The Township of Centre Wellington

Schedule B
Municipal Class
Environmental Assessment

Dickson Drive Extension

Fergus, ON

Project File

REVISED: January 2023

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Consulting Engineers

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ORANGEVILLE • FERGUS • HARRISTON

January 17, 2023

Township of Centre Wellington
1 MacDonald Square
Elora, Ontario
N0B 1S0

Attention: Lee Wheildon C.E.T., rcca
Project Manager

RE: Township of Centre Wellington
Dickson Drive Extension
Schedule B Municipal Class EA
Revised
Study Briefing
Our File: M6468C

1.0 Introduction:

The Township of Centre Wellington (Township) initiated a Municipal Class Environmental Assessment (Class EA) in June 2021 to formulate and evaluate alternative design concepts, and to identify the preferred option for the extension of Dickson Drive including the required municipal services and establish a Stormwater Management (SWM) strategy. The proposed works will provide access to municipally serviced (water and sanitary) light industrial, commercial, and/or institutional employment lands, and establish a multi-use path within the Centre Wellington Business Park in Fergus, which will allow for continued economic growth and promote a live/work opportunity within the Township.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township."*

The Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) has completed the necessary background studies, as discussed below, evaluated alternative road and servicing alignments/strategies, delineated drainage areas, considered existing/future development needs, and identified and assessed stormwater management strategies to support the various alternatives. Based on these assessments, a preferred road alignment, SWM and municipal servicing option has been further considered and evaluated, leading to the selection of a preferred road alignment/configuration and SWM/servicing strategy.

2.0 Background Studies:

The following background studies have been completed and are on-going as needed to inform the decisions made during this Class EA.

2.1 Business Park Strategy

The Township enlisted McSweeney and Associates to prepare a target sector and industry analysis to review local and regional economic and industry trends, and provide recommendations.

Recommendations outlined the types of industries that the Township can expect would be interested in developing lands within the Dickson Drive extension area.

Additionally, this report provides planning, design, infrastructure and servicing recommendations based on the permitted uses within the area, which state the area would be suited to a business park type development, to establish a mixed office/light industrial, high-quality business park environment. The Business Park zone is intended to present a high standard of building, landscape and streetscape design.

2.2 Cultural Heritage Evaluation Report

A Cultural Heritage Evaluation Report (CHER) was undertaken for 6518 First Line in June 2021 by Archaeological Services Inc. The property at 6518 First Line was found to be of cultural heritage value or interest, therefore a Heritage Impact Assessment (HIA) was undertaken August 2021 by Archaeological Services Inc. The CHER is included in Index Section 4.

2.3 Archeological Assessment

2.3.1 Stage 1 Archeological Assessment

The Stage 1 Archeological Assessment is found within Index Section 6 of the Project File Report along with confirmation that the Stage 1 Assessment has been entered into the Ontario Public Register of Archaeological Reports under Project Information Form number P449-0540-2021. The Analysis, Conclusions, Recommendations and Legislation Compliance Advice as presented within the Stage 1 report are reiterated below.

Analysis and Conclusions

ASI was contracted by the Township of Wellington Centre to complete a Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Wellington Centre. The subject property is approximately 22.3 hectares.

The Stage 1 background research entailed consideration of the proximity of previously registered archaeological sites and the original environmental setting of the property, along with nineteenth- and twentieth-century settlement trends. This research indicated there was potential for the presence of Indigenous and Euro-Canadian historical archaeological resources on the subject property, depending on the degree of subsequent soil alteration. The entire property exhibits potential for encountering archaeological resources and must be subject to Stage 2 Archaeological Assessment in accordance with the Standards.

Recommendations

In light of these results, the following recommendation is made:

a. Prior to any land-disturbing activities within the subject property, a Stage 2 Archaeological Assessment must be conducted on all undisturbed lands within the subject property in accordance with the Ministry of Heritage, Sport, Tourism, and Culture Industries' 2011 Standards.

b. All agricultural or open lands within the subject property must be assessed by means of a pedestrian survey. The fields/open areas must be ploughed in advance of survey and allowed to weather for at least one substantial rainfall. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing. The pedestrian survey must be completed at five-metre intervals, as outlined in Section 2.1.1 of the Standards.

c. All undisturbed lands that cannot be ploughed within the property must be assessed by means of a test pit survey. All test pits must be excavated at least five centimetres into sterile subsoil, with all soils being screened through six-millimeter mesh to facilitate artifact recovery. All test pits must be at least 30 centimetres in diameter and backfilled upon completion. Test pits must be excavated at five- metre transect intervals but may be adjusted in light of considerations of disturbance, topography, and drainage as outlined in the Standards, Section 2.1.2.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Heritage, Sport, Tourism and Culture Industries must be immediately notified.

The above recommendations are subject to Ministry approval and it is an offence to alter any archaeological site without Ministry of Heritage, Sport, Tourism and Culture Industries concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MHSTCI approval has been received.

Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, RSO 2005, 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 field work and report recommendations ensure the conservation, preservation and protection 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 Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.
- It is an offence under 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 field work 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 sec. 48 (1) of the Ontario Heritage Act.
- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is

recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the Ontario Heritage Act and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

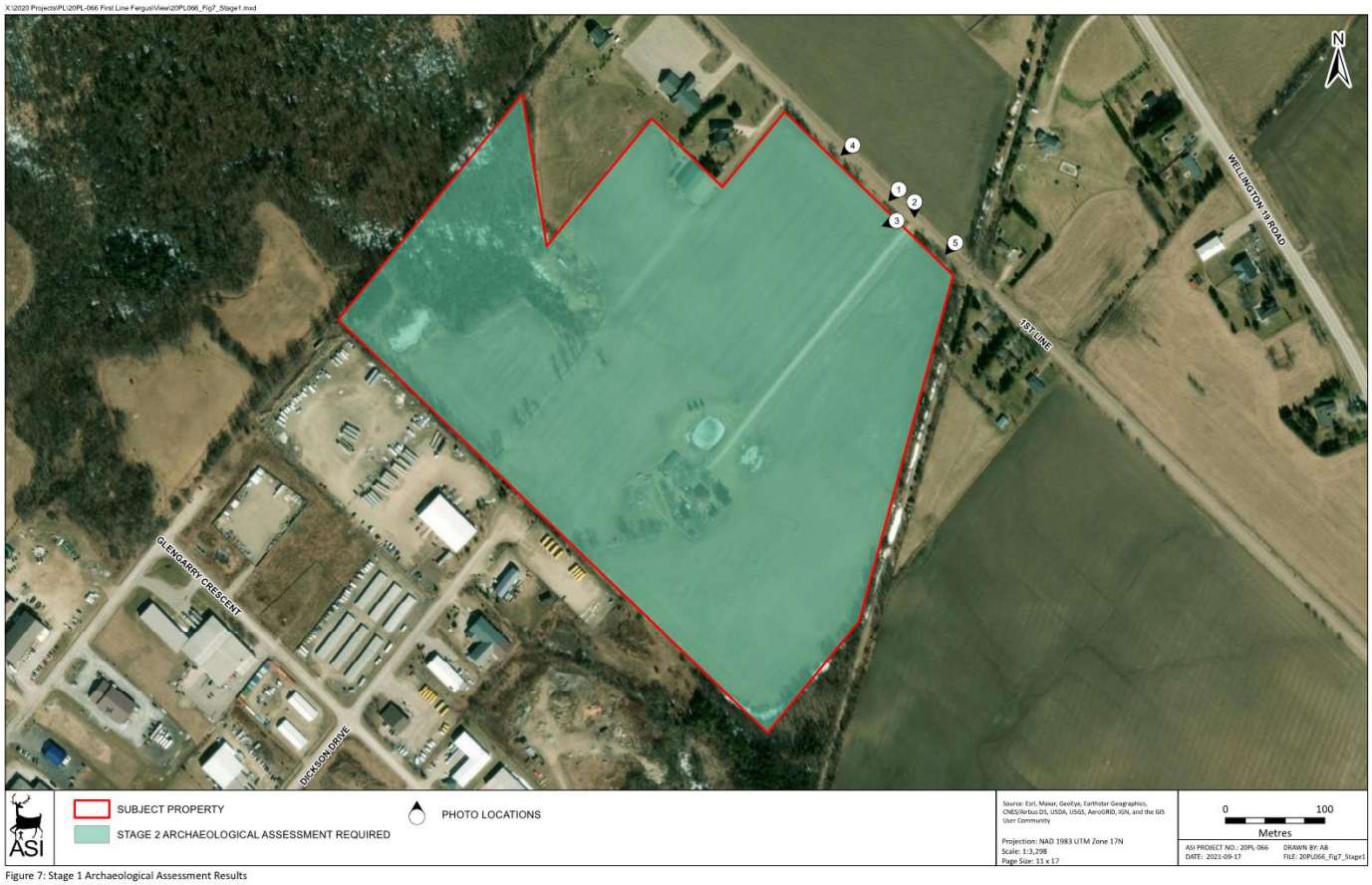


Figure 7: Stage 1 Archaeological Assessment Results

2.3.2 Stage 2 Archeological Assessment

The Stage 2 Archeological Assessment is found within Index Section 7 of the Project File Report along with confirmation that the Stage 2 Assessment has been entered into the Ontario Public Register of Archaeological Reports under Project Information Form number P449-0623-2022. The Analysis, Conclusions, Indigenous Locations, Recommendations and Legislation Compliance Advice as presented within the Stage 2 report are reiterated below.

Analysis and Conclusions

Archaeological Services Inc. was retained by the Township of Wellington Centre to undertake a Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Wellington Centre. The subject property is approximately 22.3 hectares.

The previous Stage 1 assessment entailed consideration of the proximity of previously registered archaeological sites and the original environmental setting of the property. Based on this research, it was determined that the entirety of the subject property retained archaeological potential and further archaeological assessment was recommended ahead of any future development.

The Stage 2 assessment consisted of a combined test pit and pedestrian survey. Test pits were initiated at

five-metre intervals and increased to ten metres when disturbance was encountered, while the pedestrian survey was conducted at five and three-metre transects. During test pit survey, one findspot (P1) was documented in the northwest corner of the property. During the pedestrian survey, a further four findspots (P3, P7, P8, and P9) and three Indigenous sites (AkHc-20, AkHc-21, and AkHc-22) were documented.

Indigenous Locations

Findspots P1, P3, P7, P8, and P9 represent isolated non-diagnostic artifact locations that do not reflect loci of prolonged activity or occupation. As such, these findspots do not meet the criteria outlined in the Standards, Section 2.2, Standard 1 requiring Stage 3 Archaeological Assessment.

Site AkHc-20 comprises a diffuse scatter of nine flake fragments and secondary retouch flakes of Onondaga chert. The presence of this scatter is indicative of ephemeral activity, likely indicating a tool sharpening event. Hence, AkHc-20 does not meet the criteria for cultural heritage value or interest requiring a Stage 3 Archaeological Assessment as outlined in the Standards, Section 2.2, Standard 1.a.i (3).

