>
<tbody>
<tr>
<td>A UNESCO World Heritage Site is a place listed by UNESCO as having outstanding universal value to humanity under the Convention Concerning the Protection of the World Cultural and Natural Heritage. In order to retain the status of a World Heritage Site, each site must maintain its character defining features.</td>
</tr>
<tr>
<td>Currently, the Rideau Canal is the only World Heritage Site in Ontario.</td>
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<tr>
<td>For more information, see Parks Canada – World Heritage Site website.</td>
</tr>
</tbody>
</table>

**Part B: Screening for potential Cultural Heritage Value**

<table>
<thead>
<tr>
<th>4a. Does the property (or project area) contain a parcel of land that has a municipal, provincial or federal commemorative or interpretive plaque?</th>
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<tbody>
<tr>
<td>Heritage resources are often recognized with formal plaques or markers.</td>
</tr>
<tr>
<td>Plaques are prepared by:</td>
</tr>
<tr>
<td>• municipalities</td>
</tr>
<tr>
<td>• provincial ministries or agencies</td>
</tr>
<tr>
<td>• federal ministries or agencies</td>
</tr>
<tr>
<td>• local non-government or non-profit organizations</td>
</tr>
</tbody>
</table>
For more information, contact:
  • municipal heritage committees or local heritage organizations – for information on the location of plaques in their community
  • Ontario Historical Society’s Heritage directory – for a list of historical societies and heritage organizations
  • Ontario Heritage Trust – for a list of plaques commemorating Ontario’s history
  • Historic Sites and Monuments Board of Canada – for a list of plaques commemorating Canada’s history

4b. Does the property (or project area) contain a parcel of land that has or is adjacent to a known burial site and/or cemetery?

For more information on known cemeteries and/or burial sites, see:
  • Cemeteries Regulations, Ontario Ministry of Consumer Services – for a database of registered cemeteries
  • Ontario Genealogical Society (OGS) – to locate records of Ontario cemeteries, both currently and no longer in existence; cairns, family plots and burial registers
  • Canadian County Atlas Digital Project – to locate early cemeteries

In this context, adjacent means contiguous or as otherwise defined in a municipal official plan.

4c. Does the property (or project area) contain a parcel of land that is in a Canadian Heritage River watershed?

The Canadian Heritage River System is a national river conservation program that promotes, protects and enhances the best examples of Canada’s river heritage.

Canadian Heritage Rivers must have, and maintain, outstanding natural, cultural and/or recreational values, and a high level of public support.

For more information, contact the Canadian Heritage River System.

If you have questions regarding the boundaries of a watershed, please contact:
  • your conservation authority
  • municipal staff

4d. Does the property (or project area) contain a parcel of land that contains buildings or structures that are 40 or more years old?

A 40 year ‘rule of thumb’ is typically used to indicate the potential of a site to be of cultural heritage value. The approximate age of buildings and/or structures may be estimated based on:
  • history of the development of the area
  • fire insurance maps
  • architectural style
  • building methods

Property owners may have information on the age of any buildings or structures on their property. The municipality, local land registry office or library may also have background information on the property.

Note: 40+ year old buildings or structure do not necessarily hold cultural heritage value or interest; their age simply indicates a higher potential.

A building or structure can include:
  • residential structure
  • farm building or outbuilding
  • industrial, commercial, or institutional building
  • remnant or ruin
  • engineering work such as a bridge, canal, dams, etc.

For more information on researching the age of buildings or properties, see the Ontario Heritage Tool Kit Guide Heritage Property Evaluation.
Part C: Other Considerations

5a. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) is considered a landmark in the local community or contains any structures or sites that are important to defining the character of the area?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has potential landmarks or defining structures and sites, for instance:

- buildings or landscape features accessible to the public or readily noticeable and widely known
- complexes of buildings
- monuments
- ruins

5b. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) has a special association with a community, person or historical event?

Local or Aboriginal knowledge may reveal that the project location is situated on a parcel of land that has a special association with a community, person or event of historic interest, for instance:

- Aboriginal sacred site
- traditional-use area
- battlefield
- birthplace of an individual of importance to the community

5c. Is there local or Aboriginal knowledge or accessible documentation suggesting that the property (or project area) contains or is part of a cultural heritage landscape?

Landscapes (which may include a combination of archaeological resources, built heritage resources and landscape elements) may be of cultural heritage value or interest to a community.

For example, an Aboriginal trail, historic road or rail corridor may have been established as a key transportation or trade route and may have been important to the early settlement of an area. Parks, designed gardens or unique landforms such as waterfalls, rock faces, caverns, or mounds are areas that may have connections to a particular event, group or belief.

For more information on Questions 5.a., 5.b. and 5.c., contact:

- Elders in Aboriginal Communities or community researchers who may have information on potential cultural heritage resources. Please note that Aboriginal traditional knowledge may be considered sensitive.
- municipal heritage committees or local heritage organizations
- Ontario Historical Society’s “Heritage Directory” - for a list of historical societies and heritage organizations in the province

An internet search may find helpful resources, including:

- historical maps
- historical walking tours
- municipal heritage management plans
- cultural heritage landscape studies
- municipal cultural plans

Information specific to trails may be obtained through Ontario Trails.
APPENDIX E

Natural Environment Impact Assessment
REPORT

Natural Environment Impact Assessment Report
Dryden Boulevard Extension Environmental Assessment

Submitted to:
Nathalie McCutcheon, P. Eng.
Director of Municipal Services
The Municipal Infrastructure Group Ltd.
110 Scotia Court, Unit 27
Whitby, Ontario L1N 8Y7

Submitted by:
Golder Associates Ltd.
6925 Century Avenue, Suite #100 Mississauga, Ontario, L5N 7K2 Canada
905.567.4444
1670514
May 2018
Distribution List

E-copy: The Municipal Infrastructure Group Ltd.

E-copy: Golder Associates Ltd.
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1.0 INTRODUCTION

The Corporation of the Town of Whitby (Town) is undertaking a Municipal Class Environmental Assessment (EA) study to review options and identify a preferred alignment for the extension of Dryden Boulevard between Deverell Street and Thickson Road within the Town of Whitby (the project) (Figure 1). The study area is located between Deverell Street (west) and Thickson Road (east) at Dryden Boulevard in Whitby (Figure 2). The location where the preferred alignment crosses the tributary to Pringle Creek, is referred to below as the crossing location.

Figure 1: Dryden Boulevard Extension Study Area

Golder Associates Ltd. (Golder) was retained by The Municipal Infrastructure Group (TMIG) to provide the relevant natural environment studies in support of the Class EA. This included a description of the existing natural environment conditions, input to the assessment of project alternatives, and an assessment of potential impacts that may result from the project, including recommendations for site specific mitigation to minimize the potential for environmental impacts.

This report provides a summary of the existing conditions within the study area. Additional reports and/or plans timed to development of detail design may be prepared for the project.
2.0 POLICY CONTEXT

2.1 Provincial Policy Statement (PPS)

The PPS was issued under Section 3 of the Planning Act, and came into effect on April 30, 2014.

The natural heritage policies of the PPS (MMAH 2014) indicate that:

- 2.1.1 Natural features and areas shall be protected for the long term;
- 2.1.2 The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features;
- 2.1.3 Natural heritage systems shall be identified in Ecoregions 6E and 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, and prime agricultural areas;
- 2.1.4 Development and Site alteration shall not be permitted in:
  a) Significant wetlands in Ecoregions 5E, 6E and 7E; and
  b) Significant coastal wetlands.
- 2.1.5 Unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, development and Site alteration shall not be permitted in:
  a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
  b) Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
  c) Significant valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
  d) Significant wildlife habitat;
  e) Significant areas of natural and scientific interest; and
  f) Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b).
- 2.1.6 Development and Site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements;
- 2.1.7 Development and Site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements; and
- 2.1.8 Development and Site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.
2.2  Species at Risk

2.2.1  Species at Risk Act (SARA)

At a federal level, species at risk (SAR) designations for species occurring in Canada are initially determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). If approved by the federal Minister of the Environment and Climate Change, species are added to the federal Species at Risk Public Registry (Government of Canada 2002). Species that are included on Schedule 1 as endangered or threatened are afforded protection of critical habitat on federal lands under the Species at Risk Act (SARA). On private or provincially-owned lands, only aquatic species listed as endangered, threatened or extirpated and migratory birds are protected under SARA, unless ordered by the Governor in Council.

2.2.2  Endangered Species Act (ESA)

SAR designations for species in Ontario are initially determined by the Committee on the Status of Species at Risk in Ontario (COSSARO), and if approved by the provincial Minister of Natural Resources and Forestry, species are added to the provincial Endangered Species Act (ESA)(Ontario 2007). The legislation prohibits the killing, harming or harassing of species identified as 'endangered' or 'threatened' in the various schedules to the Act. The ESA also provides habitat protection to all species listed as threatened or endangered. As of June 30, 2008, the Species at Risk in Ontario (SARO) List is contained in O. Reg. 230/08.

Subsection 9(1) of the ESA prohibits the killing, harming or harassing of species identified as 'endangered' or 'threatened' in the various schedules to the Act. Subsection 10(1) (a) of the ESA states that “No person shall damage or destroy the habitat of a species that is listed on the SARO List as an endangered or threatened species”.

General habitat protection is provided by the ESA to all threatened and endangered species. Species-specific habitat protection is only afforded to those species for which a habitat regulation has been prepared and passed into law under the ESA. The ESA has a permitting process where alterations to protected species or their habitats may be considered.

2.3  Fisheries Act

The purpose of the Fisheries Act is to maintain healthy, sustainable and productive Canadian fisheries through the prevention of pollution, and the protection of fish and their habitat. In 2012, changes were made to the Fisheries Act to enhance Fisheries and Oceans Canada's (DFO) ability to manage threats to Canada’s commercial, recreational and Aboriginal (CRA) fisheries.

Projects affecting waterbodies supporting Canada’s CRA fisheries must comply with the provisions of the Fisheries Act. The proponent is responsible for determining if the project is likely to cause impacts to CRA fish and if these impacts can be avoided or mitigated. The proponent must gather information on the type and scale of impact on the fishery and determine if the impacts will result in serious harm to fish. Proponents have a duty to maintain records of self-assessments completed for projects they undertake, and to provide this information to DFO upon request. Serious harm to fish is defined as: the death of fish; and/or any permanent alteration to, or destruction of, fish habitat. If it is determined that the impacts cannot be avoided or mitigated and will result in serious harm to fish, an application for authorization must be submitted to the DFO. Projects that have the potential to obstruct fish passage or, affect flows needed by fish also require an authorization; even if these occur outside of CRA fishery areas (DFO 2013a).
Proponents of projects requiring a *Fisheries Act* Authorization are required to submit a Habitat Offsetting Plan, which provides details of how the serious harm to fish will be offset, as well as outlining associated costs and monitoring commitments (DFO 2013b). Proponents also have a duty to notify DFO of any unforeseen activities that cause serious harm to fish and outline the steps taken to address them.

### 2.4 Migratory Birds Convention Act

The *Migratory Birds Convention Act* (MBCA) (Canada, 1994) prohibits the killing or capturing of migratory birds, as well as any damage, destruction, removal or disturbance of active nests. It also allows the Canadian government to pass and enforce regulations to protect various species of migratory birds, as well as their habitats. While Environment and Climate Change Canada (ECCC) can issue permits allowing the destruction of nests for scientific or agricultural purposes, or to prevent damage being caused by birds, it does not typically allow for permits in the case of industrial or construction activities.