AkHc-21 and AkHc-22 are isolated Middle Archaic projectile points, which are the product of random or casual loss rather than indicative of a location of prolonged occupation or activity. As such, both sites do not meet the criteria outlined in the Standards, Section 2.2, Standard 1 for requiring Stage 3 Archaeological Assessment due to the isolated nature.



Figure 1: Location of Sites and Findspots

Recommendations

In light of these results and in accordance with the 2011 Standards and Guidelines for Consultant Archaeologists, the following recommendations are made:

d. Given the isolated and non-diagnostic nature of Indigenous findspots P1, P3, P7, P8, and P9, these locations do not exhibit cultural heritage value or interest and may be considered free of any further archaeological concern.

e. Given the ephemeral nature of Indigenous site AkHc-20, this site does not meet the criteria for cultural heritage value or interest and may be considered free of any further archaeological concern.

f. Given the isolated nature of Indigenous sites AkHc-21 and AkHc-22, these sites do not meet the criteria for cultural heritage value or interest and may be considered free of any further archaeological concern.

g. No further archaeological assessment of the subject property is required.

NOTWITHSTANDING the results and recommendations presented in this study, Archaeological Services Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport must be immediately notified.

The above recommendations are subject to Ministry approval, and it is an offence to alter any archaeological site without Ministry of Tourism, Culture and Sport concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of Ministry approval has been received.

Advice on Compliance with Legislation

Archaeological Services Inc. advises compliance with the following legislation:

- This report is submitted to the Ministry of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, RSO 2005, 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 field work and report recommendations ensure the conservation, preservation and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.
- It is an offence under 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 field work 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 sec. 48 (1) of the Ontario Heritage Act.

- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Government and Consumer Services is also immediately notified.
- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the Ontario Heritage Act and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

2.3.3 Impact Assessment and Mitigation Measures: Archeological Resources

All archaeological assessments will be undertaken by a licensed archaeologist. Any required further assessments (e.g., Stage 3,4) will be completed as early as possible in the detailed design phase and prior to any ground disturbing activities The following approaches will be used to mitigate potential negative impacts of the project:

- Compliance with the recommendations from the archaeological assessment reports.
- If archaeological resources are impacted by EA project work, notify MHSTCI a tarchaeology@ontario.ca. 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 and coroner must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI should also be notified (at archaeology@ontario.ca) to ensure that the site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

Further to the above the following is to be adhered to:

- 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 an archaeological assessment, in compliance with Section 48(1) of the Ontario Heritage Act.
- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33 requires that any person discovering human remains must cease all activities immediately and notify the police or coroner. If the coroner does not suspect foul play n the disposition of the remains, in accordance with Ontario Regulation 30/11 the coroner shall notify the Registrar, Ontario Ministry of Public and Business Service Delivery, which administers provisions of that Act related to burial sites. In situations where human remains are associated with archaeological resources, the Ministry of Citizenship and Multiculturalism should also be notified (at archaeology@ontario.ca) to ensure that the archaeological site is not subject to unlicensed alterations which would be a contravention of the Ontario Heritage Act.

2.4 Heritage Impact Assessment:

The Heritage Impact Assessment (HIA) was undertaken for 6518 First Line in August 2021 by Archaeological Services Inc. and updated in September 2021 and can be found in Index Section 5. The Analysis, Conclusions and Recommendations as presented within the HIA report are reiterated below.

2.4.1 Executive Summary:

ASI was contracted by the Township of Centre Wellington to prepare a Heritage Impact Assessment (HIA) for the property at 6518 First Line in the Township of Centre Wellington. This HIA is part of the Dickson Drive Extension Municipal Class Environmental Assessment (EA). The project involves the proposed extension of Dickson Drive, the existing municipal services, and establishment of a Storm Water Management

Strategy, as part of the proposed development of a new subdivision of a business park covering the footprint of the property at 6518 First Line. The property consists of a farmhouse and agricultural property that is listed on the Township of Centre Wellington's Heritage Register. The proposed development consists of a new subdivision for an industrial park covering the footprint of the property at 6518 First Line. The farmhouse at 6518 First Line will be retained in situ.

This HIA is a continuation of the work completed as part of the Cultural Heritage Evaluation Report(CHER) for the subject property (ASI 2022a) and should be read in conjunction with that report. This report finds that overall, based on the range of possible impacts included in the Ontario Heritage Toolkit, the policies outlined in the Township of Centre Wellington's Official Plan, and the standards set in the Standards and Guidelines for the Conservation of Historic Places in Canada, the proposed development will have an impact on the property. However, the property's cultural heritage value or interest is not anticipated to be lost or significantly compromised. With implementation of the
recommended conservation and mitigation strategies, the property will continue to be able to sufficiently express its design and architectural values.

2.4.2 Recommendations & Mitigation

The following recommendations have been made for the property at 6518 First Line:

1. The Township of Centre Wellington should prepare a Conservation Plan for the subject property at 6518 First Line in the Township of Centre Wellington. The Conservation Plan should identify strategies to ensure the long-term viability of the resource as a residence or recommend appropriate strategies for potential adaptive re-use of the structure that would ensure the conservation of heritage attributes. The Conservation Plan should detail how the property's heritage attributes will be conserved, including such drawings and other specifications as required by the Township. The Conservation Plan should provide guidance in the event that alterations to the house are required, in particular the removal of the rear addition. The Conservation Plan should also identify areas where maintenance and/or repair is required to ensure the long-term conservation and maintenance of the building. Mitigation measures should be included for any elements identified within the proposed statement of significance that cannot be retained (for example, the property's driveway). The Conservation Plan should be prepared by a qualified heritage specialist in consultation with the Township of Centre Wellington heritage planning staff, the Heritage committee, and follow established guidelines in the Standards and Conservation of Provincial Heritage Properties (Ministry of Citizenship and Multiculturalism 2010).