### 2.5 Central Lake Ontario Conservation Authority

Under authority of Ontario Regulation 42/06, the Central Lake Ontario Conservation Authority (CLOCA) regulates hazard lands, including all watercourses, valleylands, shorelines, and wetlands, as well as lands adjacent to these features. This includes the provincially significant wetland (PSW) in the study area. With respect to wetlands, the regulated area extends a distance of 120 m from a PSW and any wetland greater than 2 ha and extends 30 m from wetlands less than 2 ha in area. With respect to watercourses and valleylands, where the watercourse valley is apparent, the regulated area extends a distance of 15 m from the stable top of bank. Where the watercourse valley is not apparent, the regulated area extends to either the distance from a point outside the edge of the maximum extent of the flood plain under the applicable flood even standard plus 15 m, or the distance from the predicted meander belt of a watercourse, expanded as required to convey the flood flows under the applicable flood event standard plus 15 m, whichever is greater.

Activities conforming to the Town of Whitby (Town) and Region of Durham (Region) Official Plan (OP) and located within regulated areas will be subject to the CLOCA permit process under Ontario Regulation 42/06. Pending review of supporting studies and a detailed design for proposed works, development may be permitted within the regulated area. As detailed in Section 5.4 of CLOCA’s Policy and Procedural Document for Regulation and Plan Review, development within the allowance of a regulatory floodplain is permissible provided it has been demonstrated that the following general policies have been satisfied:

- it will not aggravate the flood hazard or create a new one;
- it does not impede access for emergency works, maintenance and evacuation;
- the potential for surficial erosion has been addressed through proper drainage;
- erosion and sediment control and site stabilization/restoration plans; and
- natural features and/or ecological functions associated with conservation of land are protected, pollution is prevented and erosion hazards have been adequately addressed.

The project will be subject to CLOCA permitting in accordance with Ontario Regulation 42/06.
2.6 Town of Whitby

The study area includes lands designated under the Town’s OP (Whitby 2016) as Residential and Hazard Lands. The Pringle Creek corridor, identified as Hazard Land, is also designated as a PSW. As noted in Section 5.3.3.1 of the OP, the Town requires that development be consistent with the goals of the Wetlands Policy Statement prepared by the Province under Section 3 of the Planning Act, (Ontario 1990) which is intended to:

- ensure that wetlands are identified and adequately protected through the land use planning process; and
- achieve no loss of contiguous area or function of Provincially Significant Wetlands (PSW).

2.7 Region of Durham

The Pringle Creek tributary corridor is identified under the Region’s OP as a Key Natural Heritage Feature and part of the Regions Greenlands System (Durham 2017). The Region requires that development within identified valleylands does not alter the flood capacity of the valley, affect fish and wildlife habitats, woodlands or the character of the stream. Consequently, it must be demonstrated that project will not result in an overall negative impact to the functions and features of the Natural Heritage System.

3.0 METHODS

3.1 Desktop Review

A summary of existing natural environment features was obtained from publicly available background information sources and information available through the Ministry of Natural Resources and Forestry (MNRF) and CLOCA. As part of the background review, a number of resources were used to confirm or update the natural environment features within the study area, including:

- MNRF Natural Heritage Information Centre (NHIC) Make a Map: Natural Heritage Areas (MNRF, 2017) for information on known occurrences of SAR and other significant natural features;
- Atlas of Breeding Birds of Ontario (Cadman et al., 2007);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- Ontario Reptile and Amphibian Atlas (Ontario Nature, 2018);
- Ontario Butterfly Atlas (Jones et al., 2017);
- Bat Conservation International (BCI) range maps (BCI, 2017);
- MNRF Land Information Ontario (LIO) mapping (LIO, 2017);
- Durham Regional Official Plan (Durham 2017); and
- Existing aerial photography.

Golder submitted an information request to the Aurora District MNRF requesting relevant information concerning sensitive natural features, fish and fish habitat, and SAR. The MNRF provided a response on December 18, 2017 and that information has been incorporated into this report.
3.2 SAR Screening

SAR considered for this report include those species listed in the ESA and SARA. An assessment was conducted to determine which SAR have suitable habitat in the study area (Appendix A). A screening of all SAR which have the potential to be found in the vicinity of the study area was conducted. Species with ranges overlapping the study area, or recent occurrence records in the vicinity, were screened by comparing their habitat requirements to habitat conditions in the study area.

The potential for a species to be present in the study area was determined through a probability of occurrence. A ranking of low indicates no suitable habitat available for that species in the study area and no specimen observations recorded. Moderate probability indicates more likelihood for the species to occur, as suitable habitat appeared to be present in the study area, but no occurrence of the species has been recorded. Alternatively, a moderate probability could indicate an observation of a species, but no suitable habitat in the study area.

High potential indicates a species observation record in the study area (including an observation during the Golder field surveys or through background data review) and suitable habitat for that SAR is present in the study area.

3.3 Field Survey

A terrestrial and aquatic survey was completed on June 1, 2017. Studies were completed by qualified Golder biologists. During the field survey, all wildlife visual observations and sign were recorded. The potential habitats for SAR were searched and their suitability to support SAR was assessed. All wildlife habitats identified were documented and described.

Plant communities in the study area were delineated at a desktop level using high-resolution aerial imagery, then ground-truthed in the field using the Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998). A botanical inventory was undertaken by the MNRF which identified dominant plants from all naturally-occurring habitats in the study area, resulting in a list of plant species (E. Funnell, pers. comm. 2017). Visual assessments to confirm the plant communities identified by the MNRF were completed.

Golder biologists completed an assessment of the reach of the tributary of Pringle Creek flowing north to south through the study area for its potential to provide fish habitat. A survey of the watercourse was completed by walking along its length within the surveyed reach. A number of measurements were collected at regular intervals, including the wetted and bankfull width, bank height, water depth, and flow. The following in-situ water quality parameters were measured using a portable Hanna pH pen: pH, conductivity (µS/cm), water temperature (°C), air temperature (°C). Instream and riparian habitat features, barriers to migration, substrate type, cover and presence of emergent and submergent vegetation were also recorded. Photographs were taken of the general conditions of the creek. Based on the existing fish community data for the tributary and the Pringle Creek watershed, available through secondary sources, further fish community sampling for the purposes of this project was not warranted.

4.0 EXISTING CONDITIONS

4.1 Species at Risk

Through the information request, the MNRF identified 11 SAR with potential to occur in the study area, including Acadian flycatcher (*Empidonax virescens*), butternut (*Juglans cinereal*), bobolink (*Dolichonyx oryzivoros*), eastern meadowlark (*Sturnella magna*), eastern whip-poor-will (*Caprimulgus vociferous*), snapping turtle (*Chelydra serpentine*), eastern small-footed myotis (*Myotis leibii*), little brown myotis (*Myotis lucifugus*), northern myotis
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(\textit{Myotis septentrionalis}), tri-colored bat (\textit{Perimyotis subflavus}), and monarch butterfly (\textit{Danaus plexippus}). Although the SAR screening identified an additional 32 SAR with ranges that overlap the study area (Appendix A), all SAR were assessed to have a low potential to occur in the study area and are not discussed further in this report.

The available habitat in the study area has limited diversity and is generally disturbed and fragmented due to anthropogenic uses and proximity to urban development. Wetland and aquatic habitat in the study area are also considered marginal and are unlikely to support critical life processes. Although some SAR have adapted to use anthropogenic landscapes, no specific habitat features that would support these SAR, such as existing structures for nesting or roosting, were observed in the study area.

4.2 Plant Communities

The study area is located in the Lake Simcoe-Rideau Eco Region (6E) and the Oshawa-Cobourg Eco-district, within the Mixed Wood Plains Ecozone. The study area consists of an agricultural field bisected by the Pringle Creek valleyland corridor, which contains predominantly wetland communities and smaller pockets of forest. Adjacent lands are primarily in active agricultural use or residential use with no natural features (Figure 2). Recently (February 2017), the MNRF complexed some wetland communities found along the Pringle Creek valleyland within the study area to the Whitby-Oshawa Iroquois Beach Provincially Significant Wetland 52 (Figure 3, Appendix B).

The wetland communities within the study area include Cattail Mineral Shallow Marsh (MAS2-1), Mineral Shallow Marsh (MAS2), Mineral Thicket Swamp (SWT2) and Mineral Meadow Marsh (MAM2)(Appendix B). All of the wetland plant communities show evidence of anthropogenic disturbance, with pronounced human alteration to narrow sections of cattail marsh and mineral marsh where walking trails/paths have been cleared and maintained by continued human traffic. Wood and other materials have been placed in the wetlands to maintain trail access. Garbage and refuse is evident. Along the north-east boundary of the study area, wetland communities transition into forest communities.

Vegetation within the PSW and tributary of Pringle Creek valleyland includes a mixture of native and non-native species. Dominant shrubs include: common buckthorn (\textit{Rhamnus cathartica}), Missouri willow (\textit{Salix eriocephala}), and red-osier dogwood (\textit{Cornus sericea}). Common emergent herbaceous plants included narrow-leaved cattail (\textit{Typha angustifolia}), European common reed (\textit{Phragmites australis}), horsetail species (\textit{Equisetum spp.}), and various grass species. Woody vegetation included willow (\textit{salix spp.}), white cedar (\textit{Thuja occidentalis}), American elm (\textit{Ulmus americana}) and jack pine (\textit{Pinus banksiana}). All of the plants species observed are common in Ontario with a ranking of S4/S5 in the province. It is noted, however, that the MNRF identified the potential for locally rare (Virginia mountain-mint \textit{[Pycnanthemum virginianum]} and closed bottle gentian \textit{[Gentian andrewsii]}) and locally uncommon species (Silky dogwood \textit{[Cornus amomum]} and wooly sedge \textit{[Carex pellita]} within the broader PSW (E. Funnell, pers. comm. 2017).

The majority of the native plant species identified through the vegetation surveys are secure and common in Ontario and globally (S4 or S5; G4 or G5). There were no SAR plants identified during the field surveys.

4.3 Wildlife and Wildlife Habitat

During the field surveys, seven common generalist species of birds were recorded using habitats within the study area. Species observed were: red-winged blackbird (\textit{Agelaius phoeniceus}), European starling (\textit{Sturnus vulgaris}), American crow (\textit{Corvus brachyrhynchos}), common grackle (\textit{Quiscalus quiscula}), herring gull (\textit{Larus argentatus}...
smithsonianus), song sparrow (Melospiza melodia) and American robin (Turdus migratorius). An active red-winged blackbird nest was observed in a small willow along the wetland edge.

Wildlife habitat in the study area has limited diversity, and is generally disturbed and fragmented due to anthropogenic uses and proximity to urban development. However, the Pringle Creek valleyland and creek corridor is likely part of a movement corridor for wildlife. The valleyland and creek corridor provide continuous natural cover through the surrounding urban landscape, and connects Lake Ontario downstream of the study area to the rural area north of the city. No significant wildlife habitat features, as defined in the Significant Wildlife Habitat Technical Guide (MNR 2000) or Ecoregion 6E Criterion Schedule (MNRF 2015), were identified in the study area.

Tadpoles were observed in the open water areas of the creek. The tadpoles were assumed to be American toad (Anaxyrus americanus) based on visual observations of the egg masses and tadpoles present, but the species could not be confirmed. No other wildlife were observed, although background information and professional judgement indicate that a variety of common small mammals use the creek valley.

### 4.4 Fish and Fish Habitat

The study area is located within the Pringle Creek watershed which drains into Lake Ontario. The project crosses a tributary of Pringle Creek and its associated floodplain wetland. The tributary flows from north to south through the study area, joining the main branch of Pringle Creek, approximately 1.5 kilometres (km) downstream of the study area. Pringle Creek eventually drains into Whitby Harbour of Lake Ontario. A photographic record of the field conditions observed is presented in Appendix C.

Pringle Creek is identified as a coldwater watercourse. According to the MNRF LIO data, Pringle Creek supports numerous baitfish species (Cyprinidae spp.) as well as White Sucker (Catostomus commersonii), Rainbow Trout (Oncorhynchus mykiss) and historically Redside Dace (Clinostomus elongates). However, during CLOCA spawning surveys in 2013 (CLOCA 2017) no migratory Rainbow Trout or White Sucker were observed in Pringle Creek north of Rossland Road East.

The tributary of Pringle Creek does not contain a defined channel at the proposed crossing location within the study area (Figure 2), where the watercourse flows through a dense thicket swamp comprised of European common reed, cattails and European buckthorn. At the proposed crossing location, there is also a lack of habitat structure (poorly defined bed and banks) and no typical aquatic habitat morphological characteristics such as, runs, riffles and pools. In addition, it was noted that the reach in the study area is highly disturbed with human refuse throughout. Habitat morphology within the watercourse was restricted by vegetation, with little or no flow observed. Substrates were primarily soft silt, muck and detritus. The banks were undefined at the crossing location, although were more defined both upstream and downstream of the crossing location where the tributary has aquatic habitat morphological features such as riffles and runs. The banks upstream and downstream of the crossing location were moderately unstable on both sides with evidence of erosion and sediment deposition likely due to runoff from the bordering agricultural fields. No fish were observed using the tributary at the time of the survey.

The watercourse is well shaded throughout the reach within the study area, with moderate to high proportions of overhead and instream cover by the thicket swamp vegetative species, large woody debris and organic/leaf litter. However, the absence of a defined channel, combined with extensive vegetation growth throughout support the assessment that fish passage through the study area is likely blocked under most seasonal conditions.
It is known that the main branch of Pringle Creek provides direct fish habitat. Because of fish barriers north of Rossland Road (CLOCA 2017) and the limited water depth and undefined channel observed during the field assessment of the reach within the study area, it was determined that the tributary of Pringle Creek does not provide direct fish habitat.

A summary of channel morphology parameters is provided in Table 1.

**Table 1: Summary of Habitat Characteristics of the Tributary to Pringle Creek Within the Study Area**

<table>
<thead>
<tr>
<th>Watercourse</th>
<th>Habitat type</th>
<th>Percent of area (%)</th>
<th>Mean Wetted Length (m)</th>
<th>Mean Wetted Depth (m)</th>
<th>Mean Bankfull Width (m)</th>
<th>Mean Bankfull Depth (m)</th>
<th>Substrate Type(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upstream</td>
<td>Run</td>
<td>100%</td>
<td>1.0m</td>
<td>0.4m</td>
<td>45m</td>
<td>0.1m</td>
<td>Si/Mu/D</td>
</tr>
<tr>
<td>Crossing</td>
<td>Wetland</td>
<td>100%</td>
<td>^{a}</td>
<td>^{a}</td>
<td>undefined</td>
<td>undefined</td>
<td>Si/Mu/D</td>
</tr>
<tr>
<td>Downstream</td>
<td>Run</td>
<td>45%</td>
<td>0.4m</td>
<td>0.5m</td>
<td>45m</td>
<td>0.1m</td>
<td>Si/Mu/D</td>
</tr>
<tr>
<td></td>
<td>Riffle</td>
<td>30%</td>
<td>0.5m</td>
<td>0.2m</td>
<td>45m</td>
<td>0.1m</td>
<td>Si/Mu/D</td>
</tr>
<tr>
<td></td>
<td>Flats</td>
<td>30%</td>
<td>0.7m</td>
<td>0.4m</td>
<td>45m</td>
<td>0.1m</td>
<td>Si/Mu/D</td>
</tr>
</tbody>
</table>

^{a} Near-dry conditions were observed at the time of assessment.

The results of the in-situ water quality measurements are presented in Table 2. Visual water quality appeared clear and free from debris or turbidity with in the water column. The pH values measured during the field survey are within the acceptable range (pH 6.5-9.0) of the Canadian Council of Ministers of the Environment (CCME) Canadian Water Quality Guidelines (CCME, 2014) to support aquatic life at all life stages. Water temperatures at the time of the assessment were within the coldwater range.

**Table 2: Water Quality Measurements for the Tributary of Pringle Creek**

<table>
<thead>
<tr>
<th>Location</th>
<th>pH</th>
<th>Conductivity (µS/cm)</th>
<th>Water Temperature (°C)</th>
<th>Air Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upstream</td>
<td>8.18</td>
<td>1159</td>
<td>16.2°C</td>
<td>17°C</td>
</tr>
<tr>
<td>Crossing</td>
<td>8.15</td>
<td>1174</td>
<td>16.6°C</td>
<td>17°C</td>
</tr>
<tr>
<td>Downstream</td>
<td>8.17</td>
<td>1174</td>
<td>16.6°C</td>
<td>17°C</td>
</tr>
</tbody>
</table>

Notes:
m = metres; µS/cm = micro Siemens per centimetre; °C = degrees Celsius
5.0 OVERVIEW OF DESIGN

Based on consideration of three design alternatives, the technically preferred alternative bridge designs were selected in consideration of hydraulic requirements, constructability and associated environmental effects (Appendix D). The bridge designs are illustrated in the Preliminary General Arrangement Drawing created by TMIG (2018) for the Town of Whitby (Appendix D). The selected bridge design details are summarized below and in Appendix D:

- The proposed constructed length of the Dryden Boulevard extension is approximately 150 m and includes a width of 22.65 m. The design incorporates multi-use pathway, bike lanes, east and west bound lanes, a centre turn lane and a right turn lane and sidewalks.
- The bridge section is a 22 m long single span bridge over the tributary of Pringle Creek, with pre-cast concrete box girders.
- Two -4.0 m abutments will be located on either side of the bridge. No bridge abutments will be constructed within the creek, although the bridge does not span the fully length of the wetland boundaries.
- Rock protection will line the abutments to prevent erosion.
- The design accommodates for 100-year flood water events.
- The design provides an openness ratio of 1.28 for wildlife passage of small to medium mammals and herpetofauna. Wildlife ledges, incorporated under the bridge will address movement during periods of high flow/water levels.

6.0 ASSESSMENT OF SIGNIFICANT NATURAL HERITAGE FEATURES

Natural habitats and features within the study area were evaluated against the proposed crossing design and construction activities to determine whether they would adversely impact the local terrestrial and aquatic ecosystem features. The following provides an assessment of the significant or designated features that require consideration under the PPS (MMAH 2014), ESA (Ontario 2007), Migratory Birds Convention Act (MBCA, Canada 1994), and Fisheries Act (Canada 1985).

This section assesses the natural heritage features and functions located within the Study Area. The following sources were used during the assessment of features:

- Natural Heritage Reference Manual (NHRM; MNR 2010);
- Significant Wildlife Habitat Technical Guide (SWHTG; MNR 2000);
- Significant Wildlife Habitat Mitigation Support Tool (SWHMiST; MNRF 2014); and
- Significant Wildlife Habitat Criteria Schedules for Ecoregions 6E and 7E (MNRF 2015a; 2015b).

6.1 Habitat of Endangered or Threatened Species

The MNRF designates “significant” or critical habitat that is necessary for the maintenance, survival, and/or recovery of naturally occurring or reintroduced populations of endangered and threatened species, and where those areas of occurrence are occupied or habitually occupied by the species during all or any part(s) of their life cycles.
There is no suitable habitat in the study area for any endangered or threatened species that were identified as having ranges which overlap the study area (Appendix A). In addition, no SAR fauna or flora were observed by Golder during the field survey. Therefore, no impacts to SAR or SAR habitat as a result of project activities are anticipated, and no mitigation is required.

### 6.2 Significant Wetlands

The MNRF designates PSWs based on the standardized Ontario Wetland Evaluation System (OWES). Wetlands are assessed based on a range of criteria, including biology, hydrology, societal value and special features (MNRF 2013). A portion of the Whitby-Oshawa Iroquois Beach PSW 52 is located in the study area along the tributary of Pringle Creek. According to the MNRF (E. Funnell, pers. comm. 2017), the PSW is a mixture of marsh, open swamp, thicket swamp and deciduous swamp.

Approximately 0.008 ha of the wetland (<1%) will be lost for each abutment. However, the loss occurs in the portion of the wetland that is currently exposed to impacts from anthropogenic disturbances. The proposed crossing is also located within the narrowest stretch of the wetland, and in an area with the least sensitive vegetation community. Overall, the changes to the wetland are expected to be of minimal extent compared to the total wetland area and it is not expected that the overall form (biodiversity) and function (i.e., water storage and release) of the wetland will be changed. In addition, all disturbed areas (outside of the permanent footprint of the bridge abutments) should be restored, re-stabilized and revegetated with native plant species to maintain the integrity of the wetland.

A stormwater management plan will also be designed to direct the runoff into a retention pond or vegetated area to remove suspended solids, dissipate velocity and prevent sediment and other deleterious substances (e.g., sand/salt) from entering the wetland and the tributary of Pringle Creek. Additional mitigation measures to address sedimentation/erosion and spills during project preparation and construction activities will be implemented, and are described further in Section 8.0.

With the implementation of mitigation measures as described in Section 8.0, no long-term, residual impacts to the form or function of the PSW are expected.

### 6.3 Significant Woodlands

Significant woodlands should be defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the Natural Heritage Reference Manual (NHRM) for Policy 2.3 of the PPS (MNR 2010).

There are no significant woodlands in the study area, therefore no impacts to significant woodlands are anticipated from the project and no mitigation is required.

### 6.4 Significant Valleylands

Significant valleylands should be defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the NHRM for Policy 2.3 of the PPS (MNR 2010). Recommended criteria for designating significant valleylands under the PPS (MMAH 2014) include prominence a distinctive landform, degree of naturalness, importance of its ecological functions, restoration potential, and historical and cultural values.

The Region (Durham Region 2017) defines significant valleylands as a valley that:
Has water flowing or standing for some period of the year;
Is ecologically important in terms of features, functions, representation or amount; and
Contributes to the quality and diversity of the [Regional] Greenlands System.

Based on the Region’s definition, the valleyland associated with the tributary of Pringle Creek on the site meets all three criteria and is considered significant. The valleyland is also considered significant under the PPS for meeting the following criteria:

- Surface water functions;
- Unique species (habitat of rare plant species); and
- Linkage function.

Potential impacts of developing the valleyland include the potential to sever valley land linkages, changes to flood and flow and changes in biodiversity. The design considerations accommodate for hydrology and structural related features of the site and no potential impacts are anticipated or changes in flow or flood status as a result of the Project.

Any impacts to the valleyland linkage function will be minimal due to the project, as the area is currently highly disturbed and fragmented due to anthropogenic influences. The project will maintain the current landscape to the extent possible and the design elements such as the 20 m bridge span allows for the watercourse and the majority of the wetland to remain intact.

A wildlife movement corridor under the bridge area will be maintained for small to medium sized animals.

Mitigation measures to protect the tributary of Pringle Creek valleyland are provided in Section 8.0. Based on the crossing structure design and application of the noted mitigation measures, there is minimal anticipated residual impact on the valleyland as a result of project activities.

### 6.5 Significant Areas of Natural or Scientific Interest (ANSIs)

Areas of Natural and Scientific Interest (ANSI) are designated by the province according to standardized evaluation procedures.

There are no ANSIs within the study area, therefore no impacts to ANSIs are anticipated from the project and no mitigation is required.

### 6.6 Significant Wildlife Habitat

Significant wildlife habitat (SWH) is one of the more complicated natural heritage features to identify and evaluate. The NHRM includes criteria and guidelines for designating SWH. There are two other documents, the Significant Wildlife Habitat Technical Guide (SWHTG) and the Significant Wildlife Habitat Mitigation Support Tool (SWHMIST) (MNR 2000a and MNRF 2014), that can be used to help decide what areas and features should be considered SWH. These documents were used as reference material for this study. SWH should be evaluated in the context of the entire planning authority’s jurisdiction, and only the best examples are considered significant.

There are four general types of SWH: migration corridors, seasonal concentration areas, rare or specialized habitats, and habitat for species of conservation concern. The specific habitats considered in this report are
evaluated based on the criteria outlined in the Ecoregion 7E Criterion Schedule (MNRF 2015c). All types of SWH are discussed below in relation to the site and the project.