2. Where possible, the trees and vegetation immediately surrounding the house and along the property boundary should be conserved.

3. Any buildings proposed to be built in proximity to the farmhouse should be designed to minimize any shadow impacts on the vegetation surrounding the house.

4. Depending on the excavation and construction methods required to accommodate the construction of the proposed development, vibration monitoring should be considered to ensure that negative impacts to the house are avoided.

5. Staging during construction should be carefully planned to ensure that negative impacts to the built heritage resource are avoided. All efforts should be made to eliminate potential impacts during construction. Construction and staging plans should be provided to the Township of Centre Wellington in advance of construction.

3.0 Environmental Impact Assessment:

In the Spring of 2021, Aboud and Associates Inc. was retained by Triton Engineering Services Ltd. (TESL) on behalf of the Township to complete a Scoped Environmental Impact Study (EIS). This assessment focused on characterizing the existing natural heritage features within the 51.79 ha study area and mapping significant natural features. Wetlands, forests, meadows and a watercourse were identified as natural features within the study area.

The EIS identified constraints which will be used to inform the detailed design and development criteria. It is recommended that mitigation measures such as an Erosion and Sediment Control Plan and feature buffers be implemented for the development of this area which will reduce the potential for significant long term negative impacts on surrounding natural features. Further to this, it is recommended that educational signage pertaining to encroachment within the Irvine Creek Provincial Significant Wetland (PSW) along the proposed multi-use pathway be provided and all unsanctioned trail entrances within and adjacent the Irvine Creek PSW be closed.

4.0 Geotechnical Investigation:

CMT Engineering Inc. was retained to complete a geotechnical investigation. This investigation included the assessment of existing soil and groundwater conditions to determine soil characteristics and groundwater levels to support future design of development and infrastructure.

The investigation did not yield any significant findings or areas of concerns related to the development of the site or construction of supporting infrastructure. Recommendations relating to structural design, fill materials, foundation preparation, and dewatering will be used in the design and construction phases.

5.0 Hydrogeological Study:

Banks Groundwater Engineering was retained to complete a hydrogeological study of the site. This involves groundwater monitoring in five wells in order to confirm the existence, elevation and potential influence of groundwater. The results of this study will be used to establish design requirements for the site, and inform any potential design/development constraints. Thus far, the study has not provided any significant findings or concerns related to the development of the site or construction of supporting infrastructure. Continuous groundwater monitoring will be continued to determine seasonal groundwater level fluctuations across the site.

6.0 Traffic Impact Study:

A Traffic Impact Study has been completed by TESL to determine the expected impact of the proposed development. Traffic was monitored at four locations to determine peak period traffic counts for existing traffic.

The initial findings of this study determined that the extension of Dickson Drive and connection to First Line will not require any external intersection improvements in the short term. However, as the properties fronting this road develop, future intersection improvements may be required depending on the size and type of the proposed developments.

It is recommended that Individual Traffic Impact Studies be prepared based on the actual development proposals to identify the timing of any required improvements.

7.0 Options Considered:

Five options are considered in the evaluation of alternatives.

7.1 Option One: Urban Section – MUP & Below Grade SWM

- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Urban Section with Curbs & Gutters
- Multi-Use Pathway connecting Glengarry Crescent to Elora-Cataract Trailway
- Storm Water Management provided by way of below grade infrastructure including catchbasins, storm sewers, oil-grit separator(s), below grade run-off storage (chambers and/or super pipes) and a low slope polishing swale.
- Estimated total cost of $3,605,000

7.2 Option Two: Urban Section – MUP & Above Grade SWM

- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Urban Section with Curbs & Gutters.
- Multi-Use Pathway connecting Glengarry Crescent to Elora-Cataract Trailway.
- Storm Water Management provided by way of both below and above grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s) with above grade run-off storage (ponds) and a low slope polishing swale.
- Estimated total cost of $3,604,000

7.3 Option Three: Rural Section – MUP & Above Grade SWM

- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Rural Section with Ditches.
- Multi-Use Pathway connecting Glengarry Crescent to Elora-Cataract Trailway.
- Storm Water Management provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale.
- Estimated total cost of $3,160,000

7.4 Option Four: Rural Section & Above Grade SWM

- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Rural Section with Ditches.
- Multi-Use Pathway is not provided.
- Storm Water Management provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale.
- Estimated total cost of $3,036,000

7.5 Option Five: Do Nothing

8.0 Assessment:

Options one through four address the problem statement by extending Dickson Drive to First Line with an additional cul-de-sac extended south, while the fifth option, Do-Nothing, does not.

The first four options have limited to no short-term impacts on the cultural landscape, sensitive species in the area, natural vegetation, wildlife, and recreational amenities. The proposed road does not enter into the expected wetland buffer, and mitigation measures will be used to minimize potential negative impacts such as reduced groundwater recharge.