6.6.1 Seasonal Concentration Areas
Seasonal concentration areas are those areas where large numbers of a species congregate at one particular time of the year. Examples include deer yards, bird nesting colonies, bat hibernacula, raptor roosts, and passerine migration concentrations. If a species is at risk, or if a large proportion of the population may be lost if significant portions of the habitat are altered, all examples of certain seasonal concentration areas may be designated.

The SWHTG (MNR 2000a) and Ecoregion 7E Criterion Schedule (MNRF 2015c) identifies the following 12 types of seasonal concentrations of animals that may be considered SWH:

- winter deer yards and congregation areas;
- colonial bird nesting sites;
- waterfowl stopover and staging areas;
- shorebird migratory stopover areas;
- landbird migratory stopover areas;
- raptor winter feeding and roosting areas;
- reptile hibernacula;
- turtle wintering areas;
- bat hibernacula;
- bat maternity colonies;
- bat migratory stopover areas; and
- migratory butterfly stopover areas.

No candidate seasonal concentration areas were identified in the study area during the desktop assessment or the field survey. Therefore, no impacts as a result of project activities are anticipated and no mitigation is required.

6.6.2 Migration Corridors
The SWHTG (MNR 2000a) defines animal movement corridors as elongated, naturally vegetated parts of the landscape used by animals to move from one habitat to another. This is generally in response to different seasonal habitat requirements. For example, trails used by deer to move to wintering areas or areas used by amphibians between breeding and summer habitat. To qualify as SWH, these corridors would be a critical link between habitats that are regularly used by wildlife.

Watercourse valleys often provide opportunities for natural linear corridors for a variety of wildlife species and their movements, although no designated migration corridors were identified within the study area. Due to the limited width and shrubland character of the riparian corridor and tributary to Pringle Creek valleyland through the study area, it is anticipated to provide a movement corridor function primarily for small to medium sized mammals. There are no mapped migration corridors within the study area found during the desktop review.
The current design allows for the maintenance of a wildlife corridor during times of high and low flow through the height of the design allowing for the passage of small to medium sized animals as well as high flow walkways on the underside of the bridge.

There is an increased potential for wildlife mortalities due to traffic collisions during operations, and the current design calls for a reduced speed (i.e., 50 km/h) within the area which will help to reduce the potential for mortalities to occur post construction. The presence of herpetofauna habitat within the wetland area presents further potential for impacts, which can be mitigated through installation of awareness signage and exclusion fencing (see Section 8.0 for further details).

Mitigation measures to protect the movement function of the riparian corridor and Pringle Creek valleyland within the study area is provided in Section 8.0. Based on application of the mitigation measures there is minimal anticipated residual impact on the wildlife movement function of the riparian corridor and Pringle Creek valleyland as a result of project activities.

### 6.6.3 Specialized Habitats

Specialized habitats are microhabitats that provide a critical resource to some groups of wildlife. Examples include salt licks for ungulates and groundwater seeps for wild turkeys.

The SWHTG (MNR 2000a) and Ecoregion 7E Criterion Schedule (MNRF 2015c) defines 7 specialized habitats that may be considered SWH. They are:

- habitat for area-sensitive species;
- amphibian breeding habitat (woodlands and wetlands);
- turtle nesting habitat;
- specialized raptor nesting habitat;
- waterfowl nesting areas;
- bald eagle and osprey habitat;
- seeps and springs.

The SWHTG (MNR 2000a) and Ecoregion 7E Criterion Schedule (MNRF 2015c) defines five specialized habitats that may be considered SWH. They are:

- marsh bird breeding habitat;
- open country bird breeding habitat;
- shrub/early successional bird breeding habitat;
- terrestrial crayfish; and
- special concern and rare wildlife species

No special concern or rare wildlife species or specialized habitats were observed in the study area during the field survey. Therefore, no impacts as a result of project activities are anticipated and no mitigation is required.
No specialized habitats were identified in the study area during the field survey. Although, a few tadpoles were observed to be using the watercourse/wetland in the study area, there was no evidence that this feature provides a significant amphibian breeding area in the context of the entire planning authority’s jurisdiction, and thus would not be considered significant. As no specialized habitats were identified in the study area, no impacts as a result of project activities are anticipated and no mitigation is required.

6.6.4 Rare Habitat

This category includes plant communities that are considered rare in the province. Generally, communities assigned an SRANK of S1 to S3 (extremely rare to rare-uncommon) by the NHIC could qualify. It is assumed that these habitats are at risk and that they are also more likely to support rare species and other features that are considered significant.

No rare plant communities were identified in the study area during the field survey. Therefore, no impacts as a result of project activities are anticipated and no mitigation is required.

6.6.5 Habitat for Species of Conservation Concern

Habitat for Species of Conservation Concern (SOCC) includes four types of species: those that are rare, those whose populations are significantly declining, those that have been identified as being at risk to certain common activities, and those with relatively large populations in Ontario compared to the rest of the world.

Rare species are considered at five levels: globally rare, nationally rare, provincially rare, regionally rare; and locally rare (in the municipality). This is also the order of priority that should be attached to the importance of maintaining species. Some species have been identified as being susceptible to certain practices, and their presence may result in an area being designated SWH. Examples include species vulnerable to forest fragmentation and species such as woodland raptors that may be vulnerable to forest management or human disturbance. The final group of SOCC includes species that have a high proportion of their global population in Ontario. Although they may be common in Ontario, they are found in low numbers in other jurisdictions.

There is no suitable habitat in the study area for any SOCC that were identified as having ranges which overlap the study area (Appendix A). Therefore, no impacts to SOCC habitat as a result of project activities are anticipated, and no mitigation is required.

6.7 Fish and Aquatic Habitat

The tributary to Pringle Creek exhibited little to no flow, a lack of typical aquatic habitat morphology restricted by an abundance of emergent vegetation and fish barriers present upstream of Rossland Road. Based upon the field assessment of the reach within the study area, the tributary was determined to provide indirect fish habitat, with low fish and fish habitat sensitivity. The tributary of Pringle Creek would contribute nutrients and flow function to downstream habitats.

The crossing structure design spans the tributary to Pringle Creek, with no placement of structures (i.e., bridge abutments) within the watercourse. This project design eliminates fish passage issues and watercourse flow changes associated with project works and associated effects on fish and fish habitat. This design maintains the 100-year flow passage under the bridge and no hydraulic impacts to the proposed subdivision of surrounding lands exist (TMIG 2018).
With implementation of the mitigation measures described in Section 8.0, the potential effects are managed such that the project is not expected to result in significant residual impacts or serious harm to the indirect fish habitat in the tributary of Pringle Creek.

7.0 IMPACT ASSESSMENT

The DFO has developed PoE diagrams as a framework for assessing the potential impacts of a project to potential fish habitat (DFO 2014). In addition, PoEs for terrestrial ecosystem components have been added and the following PoEs were determined to be applicable to project works:

- Vegetation Clearing/Grading and Excavation:
  - The project may involve the clearing of vegetation, grading and excavations at the proposed crossing location during construction. The removal of vegetation and disturbance of soils can lead to bank instability and create the potential for sediment laden runoff to enter the wetland and watercourse unless properly managed.

- Placement of materials:
  - The placement of bridge support structures has the potential to introduce sediment, with implications on changes in substrate composition.

- Use of Industrial Equipment:
  - Use of equipment requiring petroleum products or lubricants has the potential to release deleterious substances, if not properly stored, maintained and operated;
  - Physical disruption of the watercourse and wetland from equipment has the potential to injure or kill food sources for fish (i.e., invertebrates and larvae) and animals (i.e., plants);
  - Increased bank erosion from equipment can introduce sediment into the watercourse.

8.0 ENVIRONMENTAL PROTECTION AND MITIGATION

During design and construction of the final road extension alignment and crossing structure, the project has the potential to impact sensitive natural systems. While the overall study area is largely urban in nature, the tributary of Pringle Creek and its valleyland are valuable features that promote the Greenlands System and natural heritage values. Consequently, all phases of the project, including the planning, design, construction, clean-up, and remediation phases, shall avoid or minimize the potential for impacts to the natural features identified. The impact assessment has been based on the assumption that all following operational constraints, mitigation measures and protection recommendations will be considered during project activities:

8.1 Plant Communities and Significant Wetlands

The following operational constraints and protection recommendations should be considered during project activities to protect plant communities and significant wetlands:

- Vegetated and wetland areas are to be maintained to the extent possible. The development area should be clearly marked.
If it is deemed necessary to carry out project works with industrial equipment in wetland areas or to ford industrial equipment across wetland areas, specifically the Whitby-Oshawa Iroquois Beach PSW 52 wetland, swamp mats/pads should be used to protect the wetland ecosystem and prevent rutting.

When drilling or digging in wetland areas, specifically within the Whitby-Oshawa Iroquois Beach PSW 52 wetland, the organic layer should be stockpiled and reinstated upon construction completion to salvage seed source.

Tree/shrub planting should be considered for planning purposes and limited to native species that exist currently within the site and region.

All machinery should be cleaned prior to arrival in the study area to mitigate for the transfer of non-native and/or invasive species;

The bridge design shall address stormwater runoff from the bridge deck, side slopes and approaches by directing the runoff into a retention pond or vegetated area to remove suspended solids, dissipate velocity and prevent sediment and other deleterious substances from entering the wetland.

All disturbed areas should be restored to their original contour and gradient, re-stabilized with appropriate erosion and sediment control measures, and revegetated with native seed mix and/or planted with native species.

The washing, refuelling, and servicing of machinery and storage of fuel and other materials should be conducted away from the wetland to prevent the spill of any deleterious substances into this sensitive ecosystem.

An Erosion and Sediment Control Plan should be developed and implemented for the site that minimizes risk of sedimentation of the wetland during all phases of the project. A response plan should also be developed that is to be implemented immediately in the event of a sediment release.

The contractor will develop and implement a Spill Prevention and Response Plan that minimizes risk of accidental spills or releases from entering the wetland during all phases of the project.

A permit will be submitted to CLOCA for work with the regulated area in accordance with Ontario Regulation 42/06.

### 8.2 Migratory Bird Nests

Under the MBCA (Canada 1994), it is an offence to damage, destroy, remove, or disturb active migratory bird nests as defined under the MBCA. No migratory bird nests or bird eggs were observed in the study area during the field survey. Contractors will avoid destroying any incidentally observed active migratory bird nests during Project activities.

If it is determined that tree clearing is required based on detailed design, clearing will be avoided during migratory bird nesting season (April 15 – August 15) where feasible (Environment Canada 2013). If tree clearing is unavoidable during those dates, a pre-clearing nest search will be completed by a qualified biologist and a
setback flagged around active nests identified during the search. Guidelines suggest that, during migratory bird breeding season, a nest search should be completed between 24 and 48 hours prior to construction activities to confirm that no active nests will be disturbed by the project.

8.2 Migration Corridor SWH and General Wildlife

The following operational constraints and protection recommendations should be considered during project activities to protect wildlife and their habitats:

- All vegetation clearing should occur outside of the breeding bird season (April 15 – August 15). If this is not possible, a nest search should be completed by a qualified biologist in all areas to be cleared prior to clearing activities.

- Reduce wildlife crossing impacts through posted signage indicating herpetofauna migration periods (typically May to September). The bridge design should be assessed for the effectiveness in funneling small to medium sized mammals and herpetofauna. In the instance of high road mortalities, a permanent exclusion fence may be considered.

- Herpetofauna and other wildlife must be removed from all isolated work areas, including wetland and open water areas, prior to construction. Relocation of turtles, frogs, and other wildlife will be undertaken by qualified personnel possessing a valid Scientific Collectors Permit obtained from the MNRF.

- Bridge design includes provision for wildlife passage (through the tributary of Pringle Creek valleyland and watercourse corridor. Wildlife ledges incorporated into the design address movement and access to habitats during times of high water and flow. Given the potential for small and medium sized mammals and herpetofauna to use the area, the openness ratio in the preliminary design is 1.28. The bridge design should be assessed for the effectiveness in funneling small to medium sized mammals and herpetofauna.

- Plan construction to avoid sensitive breeding periods for amphibians (April to May) to the extent possible.

Exclusion Fencing

Exclusion fencing should be installed along all sides of the site, to prevent the movement of herpetofauna onto the site. Details of the fencing include the following:

- The exclusion fencing should consist of a silt fence or other similar fencing with fine mesh hardware cloth (on wildlife side of fence) buried at least 5 cm into the soil (Connecticut DEP 2006);

- All fencing should be securely fastened to structures or culverts. There should be no gaps between the fence posts and structures or culverts through which herpetofauna could pass;

- To prevent individuals from climbing the fence, the stakes or posts should be placed on the construction side of the fence; and,

- The exclusion fencing should be installed prior to construction, during a period of inactivity for reptiles (i.e., November through April) and maintained throughout the active season for reptiles (May to October).

8.3 Fish and Fish Habitat

The following operational constraints and protection recommendations should be considered during project activities for fish and aquatic habitats, including wetlands:
As work is being completed below the high watermark, within 30 m of a watercourse and within contributing CRA fish habitat a DFO Request for Review should be completed for the project and consultation with CLOCA, MNRF and DFO regarding the project impacts be undertaken.

Construction should be scheduled to avoid the wet and rainy periods and should be conducted during low flow conditions within the MNRF restricted fisheries timing window, which restricts in or near water work from October 1 to June 30 (i.e., in-water work can occur from July 1 to September 30).

Fish must be removed from all isolated work areas, including wetland and open water areas, prior to construction. Relocation of fish will be undertaken by qualified personnel possessing a valid Scientific Collectors Permit obtained from the MNRF.

Water discharges should be appropriately filtered to remove suspended sediments.

Water withdrawal and by-pass pumps should be appropriately screened using the Fisheries and Oceans Canada Freshwater Intake End of Pipe Fish Screen Guidelines (DFO 1995).

Bridge approaches should be designed and constructed to minimize loss or disturbance of riparian vegetation.

The bridge design shall address stormwater runoff from the bridge deck, side slopes and approaches by directing the runoff into a retention pond or vegetated area to remove suspended solids, dissipate velocity and prevent sediment and other deleterious substances from entering the watercourse.

The bridge design shall span the watercourse bankfull channel width of the tributary to Pringle Creek.

Only the vegetation required to accommodate operational and safety concerns for the crossing structure should be removed. The area over which vegetation in riparian areas is removed should be no more than one third (1/3) of the total vegetation in the proposed crossing right-of-way within 30 m of the ordinary high water level of the tributary to Pringle Creek.

The washing, refuelling, and servicing of machinery and storage of fuel and other materials should be conducted at least 30 m away from the watercourse and wetland to prevent any deleterious substances from entering the water.

An Erosion and Sediment Control Plan should be developed and implemented for the site that minimizes risk of sedimentation of the watercourse and wetland during all phases of the project. A response plan should also be developed that is to be implemented immediately in the event of a sediment release

The contractor will develop and implement a Spill Prevention and Response Plan that minimizes risk of accidental spills or releases from entering the watercourse and wetland during all phases of the project.

Perform as many bridge construction activities as possible well away from the watercourse and wetland (i.e., preparation of piers, footings and abutments, painting, concrete mixing, sandblasting).

Machinery fording the watercourse or wetland to bring equipment required for construction to the opposite side is limited to a one-time event (over and back) and should occur only if an existing crossing at another location is not available or practical to use:

- If minor rutting is likely to occur, watercourse bank and bed protection methods (i.e., swamp mats, pads) should be used provided they do not constrict flows or block fish passage.
Grading of the watercourse banks for the approaches is not permitted.

If erosion is likely to occur as a result of equipment fording, then a temporary watercourse crossing structure should be used to protect these areas.

The one-time fording shall adhere to the in-water work timing windows.

Fording shall under low flow conditions and not when flows are elevated due to local rain events or seasonal flooding.

Equipment should be in clean condition (free of excess or leaking fuel, lubricants, or any other deleterious substances) and should be operated to minimize disturbance to waterbody banks and riparian vegetation.

Equipment should be operated above the high-water level unless specified in the contract documents.

Effective erosion and sediment control measures should be installed before commencing work, and will be regularly inspected and repaired as needed, to prevent the entry of sediment into the watercourse.

All disturbed areas should be restored to their original contour and gradient, re-stabilized with appropriate erosion and sediment control measures, and revegetated with native seed mix and/or planted with native species.

All stockpiled and water materials (i.e., dredging spoils, construction waste and materials, uprooted or cut aquatic plants, accumulated debris) should be contained and stabilized above the high-water mark of the watercourse to prevent re-entry.

All construction materials will be removed from site upon crossing completion.

9.0 MONITORING

No site-specific monitoring is determined to be required at this time.

10.0 CONCLUSION

The existing natural environment conditions of the study area were evaluated against the proposed Dryden Boulevard Extension project to assess any resulting potential impacts to natural features. Appropriate mitigation was identified to reduce the likelihood of risk or harm to natural features in the study area, including the Whitby-Oshawa Iroquois Beach PSW 52 and the indirect fish habitat provided by the tributary to Pringle Creek. The impact assessment completed for the project has shown that with the implementation of the mitigation described above in Section 8.0, potential impacts to the natural features in the study area will be minimal.

The project may be subject to review and or permitting by DFO, MNRF and CLOCA.
11.0 LIMITATIONS

The results of this report are based on information available to Golder at the time of the assessment, and the status of species listed in the noted Acts and Regulations effective as of the date of this report. No species-specific surveys were conducted and the assessment may be subject to limitations associated with the high-level field investigation, base mapping and other publicly available information used.

All recommendations for construction methods and mitigations are based on the preliminary design and should be incorporated into the detailed design and any contract package to complete the works.

12.0 CLOSURE

We trust that the information presented in this report meets your current requirements. Should you have any questions or concerns, please do not hesitate to contact the undersigned.
Signature Page

Golder Associates Ltd.

Jill LaPorte, B.Sc.  
Ecologist

Heather Melcher, M.Sc.  
Associate, Senior Ecologist

NB/EG/JLL/HM/mp;lh

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REFERENCES


Fisheries and Oceans Canada (DFO). 2013. Fisheries Protection Policy Statement. Ecosystem Programs Policy. Her Majesty the Queen in Right of Canada.


FIGURES
Legend:
- Utility Line
- Preliminary Alignment
- Watercourse
- Evaluated Wetlands (MNRF 2017)
- Provincially Significant Wetlands (MNRF 2017)
- Wooded Area
- Subject Lands
- Study Area

Note:
Is S2-C to Wetland Vegetation Community

Client:
The Municipal Infrastructure Group (TMIG)

Project:
Dryden Boulevard Extension West

Title:
Study Area Natural Features

Consultant:
Golder Associates

Reference(s):
Base Data - MNRF LIO, Obtained 2017
Imagery - © 2017 DigitalGlobe Image courtesy of USGS Earthstar Geographics
SIO © 2017 Microsoft Corporation
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Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 17
APPENDIX A

Species at Risk Screening
# APPENDIX A – SPECIES AT RISK SCREENING – DRYDEN BLVD.