Options One and Two propose streetscaping by way of providing curbs and gutters, and a multi-use pathway

for pedestrian connectivity. Option Three provides the multi-use pathway but no curbs and gutters, while Option Four does not provide curbs, gutters, or the pathway.
Options One and Two address storm water drainage by way of a storm sewer system. For Option One, the storm water will be stored in below grade storage chambers that require annual non-intrusive maintenance. Options Three and Four will convey storm water above grade via open ditches and culverts with a minimal amount of storm sewers and catchbasins. Options Two, Three and Four will store storm water in open ponds that require costly infrequent intrusive cleaning operations that disrupt the facility's naturalized environment.

For all options, storm water will be treated with Oil-Grit-Separator(s) and low-slope polishing swales. The cleaning of the OGS's will be added to the Township annual maintenance program and can be done with little disruption to the naturalized environment.

Exclusive of the Do-Nothing option, all options will require mitigation measures to maintain or improve the quality of stormwater runoff from the Dickson Drive extension and avoid long term impacts from road salt, sediment and other potential contaminants. Options One and Two provide additional source water protection by creating a barrier with the closed storm collection system, whereas options Three and Four do not.

An evaluation of alternatives table has been included in this project file to show how all criteria and potential impacts were considered.

9.0 Consultation:

9.1 Notice of Commencement

The Notice of Commencement was advertised for two consecutive weeks each in the Wellington Advertiser newspaper on June 24th, 2021 and July 1st, 2021. At the same time, letters outlining the project and the Notice of Project Commencement were sent to various project stakeholders including government approval agencies, First Nation Communities, and upper and lower tier municipalities that may have an interest in the project.

A summary of the comments received following advertisement of the Notice of Commencement and how these comments have been addressed through the Class EA will be compiled in the project file for public record. The majority of the responses received were related to updating the contact information for future correspondence related to the project.

9.2 Public Information Centre

A virtual Public Information Centre (PIC) was held for this project. A notice of the PIC was advertised for two consecutive weeks each in the Wellington Advertiser newspaper on January 6th, 2022 and January 13th, 2021. At the same time, letters advising of the PIC were sent to various project stakeholders including government approval agencies, First Nation Communities, and upper and lower tier municipalities that may have an interest in the project

The PIC material was posted to the Connect CW website, which included a webpage dedicated to this Class EA, and was available beginning on January 17th, 2022 until January 31st, 2022. Township staff, its subconsultants, and various stakeholders contributed to the PIC and were available to respond to comments.

The comments received in response to the PIC included concerns related to the interface between the multi-use pathway and with the existing Fergus off-leash dog park, and the potential impact of the road on traffic in other areas of the community. These comments have been considered through the Class EA or will be further addressed during the design and implementation stages of the project.

9.3 Notice of Completion

Upon Council's acceptance of the preferred alternative (option) a Notice of Completion will be advertised and a letter issued to all stakeholders. Copies of all correspondence will be summarized in a project file and will be available for a period of at least 30 calendar days for public/stakeholder/agency comment.

10.0 Conclusion:

Given the above, Option One has been selected as the preferred alternative to address the problem statement. This option presents increased safety for pedestrians/vehicles given the curb and gutter provides a continuous barrier as opposed to open ditches. The short- and long-term impacts to the environment are reduced as the infrastructure is easily maintained with minimal, non-intrusive measures with little impact on the naturalized environment. Further to this, the storm sewers and catchbasin configuration provides for increase source water protection by creating a barrier between groundwater and road runoff, whereas Options Three and Four do not.

If you have any questions or concerns, please do not hesitate to contact us.

Respectfully,

Triton Engineering Services Limited

Dustin C. Lyttle, P. Eng.
Project Manager

Cc:
Brett Salmon, Managing Director of Planning and Development
Colin Baker, Managing Director of Infrastructure Services

CRITERIA		Alternative 1 Option 1	Alternative 2 Option 2	Alternative 3 Option 3	Alternative 4 Option 4	Alternative 5 "Do Nothing"
TECHNICAL ENVIRONMENT						
Design & Function	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Road Geometry and Vehicular Safety	Proposed 22 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	Proposed 22 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	Proposed 26 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	Proposed 26 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**No Preference**
	Emergency Access	This Alternative provides for a direct east-west route through the overall industrial park and improves access to Dickson Drive such that emergency vehicles will be able to access existing and future businesses from both directions.				No emergency/secondary access available for the existing industries on Dickson Drive.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Effect on Existing Roads and Services	Alternatives will increase service life of municipal infrastructure on Gartshore due to reduced dependency. The additional watermain connection south to the Elora Cataract Rail Trail will provide opportunity for future connection and improved service to existing/future developments. The existing watermain and sanitary sewers on Dickson Drive will provide efficient use of existing service to the site.				Alternative 5 will result in inefficient use of the existing Municipal Services on Dickson Dr.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Proposed Streetscaping & Standard of Design	Provides this by way of providing curb and gutters, and a multi-use pathway for pedestrian connectivity.	Provides this by way of providing curb and gutters, and a multi-use pathway for pedestrian connectivity.	Provides the multi-use pathway, however does not provide curbs and gutters.	Does not provide curbs and gutters or the multi-use pathway.	No anticipated impacts.
		Preferred	**Preferred**	**Less Preferred**	**Less Preferred**	**Not Preferred**
	Storm Water Management	Storm water will be conveyed via closed sewers and manholes. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage by way of below grade storage chambers or structures that will require annual non-intrusive maintenance and inspection with little disruption to the naturalized environment.	Storm water will be conveyed via closed sewers and manholes. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage via open ponds that will require annual inspection and costly infrequent intrusive and cleaning operations that disrupt the naturalized environment.	Storm water will be conveyed via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage via open ponds that will require annual inspection and costly infrequent intrusive and cleaning operations that disrupt the naturalized environment.	Storm water will be conveyed via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage via open ponds that will require annual inspection and costly infrequent intrusive and cleaning operations that disrupt the naturalized environment.	No anticipated impacts.
		Preferred	**Less Preferred**	**Less Preferred**	**Less Preferred**	**Not Preferred**
	Effect on Traffic and Pedestrian Safety	Provides alternate routes for access to the existing Industrial park and northeast quadrant of Fergus. Increased safety risk to pedestrians using the existing trail crossing on First Line due to the additional traffic. Traffic on Gartshore through the residential area, trail and park may be decreased, thereby reducing associated traffic and pedestrian safety concerns.				No anticipated impacts. Traffic will continue to use Gartshore as its main route to access existing industrial area.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**

	CRITERIA	Alternative 1 Option 1	Alternative 2 Option 2	Alternative 3 Option 3	Alternative 4 Option 4	Alternative 5 "Do Nothing"
CULTURAL ENVIRONMENT						
Archaeological and Heritage Resources	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	No anticipated impacts.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Impacts to Archaeological Resources	The site does not exhibit cultural heritage value or interest in accordance with the Ministry of Tourism, Culture and Sport's 2011 Standards and Guidelines for Consultant Archaeologists and may be considered free of any further archaeological concern.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Built Heritage Resources and Cultural Heritage Landscapes	Limited short-term impacts anticipated to the farmscape, which may be mitigated by planning and staging construction activities away from the residence as feasible.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**No Preference**
SOCIAL ENVIRONMENT						
Land Use	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Temporary Construction Impacts	Noise and dust generated during construction activities will require mitigation, although impacts will be temporary and limited. No anticipated issues with respect to traffic management for work to be completed within the Study Area; however, there is a potential for temporary limited impacts on local roads due to construction related traffic. Haul routes to be used outside of the Study Area during construction activities will be selected to minimize impact on local roads and traffic.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts on Land Use and Traffic	Alternatives 1 thru 4 will increase the available land for economic development and will result in increased tax base and efficient use of existing infrastructure. No reduction in the current level of service of the studied intersections has been identified. Further traffic studies may be warranted as the lands fronting the proposed extension are developed, depending on the size and type of the proposed developments.				No anticipated impacts.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Impacts to Indigenous Communities	Consultation with the Ministry of Municipal Affairs and Housing, the Ministry of Aboriginal Affairs, Ministry of Indigenous Relations and Reconciliation, Metis Nation of Ontario, Indigenous and Northern Affairs Canada, Six Nations, Six Nations of the Grand River Territory, Haudenosaunee Confederacy, Historic Saugeen Metis, Saugeen First Nation, has been ongoing from onset of the EA process. Consultation will continue throughout the EA process to ensure appropriate mitigation measures are implemented if impacts are anticipated.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Recreational Amenity	Limited impacts are anticipated to result from the operation of the proposed project given the environmental setting and current use of the Study Area. Traffic and pedestrian safety measures will be implemented as needed. Multi-Use Pathway network will be expanded by this project.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Visual Amenity	Existing open space areas will be disturbed during construction and changed to a developed landscape eventually. Developments will be required to provide landscaping to naturalize the area to the extent feasible.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
ECONOMIC ENVIRONMENT						
Costs	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement, however does not provide pedestrian trail use.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Less Preferred**	**Not Preferred**
	Local Economy	Alternatives 1 thru 4 will provide increase in accessible business development property for continued economic growth and to promote a live-work community within the Township.				No anticipated impacts.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Estimated Capital Cost of Construction	Estimated cost of construction for the: Roads, Drainage & SWM: $1,860,000 Servicing (Water & Sanitary): $800,000 Miscellaneous Items, Engineering, Contingency & HST: $945,000	Estimated cost of construction for the: Roads, Drainage & SWM: $1,859,000 Servicing (Water & Sanitary): $800,000 Miscellaneous Items, Engineering, Contingency & HST: $945,000	Estimated cost of construction for the: Roads, Drainage & SWM: $1,530,000 Servicing (Water & Sanitary): $800,000 Miscellaneous Items, Engineering, Contingency & HST: $830,000	Estimated cost of construction for the: Roads, Drainage & SWM: $1,436,000 Servicing (Water & Sanitary): $800,000 Miscellaneous Items, Engineering, Contingency & HST: $800,000	No costs associated with this alternative.
		No Preference	**No Preference**	**No Preference**	**Preferred**	**Not Preferred**