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Species At Risk Act (Sch 1)</th>
<th>Endangered Species Act</th>
<th>COSEWIC</th>
<th>Provincial (SRank)</th>
<th>Habitat Requirements</th>
<th>Potential to Occur on Site or in the Study Area</th>
<th>Rationale for Potential to Occur on Site or in the Study Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monarch</td>
<td>Danaus plexippus</td>
<td>SC</td>
<td>SC</td>
<td>END</td>
<td>S2N, S4B</td>
<td>In Ontario, monarch is found throughout the northern and southern regions of the province. This butterfly is found wherever there are milkweed (Asclepius spp.) plants for its caterpillars and wildflowers that supply a nectar source for adults. It is often found on abandoned farmland, meadows, open wetlands, prairies and roadsides, but also in city gardens and parks. Important staging areas during migration occur along the north shores of the Great Lakes (COSEWIC 2010).</td>
<td>Low</td>
<td>There is limited suitable habitat identified during the field survey (i.e., limited numbers of flowering plants observed), and no milkweed plants were identified to provide hosts for caterpillars.</td>
</tr>
<tr>
<td>Rusty-patched Bumble Bee</td>
<td>Bombus affinis</td>
<td>END</td>
<td>END</td>
<td>END</td>
<td>S1</td>
<td>In Ontario, rusty-patched bumble bee is found in areas from the southern Great Lakes – St. Lawrence forest region southwards into the Carolinian forest. It is a habitat generalist, but it is typically found in open habitats, such as mixed farmland, savannah, marshes, sand dunes, urban and lightly wooded areas. It is cold – tolerant and can be found at high elevations. Most recent sightings in Ontario have been in oak savannah habitat with well-drained, sandy soils and moderately open canopy. It requires an abundance of flowering plants for forage. This species most often builds nests underground in old rodent burrows, but also in hollow tree stumps and fallen dead wood (Colla and Taylor-Pindar 2011). The only recent sightings in Ontario are from the Pinery Provincial Park.</td>
<td>Low</td>
<td>This species has only been recently observed in Pinery Provincial Park.</td>
</tr>
<tr>
<td>Yellow-banded Bumble Bee</td>
<td>Bombus terricola</td>
<td>—</td>
<td>SC</td>
<td>—</td>
<td>S5</td>
<td>It is an early emerging species, making it likely an important pollinator of early blooming wild flowering plants (e.g., wild blueberry) and agricultural crops (e.g., apple). This species is a forage and habitat generalist. Nest sites are mostly abandoned rodent burrows.</td>
<td>Low</td>
<td>There is limited suitable habitat identified during the field survey (i.e., limited numbers of flowering plants observed).</td>
</tr>
<tr>
<td>West Virginia White</td>
<td>Pieris virginiensis</td>
<td>—</td>
<td>SC</td>
<td>—</td>
<td>S3</td>
<td>In Ontario, west Virginia white is found primarily in the central and southern regions of the province. This butterfly lives in moist, mature, deciduous and mixed woodlands, and the caterpillars feed only on the leaves of toothwort (Cardamine spp.), which are small, spring-blooming plants of the forest floor. These woodland habitats are typically maple-beech-birch dominated. This species is associated with woodlands growing on calcareous bedrock or thin soils over bedrock (Burke 2013).</td>
<td>Low</td>
<td>No suitable forest habitat and no host plants were identified within the study area. In addition, there are no occurrence records within the study area.</td>
</tr>
<tr>
<td>Species</td>
<td>Scientific Name</td>
<td>Nesting Structure</td>
<td>Presence</td>
<td>Breeding Habitat</td>
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<tr>
<td>Acadian Flycatcher</td>
<td>Empidonax virescens</td>
<td>END S2S3B</td>
<td>Low</td>
<td>In Ontario, Acadian flycatcher breeds in the understory of large, mature, closed-canopy forests, swamps and forested ravines. This bird prefers forests greater than 40 ha in size, and exhibits edge sensitivity preferring the deep interior of the forest. Its nest is loosely woven and placed near the tip of branch in a small tree or shrub often, but not always, near water (Whitehead and Taylor 2002).</td>
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<tr>
<td>Canada Warbler</td>
<td>Cardellina canadensis</td>
<td>THR SC THR G5</td>
<td>Low</td>
<td>In Ontario, breeding habitat for Canada warbler consists of moist mixed forests with a well-developed shrubby understory. This includes low-lying areas such as cedar and alder swamps, and riparian thickets (McLaren 2007). It is also found in densely vegetated regenerating forest openings. Suitable habitat often contains a developed moss layer and an uneven forest floor. Nests are well concealed on or near the ground in dense shrub or fern cover, often in stumps, fallen logs, overhanging stream banks or mossy hummocks (Reitsma et al. 2010).</td>
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<tr>
<td>Chimney Swift</td>
<td>Chaetura pelagica</td>
<td>THR THR THR S4B, S4N</td>
<td>Low</td>
<td>In Ontario, chimney swift breeding habitat is varied and includes urban, suburban, rural and wooded sites. They are most commonly associated with towns and cities with large concentrations of chimneys. Preferred nesting sites are dark, sheltered spots with a vertical surface to which the bird can grip. Unused chimneys are the primary nesting and roosting structure, but other anthropogenic structures and large diameter cavity trees are also used (COSEWIC 2007).</td>
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<tr>
<td>Bank Swallow</td>
<td>Riparia</td>
<td>— THR THR G5</td>
<td>Low</td>
<td>In Ontario, bank swallow breeds in a variety of natural and anthropogenic habitats, including lake bluffs, stream and river banks, sand and gravel pits, and roadcuts. Nests are generally built in a vertical or near-vertical bank. Breeding sites are typically located near open foraging sites such as rivers, lakes, grasslands, agricultural fields, wetlands and riparian woods. Forested areas are generally avoided (Garrison 1999).</td>
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<tr>
<td>Barn Swallow</td>
<td>Hirundo rustica</td>
<td>— THR THR S4B</td>
<td>Low</td>
<td>In Ontario, barn swallow breeds in areas that contain a suitable nesting structure, open areas for foraging, and a body of water. This species nests in human made structures including barns, buildings, sheds, bridges, and culverts. Preferred foraging habitat includes grassy fields, pastures, agricultural cropland, lake and river shorelines, cleared right-of-ways, and wetlands (COSEWIC 2011). Mud nests are fastened to vertical walls or built on a ledge underneath an overhang. Suitable nests from previous years are reused (Brown and Brown 1999).</td>
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<tr>
<td>Species</td>
<td>Scientific Name</td>
<td>Plate</td>
<td>Status</td>
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<tr>
<td>Black Tern</td>
<td>Chlidonias niger</td>
<td>—</td>
<td>SC</td>
<td>NAR</td>
<td>S3B</td>
<td>In Ontario, black tern breeds in freshwater marshlands where it forms small colonies. It prefers marshes or marsh complexes greater than 20 ha in area and which are not surrounded by wooded area. Black terns are sensitive to the presence of agricultural activities. The black tern nests in wetlands with an even combination of open water and emergent vegetation, and still waters of 0.5-1.2 m deep. Preferred nest sites have short dense vegetation or tall sparse vegetation often consisting of cattails, bulrushes and occasionally burreed or other marshland plants. Black terns also require posts or snags for perching (Weseloh 2007).</td>
<td>Low</td>
<td>There is no suitably sized marsh habitat (i.e., &gt;2.5 ha) on the site or in the study area to provide suitable nesting habitat.</td>
</tr>
<tr>
<td>Bobolink</td>
<td>Dolichonyx oryzivorus</td>
<td>—</td>
<td>THR</td>
<td>THR</td>
<td>S4B</td>
<td>In Ontario, bobolink breeds in grasslands or graminoid dominated hayfields with tall vegetation (Gabhauser 2007). Bobolink prefers grassland habitat with a forb component and a moderate litter layer. They have low tolerance for presence of woody vegetation and are sensitive to frequent mowing within the breeding season. They are most abundant in established, but regularly maintained, hayfields, but also breed in lightly grazed pastures, old or fallow fields, cultural meadows and newly planted hayfields. Their nest is woven from grasses and forbs. It is built on the ground, in dense vegetation, usually under the cover of one or more forbs (Martin and Gavin 1995).</td>
<td>Low</td>
<td>There is no large, open and undisturbed grassland habitat on the site or in the study area to provide suitable nesting habitat.</td>
</tr>
<tr>
<td>Common Nighthawk</td>
<td>Chordeiles minor</td>
<td>THR</td>
<td>SC</td>
<td>THR</td>
<td>S4B</td>
<td>In Ontario, these aerial foragers require areas with large open habitat. This includes farmland, open woodlands, clearcuts, burns, rock outcrops, alvars, bog ferns, prairies, gravel pits and gravel rooftops in cities (Sandilands 2007).</td>
<td>Low</td>
<td>The agricultural field is actively planted and maintained and is therefore unlikely to provide suitable nesting habitat. No occurrence records within the study area.</td>
</tr>
<tr>
<td>Eastern Meadowlark</td>
<td>Sturnella magna</td>
<td>—</td>
<td>THR</td>
<td>THR</td>
<td>S4B</td>
<td>In Ontario, the eastern meadowlark breeds in pastures, hayfields, meadows and old fields. Eastern meadowlark prefers moderately tall grasslands with abundant litter cover, high grass proportion, and a forb component (Hull 2003). They prefer well drained sites or slopes, and sites with different cover layers (Roseberry and Klimstra 1970).</td>
<td>Low</td>
<td>There is no large, open and undisturbed grassland habitat on the site or in the study area to provide suitable nesting habitat.</td>
</tr>
<tr>
<td>Eastern Whip-poor-will</td>
<td>Antrostomus vociferous</td>
<td>THR</td>
<td>THR</td>
<td>THR</td>
<td>G5</td>
<td>In Ontario, whip-poor-will breeds in semi-open forests with little ground cover. Breeding habitat is dependent on forest structure rather than species composition, and is found on rock and sand barrens, open conifer plantations and post-disturbance regenerating forest. Territory size ranges from 3 to 11 ha (COSEWIC 2009). No nest is constructed and eggs are laid directly on the leaf litter (Mills 2007).</td>
<td>Low</td>
<td>No suitable breeding habitat in the study area due to lack of mature and connected forest structures in the area.</td>
</tr>
<tr>
<td>Species</td>
<td>Scientific Name</td>
<td>Breeding Habitat</td>
<td>Conservation Status</td>
<td>Notes</td>
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<tr>
<td>Eastern Wood-pewee</td>
<td>Contopus virens</td>
<td>In Ontario, the eastern wood-pewee inhabits a wide variety of wooded upland and lowland habitats, including deciduous, coniferous, or mixed forests. It occurs most frequently in forests with some degree of openness. Intermediate-aged forests with a relatively sparse midstory are preferred. Tends to inhabit edges of younger forests having a relatively dense midstory. Also occurs in anthropogenic habitats providing an open forested aspect such as parks and suburban neighborhoods. Nest is constructed atop a horizontal branch, 1-2 m above the ground, in a wide variety of deciduous and coniferous trees.</td>
<td>Low</td>
<td>There is no suitable forest habitat in the study area to provide nesting habitat. In addition, there are no occurrence records within the study area.</td>
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<tr>
<td>Henslow's Sparrow</td>
<td>Ammodramus henslowii</td>
<td>In Ontario, Henslow's sparrow breeds in large grasslands with low disturbance, such as lightly grazed and ungrazed pastures, fallow hayfields, grassy swales in open farmland, and wet meadows. Preferred habitat contains tall, dense grass cover, typically over 30 cm high, with a high percentage of ground cover, and a thick mat of dead plant material. Henslow's sparrow generally avoids areas with emergent woody shrubs or trees, and fence lines. Areas of standing water or ephemeral wet patches appear to be important. This species breeds more frequently in patches of habitat greater than 30 ha and preferably greater than 100 ha (COSEWIC 2011).</td>
<td>Low</td>
<td>There is no large, open and undisturbed grassland habitat on the site or in the study area to provide suitable nesting habitat. In addition, there are no occurrence records in the region.</td>
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<tr>
<td>Golden-winged Warbler</td>
<td>Vermivora chrysoptera</td>
<td>In Ontario, golden-winged warbler breeds in regenerating scrub habitat with dense ground cover and a patchwork of shrubs, usually surrounded by forest. Their preferred habitat is characteristic of a successional landscape associated with natural or anthropogenic disturbance such as right-of-ways, and field edges or openings resulting from logging or burning. The nest of the golden-winged warbler is built on the ground at the base of a shrub or leafy plant, often at the shaded edge of the forest or at the edge of a forest opening (Confer et al. 2011).</td>
<td>Low</td>
<td>There is limited shrub habitat in the study area that is unlikely to provide preferred nesting habitat conditions. In addition, there are no occurrence records within the study area.</td>
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<tr>
<td>Grasshopper Sparrow</td>
<td>Ammodramus savannarum (pratensis subspecies)</td>
<td>In Ontario, grasshopper sparrow is found in medium to large grasslands with low herbaceous cover and few shrubs. It also uses a wide variety of agricultural fields, including cereal crops and pastures. Close-grazed pastures and limestone plains (e.g., Carden and Napanee Plains) support highest density of this bird in the province (COSEWIC 2013).</td>
<td>Low</td>
<td>There is no suitable grassland habitat within the study area.</td>
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</tr>
<tr>
<td>King Rail</td>
<td>Rallus elegans</td>
<td>In Ontario, king rail breeds in freshwater marshes, especially large marshes with a variety of water level conditions and a mosaic of habitats. This species prefers relatively shallow wetlands containing dense emergent vegetation (especially cattails), patches of open water, hummocks, mudflats and shrubby swales. Nests are generally well concealed in patches of dense, uniform vegetation over shallow water areas (COSEWIC 2011).</td>
<td>Low</td>
<td>There are no suitably sized marshes or wetlands (i.e, &gt;3 ha) throughout the study area to provide suitable nesting. In addition, there are no occurrence records within the study area.</td>
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</tr>
</tbody>
</table>
### Least Bittern
*Ixobrychus exilis*

- THR
- THR
- THR
- S4B

In Ontario, the least bittern breeds in marshes, usually greater than 5 ha, with emergent vegetation, relatively stable water levels and areas of open water. Preferred habitat has water less than 1 m deep (usually 10 – 50 cm). Nests are built in tall stands of dense emergent or woody vegetation (Woodliffe 2007). Clarity of water is important as siltation, turbidity, or excessive eutrophication hinders foraging efficiency (COSEWIC 2009).

Low

There is no large, suitable marsh habitat (i.e., >3 ha) on site or in the study area to support this species. In addition, there are no occurrence records in the vicinity of the study area.

### Loggerhead Shrike
*Lanius ludovicianus*

- END
- END
- END
- G4

In Ontario, loggerhead shrike breeds in open country habitat characterized by short grasses with scattered shrubs or low trees. Unimproved pasture containing scattered hawthorns (*Crataegus* spp.) on shallow soils over limestone bedrock is the preferred habitat. Preferred nest sites include isolated hawthorns or red cedar. Males defend large territories of approximately 50 ha (Chabot 2007).

Low

The site and study area is primarily occupied by urban development and does not provide suitable open country habitat.

### Northern Bobwhite
*Colinus virginianus*

- END
- END
- END
- S1

In Ontario, northern bobwhite breeds in early successional habitats. This species requires a combination of three habitat types: woody cover, cropland and grassland. Croplands provide foraging habitat, grassland and fields are used for nesting, and dense brush provides both winter forage and year-round cover. These birds nest on the ground in a shallow depression lined with grasses and other dead vegetation (Brennan *et al.* 2014).

Low

No suitable combination of habitat was identified during the field survey. In addition, there are no occurrence records in the study area.

### Red-headed Woodpecker
*Melanerpes erythrocephalus*

- THR
- SC
- SC
- S4B

In Ontario, red-headed woodpecker breeds in open, deciduous woodlands or woodland edges and are often found in parks, cemeteries, golf courses, orchards and savannahs (Woodliffe 2007). They may also breed in forest clearings or open agricultural areas provided that large trees are available for nesting. They prefer forests with little or no understory vegetation. They are often associated with beech or oak forests, beaver ponds and swamp forests where snags are numerous. Nests are excavated in the trunks of large dead trees (Smith *et al.* 2000).

Low

Suitable nesting habitat is present throughout the study area in the mixed wood forest and adjacent agricultural areas. In addition, there are no occurrence records in the vicinity of the study area.