CRITERIA		Alternative 1 Option 1	Alternative 2 Option 2	Alternative 3 Option 3	Alternative 4 Option 4	Alternative 5 "Do Nothing"
NATURAL ENVIRONMENT						
	Ability to Address Problem Statement	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
Wetland	**Impacts to Wetlands**	The proposed road alignment does not enter into the expected wetland buffer. Where the proposed Multi-Use Pathway enters the wetland buffer, mitigation measures are required to minimize potential negative impacts to the wetland. Potential negative impacts include lowering of water table affecting certain vegetation species and potentially creating a barrier for reptile and amphibian movement. these impacts can be effectively mitigated using groundwater recharge strategies, and the use of limestone screenings for trail surface treatment, respectively. The proposed storm water management facility will provide quality and quantity control to ensure no negative impact to the wetland or other receiving features.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Hydrology	**Impacts to Built Heritage and Cultural Landscape**	Existing Heritage Features will be avoided to reduce any potential disturbance.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts from Stormwater Runoff from the Site	Long-term impacts are limited through implementation of SWM Facilities and other mitigation measures to maintain or improve stormwater runoff (quantity and quality) from the Study Area (i.e. sediment and erosion control, best management practices, establishment of an operation and monitoring program, etc.).				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Water Quality and Source Water Protection	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via closed sewers and manholes, which provide source water protection by creating barrier between groundwater and the road run-off.	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via closed sewers and manholes, which provide source water protection by creating barrier between groundwater and the road run-off.	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance, however offering no source water protection from chloride and other potential contaminate bearing run-off.	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance, however offering no source water protection from chloride and other potential contaminate bearing run-off.	No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Rare and at Risk Species	**Impacts to Sensitive/listed Species within the Study Area**	Consideration of standard environmental management strategies to reduce and/or eliminate the risk and disturbance will be given during detailed design. Limited long-term impacts are anticipated following construction and restoration given application of appropriate design and impletmentation of mitigation measures. Minimal impacts are anticipated from the operation of the proposed works.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Trees and Vegetation	**Impacts to Trees and Natural Vegetation**	Infrastructure has been designed/located such that there is not expected to be any impact to the existing trees and natural vegetation.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Wildlife	**Effect on Use of Area by Wildlife**	Following the recommendations outlined in the EIS Study will result in minor impact to the wildlife. This includes completing all vegetation removals outside the Environment Canada breeding bird nesting window (April 1- August 31). If removals must take place during the nesting window, a bird nest survey is be completed to determine locations of active nests prior to construction works followed by installation of Erosion and sediment Control (ESC) fence to restrict construction activity in these areas. Create nest protection zones where active bird nests are found.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Air Quality	**Effect on Air Quality related to Road Emissions**	There will be increased exhaust emissions into the airshed within the Study Area as a result of traffic; however, due to the setting of the Study Area, exposure to the general population is limited. The impact from odours, noise, traffic and air quality on the local population will be the responsibility of future industries of the area, which will be policed by governmental regulations and controls.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**

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10 – Environmental Impact Study

11 – Traffic Impact Study

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Section 1

Notice of Project
and
Related Correspondence

NOTICES

Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON
CLASS ENVIRONMENTAL ASSESSMENT
DICKSON DRIVE EXTENSION
NOTICE OF PROJECT COMMENCEMENT

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Process:
The Township is initiating a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015 and 2021).



How to Participate:
Public input and comments are invited for incorporation into the planning of this project. A Public Information Centre for this project will be held as the project progresses to share information with and solicit input from interested stakeholders.

For More Information:
As part of the public consultation program, a project contact list is being created. Stakeholders included on the list will receive information regarding the project including formal Notices. To be placed on the project contact list, to provide comments, or to request further information, please contact each of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: **lwheildon@centrewellington.ca**

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

For project background and updates, please visit **www.connectcw.ca**

This notice first issued June 24, 2021

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF PROJECT COMMENCEMENT

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Process:
The Township is initiating a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015 and 2021).



How to Participate:
Public input and comments are invited for incorporation into the planning of this project. A Public Information Centre for this project will be held as the project progresses to share information with and solicit input from interested stakeholders.

For More Information:
As part of the public consultation program, a project contact list is being created. Stakeholders included on the list will receive information regarding the project including formal Notices. To be placed on the project contact list, to provide comments, or to request further information, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

For project background and updates, please visit www.connectcw.ca

This Notice first issued June 24, 2021.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

April 21, 2022

ADDRESS
ADDRESS
ADDRESS
ADDRESS

ATTENTION: NAME,
TITLE

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear NAME:

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington is commencing a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015 and 2021). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property is contained on the attached Notice of Commencement for your reference.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township."*

The purpose of this letter is to introduce the project and invite you to provide any preliminary comments. Effective consultation with all stakeholders, approval agencies and First Nation communities will ensure that all environmental features and constraints (natural/social/economic environments, etc.) are identified in a timely manner and will be considered in the assessment of this project.

We look forward to receiving your preliminary comments and should you have any questions or require additional information, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

DRAFT

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • GRAVENHURST • HARRISTON

June 28, 2021

Corporation of the Township of Centre Wellington
1 MacDonald Square
ELORA, Ontario
N0B 1S0

Attention: Lee Wheildon, C.E.T., rcca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION, FERGUS
NOTICE OF PROJECT COMMENCEMENT
CLASS ENVIRONMENTAL ASSESSMENT
SCHEDULE 'B'
CONTRACT NO.: 6468-21
OUR FILE: M6468A

Dear Lee:

The attached Notice of Project Commencement and letter for the *Township of Centre Wellington, Dickson Drive Extension, Fergus, Class Environmental Assessment (Class EA), Schedule 'B'* was sent to the following Agencies. The Notice of Project Commencement was sent to Municipal staff, Property Owners and Residents and is also being advertised in The Wellington Advertiser for two (2) consecutive weeks starting Thursday, June 24th and July 1st, 2021 (attached).