### Short-eared Owl
*Asio flammeus*

- SC
- SC
- SC
- S2N, S4B

In Ontario, short-eared owl breeds in a variety of open habitats including grasslands, tundra, bogs, marshes, clear-cuts, burns, pastures and occasionally agricultural fields. The primary factor in determining breeding habitat is proximity to small mammal prey resources (COSEWIC 2008). Nests are built on the ground at a dry site and usually adjacent to a clump of tall vegetation used for cover and concealment (Gahbauer 2007).

Low

There is no suitable grassland habitat within the study area.
<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>SC</th>
<th>THR</th>
<th>S2B</th>
<th>S4B</th>
<th>Status</th>
<th>Habitat Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Thrush</td>
<td><strong>Hylocichla mustelina</strong></td>
<td>—</td>
<td>SC</td>
<td>THR</td>
<td>S4B</td>
<td></td>
<td>Low</td>
<td>In Ontario, wood thrush breeds in moist, deciduous hardwood or mixed stands that are often previously disturbed, with a dense deciduous undergrowth and with tall trees for singing perches. This species selects nesting sites with the following characteristics: lower elevations with trees less than 16 m in height, a closed canopy cover (&gt;70%), a high variety of deciduous tree species, moderate subcanopy and shrub density, shade, fairly open forest floor, moist soil, and decaying leaf litter (COSEWIC 2012).</td>
</tr>
<tr>
<td>Yellow Rail</td>
<td><strong>Coturnicops noveboracensis</strong></td>
<td>SC</td>
<td>SC</td>
<td>SC</td>
<td>S4B</td>
<td></td>
<td>Low</td>
<td>In Ontario, yellow rail breeds mainly in sedge-dominated marshes with wet substrates or standing water up to 15 cm in depth. This species will also breed in wet hayfields. This species may be absent from historically used breeding territories on years when water levels are unsuitable, as habitat must remain wet throughout the nesting season to be used. This species breeds mainly in wetlands larger than 10 ha in area, but may breed in much smaller wetlands and will nest colonially (COSEWIC 2009).</td>
</tr>
<tr>
<td>Yellow-breasted Chat</td>
<td><strong>Icteria virens virens</strong></td>
<td>SC</td>
<td>END</td>
<td>END</td>
<td>S2B</td>
<td></td>
<td>Low</td>
<td>In Ontario, yellow-breasted chat breeds in early successional, shrub-thicket habitats including woodland edges, regenerating old fields, railway and hydro right-of-ways, young coniferous reforestations, and wet thickets bordering wetlands. Tangles of grape (Vitis spp.) and raspberry (Rubus spp.) vines are features of most breeding sites. There is some evidence that the yellow-breasted chat is an area sensitive species. Nests are located in dense shrubbery near to the ground (COSEWIC 2011).</td>
</tr>
<tr>
<td>Redside Dace</td>
<td><strong>Clinostomus elongatus</strong></td>
<td>—</td>
<td>END</td>
<td>END</td>
<td>S2</td>
<td></td>
<td>Low</td>
<td>In Ontario, the redside dace, a small coolwater species common in the USA but less so in Canada, is found in tributaries of western Lake Ontario, Lake Erie, Lake Huron and Lake Simcoe. They are found in pools and slow-moving areas of small headwater streams with clear to turbid water. Overhanging grasses, shrubs, and undercut banks, are an important part of their habitat, as are instream boulders and large woody debris. Preferred substrates are variable and include silt, sand, gravel and boulders. Spawning occurs in shallow riffle areas (Redside Dace Recovery Team 2010).</td>
</tr>
<tr>
<td>Species Name</td>
<td>Scientific Name</td>
<td>Status</td>
<td>Habitat Details</td>
<td>Suitability</td>
<td>Habitat Conditions</td>
<td></td>
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<tr>
<td>Western Chorus Frog - Great Lakes St. Lawrence / Canadian Shield population</td>
<td><em>Pseudacris triseriata</em></td>
<td>THR</td>
<td>In Ontario, habitat of this amphibian species typically consists of marshes or wooded wetlands, particularly those with dense shrub layers and grasses, as this species is a poor climber. They will breed in almost any fishless pond including roadside ditches, gravel pits and flooded swales in meadows. This species hibernates in terrestrial habitats under rocks, dead trees or leaves, in loose soil or in animal burrows. During hibernation, this species is tolerant of flooding (Environment Canada 2015).</td>
<td>Low</td>
<td>There is limited suitable aquatic habitat in the study area. During the spring, when flooding may create temporary breeding habitat, the likely presence of fish reduces suitability for breeding amphibians.</td>
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<tr>
<td>Blanding's Turtle - Great Lakes / St. Lawrence population</td>
<td><em>Emydoidea blandingii</em></td>
<td>THR</td>
<td>In Ontario, Blanding's turtle will use a range of aquatic habitats, but favor those with shallow, standing or slow-moving water, rich nutrient levels, organic substrates and abundant aquatic vegetation. They will use rivers, but prefer slow-moving currents and are likely only transients in this type of habitat. This species is known to travel great distances over land in the spring in order to reach nesting sites, which can include dry conifer or mixed forests, partially vegetated fields, and roadsides. Suitable nesting substrates include organic soils, sands, gravel and cobble. They hibernate underwater and infrequently under debris close to water bodies (COSEWIC 2005).</td>
<td>Low</td>
<td>There is no suitably sized wetland (i.e., &gt;3 ha) on site or in the study area to provide aquatic or overwintering habitat. There is no suitable substrates in the vicinity of the study area for nesting.</td>
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<tr>
<td>Eastern Ribbonsnake</td>
<td><em>Thamnophis sauritus</em></td>
<td>SC</td>
<td>In Ontario, eastern ribbonsnake is semi-aquatic, and is rarely found far from shallow ponds, marshes, bogs, streams or swamps bordered by dense vegetation. They prefer sunny locations and bask in low shrub branches. Hibernation occurs in mammal burrows, rock fissures or even ant mounds (COSEWIC 2012).</td>
<td>Low</td>
<td>There is no suitable basin wetland habitat within the study area to provide preferred habitat conditions. In addition, there are no occurrence records in the study area.</td>
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<tr>
<td>Eastern Musk Turtle</td>
<td><em>Sternotherus odoratus</em></td>
<td>THR</td>
<td>In Ontario, eastern musk turtle is very rarely out of water and prefers permanent bodies of water that are shallow and clear, with little or no current and soft substrates with abundant organic materials. Abundant floating and submerged vegetation is preferred. Hibernation occurs in soft substrates under water. Eggs are sometimes laid on open ground, or in shallow nests in decaying vegetation, shallow gravel or rock crevices (COSEWIC 2012).</td>
<td>Low</td>
<td>There is no suitable waterbodies within the study area to provide aquatic or overwintering habitat. In addition, there are no occurrence records in the study area.</td>
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<tr>
<td>Northern map Turtle</td>
<td><em>Graptemys geographica</em></td>
<td>SC</td>
<td>In Ontario, the northern map turtle prefers large waterbodies with slow-moving currents, soft substrates, and abundant aquatic vegetation. Ideal stretches of shoreline contain suitable basking sites, such as rocks and logs. Along Lakes Erie and Ontario, this species occurs in marsh habitat and undeveloped shorelines. It is also found in small to large rivers with slow to moderate flow.</td>
<td>Low</td>
<td>There are no large waterbodies or suitable wetland habitat on site or in the study area. In addition, there are no occurrence records in the study area.</td>
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<tr>
<td>Species</td>
<td>Status</td>
<td>Hibernation Notes</td>
<td>Risk</td>
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<tr>
<td>Snapping Turtle</td>
<td>S3</td>
<td>In Ontario, snapping turtle utilizes a wide range of waterbodies, but shows preference for areas with shallow, slow-moving water, soft substrates and dense aquatic vegetation. Hibernation takes place in soft substrates under water. Nesting sites consist of sand or gravel banks along waterways or roadways (COSEWIC 2008).</td>
<td>Low</td>
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<tr>
<td>Eastern Cougar</td>
<td>DD</td>
<td>This species historically inhabited extensive forested areas in Ontario. It is found in habitats suitable for white-tailed deer and mule deer, which are the preferred prey of the cougar. Dense cover is considered the key habitat feature for cougar. An average home range for males is 300 square kilometers, and for females, 150 square kilometers (Environment Canada and Canadian Wildlife Federation 2013).</td>
<td>Low</td>
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<tr>
<td>Grey Fox</td>
<td>S1</td>
<td>While the Ontario range of this species extends across much of southern and southeastern Ontario, the only known population in the province is on Pelee Island, with very rare sightings elsewhere in the province at points close to the border with the United States. This species inhabits deciduous forests and marshes, and will den in a variety of features including rock outcroppings, hollow trees, burrows or brush piles, usually where dense brush provides cover and in close proximity to water. This species is considered a habitat generalist (COSEWIC 2002).</td>
<td>Low</td>
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<tr>
<td>Little Brown Myotis</td>
<td>S4</td>
<td>In Ontario, this species range is extensive and covers much of the province. It will roost in both natural and man-made structures. They require a number of large dead trees, in specific stages of decay and that project above the canopy in relatively open areas. May form nursery colonies in the attics of buildings within 1 km of water. Caves or abandoned mines may be used for hibernaculum, but high humidity and stable above freezing temperatures are required.</td>
<td>Low</td>
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COSEWIC = Committee on the Status of Endangered Wildlife in Canada

The study area lacks dense cover and a connected forest to act as a key habitat feature. In addition, there are no occurrence records in the region, and the urban setting does not provide preferred habitat conditions.

This species is only currently known to occur on Pelee Island.

There are no suitable snag trees (i.e., >30 dbh), caves or potential hibernacula areas were observed within the study area.
<table>
<thead>
<tr>
<th>Species</th>
<th>Range</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Small-footed Myotis <em>Myotis leibii</em></td>
<td>END</td>
<td>This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.</td>
</tr>
<tr>
<td>Tri-colored Bat <em>Perimyotis subflavus</em></td>
<td>END</td>
<td>Low This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.</td>
</tr>
<tr>
<td>Northern Myotis <em>Myotis septentrionalis</em></td>
<td>END</td>
<td>Low This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.</td>
</tr>
<tr>
<td>Butternut <em>Juglans cinerea</em></td>
<td>END</td>
<td>Low This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.</td>
</tr>
<tr>
<td>American Ginseng <em>Panax quinquefolius</em></td>
<td>END</td>
<td>Low This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.</td>
</tr>
<tr>
<td>Red Mulberry <em>Morus rubra</em></td>
<td>END</td>
<td>Low This species is not known to roost within trees, but there is very little known about its roosting habits. The species generally roosts on the ground under rocks, in rock crevices, talus slopes and rock piles. It occasionally inhabits buildings. Areas near the entrances of caves or abandoned mines may be used for hibernaculum, where the conditions are drafty with low humidity, and may be subfreezing.</td>
</tr>
</tbody>
</table>

NOTES:
1 Species at Risk Act (SARA), 2002. Schedule 1 (Last amended 02 Nov 2017); Part 1 (Extirpated), Part 2 (Endangered), Part 3 (Threatened), Part 4 (Special Concern)
2 Endangered Species Act (ESA), 2007 (O.Reg 242/08 last amended 14 Sept 2016 as O.Reg 308/16). Species at Risk in Ontario List, 2007 (O.Reg 230/08 last amended 2 June 2017 as O. Reg 167/17, s. 1.); Schedule 1 (Extirpated - EXP), Schedule 2 (Endangered - END), Schedule 3 (Threatened - THR), Schedule 4 (Special Concern - SC)
3 Committee on the Status of Endangered Wildlife in Canada (COSEWIC) http://www.cosewic.gc.ca/
4 Provincial Ranks (SRANK) are Rarity Ranks assigned to a species or ecological communities, by the Natural Heritage Information Centre (NHIC). These ranks are not legal designations. SRANKS are evaluated by NHIC on a continual basis and updated lists produced annually. SX (Presumed Extirpated), SH (Possibly Extirpated - Historical), S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Not Applicable), S#S# (Range Rank), S? (Not ranked yet), SAB (Breeding Accident), SAN (Non-breeding Accident), SX (Apparently Extirpated). Last assessed December 2017.
5 General References:
APPENDIX B

MNRF PSW Letter
February 21, 2017

ATTENTION:
Carolyn Glass
Ecologist
Beacon Environmental
144 Main Street North, Suite 206
Markham, ON L3P 5T3
cglass@beaconenviro.com

Chris Jones
Director of Planning and Regulation
Central Lake Ontario Conservation Authority
100 Whiting Avenue
Oshawa, ON L1H 3T3
cjones@cloca.com

Brad Anderson & Jonah Kelly
Principal Planners
Strategic Planning Department
Regional Municipality of Durham
Regional Headquarters, 4th Floor
605 Rossland Road East
Whitby, ON, L1N 6A3
brad.anderson@durham.ca
jonah.kelly@durham.ca

Mark Christie
Manager of Community Planning & Development
MMAH Municipal Services Office-Central Region
777 Bay Street, 13th Floor
Toronto, ON M5G 2E5
mark.christie@ontario.ca

Robert Short
Commissioner of Planning
Town of Whitby
575 Rossland Road East
Whitby, ON L1N 2M8
shortb@whitby.ca

SUBJECT:
Expansion of existing Wetland No. 52 in the Whitby - Oshawa Iroquois Beach Wetland Complex at Parcel Roll Number: 18090400351120000000
Town of Whitby, Regional Municipality of Durham

The Ministry of Natural Resources & Forestry (MNRF) was requested by the landowner to attend an August 30, 2016 site visit for boundary delineation of a wetland northwest of the intersection of Rossland Road East and Thickson Road North in the Town of Whitby (parcel roll number: 18090400351120000000). At the site visit, a wetland boundary was delineated based on a surveyed staking carried out with professional surveyors and staff at MNRF Aurora District, Central Lake Ontario Conservation Authority (CLOCA) and Beacon Environmental in attendance. The wetland boundaries were agreed to by all parties, at that time.

Based on this survey, the Ministry has incorporated a confluent southern wetland arm, into the existing Wetland No. 52. This expanded wetland along a tributary of Pringle Creek is now 2.54 hectares (ha) in size. It supports a Purple-stemmed Aster (Symphyotrichum puniceum) marsh, Broad-leaved Cattail (Typha latifolia) dominated marsh and open swamp, Common Buckthorn (Rhamnus cathartica) and Missouri Willow (Salix eriocephala) – Red-osier Dogwood (Cornus sericea) thicket swamps, and a Green Ash (Fraxinus pennsylvanica) deciduous swamp. The wetland is also noteworthy for having two locally significant plants including Virginia Mountain-
mint (*Pycnanthemum virginianum*) and Closed Bottle Gentian (*Gentiana andrewsii*), as well as two locally uncommon species.

The Ministry has not included the southernmost 0.19 ha of the wetland in the wetland complex. It has been mapped as an MNRF Identified Wetland. This wetland occurs on a side tributary and supports a Common Buckthorn thicket swamp and a Purple-stemmed Aster marsh that has been degraded by stormwater erosion. It is situated on the long proposed site for a remedial stormwater management facility that has been recommended by the Central Lake Ontario Conservation Authority and the Town of Whitby.

Enclosed for your information is a table of the vegetation communities in Wetland No. 52. An attached map shows the updated wetland boundary and communities on an ortho-rectified digital photo base. This update was put into MNRF’s web-accessible digital warehouse (LIO – Land Information Ontario), stored under the “Wetland Unit” data class, and can be accessed at [https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home](https://www.javacoeapp.lrc.gov.on.ca/geonetwork/srv/en/main.home).

If you have any questions please do not hesitate to call Steve Varga, District Management Biologist at 905-713-7370, or e-mail him at steve.varga@ontario.ca.

Sincerely,

Emily Funnell
Resources Management Supervisor
Aurora District
Ministry of Natural Resources & Forestry
### 1.2.2. Vegetation Communities - Whitby-Oshawa Iroquois Beach Wetland Complex

(2017 Update to Wetland No. 52)

<table>
<thead>
<tr>
<th>Wetland #</th>
<th>Field #</th>
<th>Map Code</th>
<th>Vegetation Forms</th>
<th>Dominant Species¹, Secondary Species² (% cover by form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>52</td>
<td>2016-</td>
<td>tsS2-D</td>
<td>ts*,gc,ne</td>
<td>Salix eriocephala¹, Cornus sericea², Vitis riparia², Viburnum opulus² (80); gc: Symphyotrichum lanceolatum¹, Impatiens capensis¹, Symphyotrichum puniceum² (25); re: Typha latifolia¹, Phragmites australis¹ (80) (0.23; Pi; loam: sandy loam; g:10; G:10; ow-0)</td>
</tr>
<tr>
<td>52</td>
<td>2016-</td>
<td>tsS3-C</td>
<td>ts*,gc,ne</td>
<td>Rhamnus cathartica (80); gc: Impatiens capensis (25); re: Equisetum arvense (60) (0.08; Pi; loam: A Horizon- silty loam; g:10; G:10; ow-0)</td>
</tr>
<tr>
<td>52</td>
<td>2016-</td>
<td>hS44-C</td>
<td>h*,ts,gc,ne</td>
<td>Fraxinus pennsylvanica¹, Ulmus americana², Populus tremuloides² (40); ts: Cornus sericea¹, Vitis riparia², Cornus amomum² (50); gc: Onoclea sensibilis¹, Solidago altissima¹, Impatiens capensis¹, Symphyotrichum puniceum (50); re: Equisetum arvense (60) (0.08; Pi; loam: A Horizon- silty loam; g:10; G:10; ow-0)</td>
</tr>
<tr>
<td>52</td>
<td>2016-</td>
<td>reS54</td>
<td>ts,gc,re*</td>
<td>Salix eriocephala¹, Cornus sericea² (30); gc: Symphyotrichum lanceolatum¹, Symphyotrichum puniceum¹, Impatiens capensis¹ (40); re: Typha latifolia¹, Phragmites australis¹ (80) (0.23; Pi; loam: sandy loam; g:10; G:10; ow-0)</td>
</tr>
<tr>
<td>52</td>
<td>2016-</td>
<td>gcM8-F</td>
<td>gc*,ne</td>
<td>Symphyotrichum puniceum¹, Solidago altissima¹, Euthamia graminifolia¹, Impatiens capensis² (80); gc: Carex pellita (25) (0.45; Pi; sand: A Horizon- silty loam; g:10; G:10; ow-0; significant species: Pycnanthemum virginianum LR, Carex pellita LU)</td>
</tr>
<tr>
<td>52</td>
<td>2016-</td>
<td>reM16-B</td>
<td>gc, re*</td>
<td>Symphyotrichum puniceum (70); re: Typha latifolia (80) (0.39; Pi; loam: silty loam; g:5; G:5; ow-0; significant species: Cornus amomum LU)</td>
</tr>
</tbody>
</table>

**MNRF Identified Wetland**

<table>
<thead>
<tr>
<th>Field #</th>
<th>Map Code</th>
<th>Vegetation Forms</th>
<th>Dominant Species¹, Secondary Species² (% cover by form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>tsS</td>
<td>ts*,gc,ne</td>
<td>Rhamnus cathartica (80); gc: Impatiens capensis (25); re: Equisetum arvense (60) (0.11; Pi; loam; ow-0)</td>
</tr>
<tr>
<td>2016</td>
<td>gcM</td>
<td>gc*</td>
<td>Symphyotrichum puniceum¹, Symphyotrichum lanceolatum², Solidago altissima² (80) (0.08; Pi; loam; ow-0)</td>
</tr>
</tbody>
</table>

**Legend**

- **Vegetation Forms:**
  - h- deciduous trees
  - ts- tall shrubs
  - gc- ground cover
  - re- robust emergents
  - ne- narrow-leaved emergents
- **Map Codes:**
  - M- marsh
  - S- swamp
WHITBY-OSHAWA IROQUOIS BEACH WETLAND COMPLEX
ROLL # 1809040035112000000

Legend
- Watercourse
- MNRF Evaluated Wetland
- MNRF Identified Wetlands
- Subject Lands
c S17 Wetland Vegetation Community

Ontario

Scale 1:4,400 (approx.)

0 50 100 200 300 400 Metres

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SOURCE OF INFORMATION
Information provided by the Ministry of Natural Resources & Forestry district office in Aurora.
Ministry of Natural Resources & Forestry - Aurora District 50 Bloomington Road West, Aurora, ON
L4G 0L8
Base information derived from the Ontario Base Map, 1983 at a scale of 1:10,000 and the Natural Resources Values Information System (NRVIS).

NOTE
The information displayed on this map has been compiled from various sources. While every effort has been made to accurately depict the information, this map should be treated as illustrative only. Do not rely on it as being precise in regard to routes, locations of features, nor as a guide to navigation.

For detailed information on named features such as their location, size or status, the individual files held by the Aurora district office of the Ministry of Natural Resources & Forestry should be consulted.

Imagery capture date Spring 2013 copyright, J.D. Barnes and Land Information Ontario.
APPENDIX C

Photographs
APPENDIX C – PHOTOGRAPHS
Tributary to pringle creek

Photo 1: At the crossing location, facing the bed

Photo 2: At the crossing location, facing downstream

Photo 3: At the crossing location, facing left downstream bank

Photo 4: At the crossing location, facing right upstream bank
Photo 5: 150 m upstream of the crossing location, facing upstream

Photo 6: 150 m upstream of the crossing location, facing left downstream bank

Photo 7: 150 m upstream of the crossing location, facing right downstream bank

Photo 8: 150 m upstream of the crossing location, facing upstream
Photo 9: 80 m downstream of the crossing location, facing bed

Photo 10: 80 m downstream of the crossing location, facing left downstream bank

Photo 11: 80 m downstream of the crossing location, facing right downstream bank

Photo 12: 80 m downstream of the crossing location, facing downstream bank
Photo 13: At the crossing location, tadpoles

Photo 14: Upstream stream of the crossing location, riparian Red Ossier Dogwood
APPENDIX D

Preliminary Design Drawings
DECK SECTION

DRAWN BY: G.S.
CHECKED BY: J.C.

CONTRACT NO.

SCALE 1 : 50
DATE:

CONSTRUCTION

REINFORCING STEEL

STAINLESS STEEL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM
GENERAL NOTES

PRE-CAST, BOX BEAMS 40 MPa,

CLASS OF CONCRETE

PRE-CAST, BOX BEAMS 40 MPa,

DECK BOTTOM 40±10

CONSTRUCTION

GENERAL NOTES

STAINLESS STEEL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM
PRE-CAST, BOX BEAMS 40 MPa,

CONSTRUCTION

STAINLESS STEEL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM
PRE-CAST, BOX BEAMS 40 MPa,

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CONSTRUCTION

STAINLESS STEEL REINFORCING SHALL BE IN ACCORDANCE WITH ASTM
PRE-CAST, BOX BEAMS 40 MPa,
DRYDEN BOULEVARD EXTENSION
(PRELIMINARY BRIDGE ALTERNATIVE DESIGNS)

ELEVATION - ALTERNATIVE 1: 22m SPAN

ELEVATION - ALTERNATIVE 2: 2-20m SPAN (40m TOTAL)

ELEVATION - ALTERNATIVE 3: 3-20m SPAN (60m TOTAL)
BARNABAS STREET
MORNINGSTAR AVENUE
STREET A

PROPOSED DEVELOPMENT

DRYDEN BLVD.

PROPOSED PROPERTY LINE

EXISTING PROPERTY LINE

LIMIT OF GRADING

CROSS-RIDE AS PER OTM BOOK 18
FIGURE 4.102

PROPOSED BRIDGE

EXISTING PROPERTY LINE

PROPOSED DEVELOPMENT

FUTURE MULTI-USE PATH
STREET PROVIDED THROUGH COORDINATION WITH THE REGION OF DURHAM