AGENCIES

	Name & Address	Contact Information
1	Ministry of Environment, Conservation and Parks (MECP) Environmental Assessment and Approvals Branch (EAAB) 135 St. Clair Avenue West, 1st Floor Toronto, Ontario M4V 1P5	Director, Class EA's and Declaration Section E: EAASIBgen@ontario.ca 1-800-461-6290 E: eanotification.wcregion@ontario.ca EA Planning Co-ordinator (West Central Region)
2	Ministry of Environment, Conservation and Parks (MECP), Hamilton Regional Office Ellen Fairclough Building 12th Floor, 119 King Street West Hamilton, Ontario L8P 4Y7	General -- 905-521-7640 E: Mark.Badali1@ontario.ca Tel: (416) 457-2155
3	Ministry of Environment, Conservation and Parks (MECP) Guelph District Office 1 Stone Road West Guelph, Ontario N1G 4Y2	Nicole Ainlay, District Water Inspector E: Nicole.Ainlay@ontario.ca Tel: (519) 546-9301

4	Ministry of Municipal Affairs & Housing Community Planning and Development 659 Exeter Road, 2nd Floor London, Ontario N6E 1L3	Erick Boyd, RPP, MCIP, Manager, Community Planning and Development, Municipal Services E: erick.boyd@ontario.ca Tel: (519) 873-4025
5	Ministry of Heritage, Sport, Tourism and Culture Culture Division, Heritage Planning Unit 401 Bay Street, Suite 1700 Toronto, Ontario M7A 0A7	Dan Minkin, Heritage Planner E: dan.minkin@ontario.ca Tel: (416) 786-7553 Cc: Joseph Harvey joseph.harvey@ontario.ca
6	Ministry of Natural Resources and Forestry (MNRF) Guelph District Office 1 Stone Road West Guelph, Ontario N1G 4Y2	Ian Thornton, Resources Operations Supervisor E: ian.thornton@ontario.ca General Tel: 226-820-5050
7	Ministry of Transportation 659 Exeter Road London, Ontario N6E1L3	Tom Hewitt, Head, Corridor Management (West) tom.hewitt@ontario.ca Tel: (416) 235-3744
8	Grand River Conservation Authority 400 Clyde Road Box 729 Cambridge, Ontario N1R 5W6	Laura Warner E: lwarner@grandriver.ca Tel: (519) 621-2763 Ext. 2231 Dwight Boyd, Director Engineering E: dboyd@grandriver.ca Tel: (519) 621-2763 Ext. 2225
9	County of Wellington 74 Woolwich Street Guelph, Ontario N1H 3T9	Aldo Salis, Director of Planning & Development E: aldos@wellington.ca Tel: (519) 837-2600 Ext. 2100 Don Kudo, County Engineer Tel: (519) 837-2600 Ext.2280 E: donk@wellington.ca Joe de Konig, County Engineer Tel: (519) 837-2600 Ext. 2270 E: joedk@wellington.ca
10	Six Nations Land and Resources 2498 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Lonny Bomberry, Land & Resources Director E: lonnybomberry@sixnations.ca Joanne Thomas, Consultation Supervisor E: jthomas@sixnations.ca
11	Mississauga of the Credit First Nation (MNCFN) 2789 Mississauga Road. R.R. #6 Hagersville, Ontario N0A 1H0	Chief R. Stacey Laforme E: stacey.laforme@mncfn.ca Tel: (905) 768-1133 Mark Laforme, DOCA E: mark.laforme@mncfn.ca Tel: (905) 768-4260 Fawn Sault, Consultation Manager E: Fawn.Sault@mncfn.ca

12	Mississauga of the Credit First Nation (MNCFN) 2789 Mississauga Road. R.R. #6 Hagersville, Ontario N0A 1H0	Megan DeVries, M.A., Archaeological Operations Supervisor E: Megan.DeVries@mncfn.ca Tel: (905) 768-4260 Joelle Williams, Consultation Manager Dept. of Consultation and Accommodation E: joelle.williams@mncfn.ca
13	Six Nations of the Grand River Territory 1695 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Chief Mark B. Hill E: markhill@sixnations.ca Tel: (519) 445-2201
14	Six Nations of the Grand River Territory 1695 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Tanya Hill-Montour, Archaeological Supervisor E: tanyahill-montour@sixnations.ca Tel: (519) 753-0665
15	Ministry of Aboriginal Affairs Aboriginal Relations/Ministry Partnerships Branch 9th Floor, 160 Bloor Street East Toronto, Ontario M7A 2E6	Pauline Wakegijig, Exec. Assistant (Acting) Policy and Consultation Unit, 4th Floor Tel: (416) 526-7202 E: Pauline.wakegijig@ontario.ca Heather Levecque, Director E:heather.levecque@ontario.ca
16	Ministry of Indigenous Relations and Reconciliation 160 Bloor Street East, 4th 9th Floor Toronto, Ontario M7A 2E6	Jessica Hill, Senior Advisor, Indigenous Relations Unit E: jessica.hill2@ontario.ca Tel: (416) 326-4744 Sarah Zelcer, Manager (Acting), Indigenous Relations Unit E: sarah.zelcer@ontario.ca Tel: (647) 964-4095
17	Haudenosaunee Confederacy Chiefs Council 16 Sunrise Court, Suite 600 P.O. Box 714 Ohsweken, Ontario N0A 1M0	Hohahes Leroy Hill Secretary to Haudenosaunee Confederacy Chiefs Council E: jocko@sixnationsns.com Tel: (519) 445-4222 Wayne Hill E: tworowarchaeology@gmail.com Tel: (226) 388-7135 Todd Williams E: williams.todde@gmail.com
18	Metis Nation of Ontario Suite 1100, 66 Slater Street Ottawa, Ontario K1P 5H1	E: consultations@metisnation.org
19	Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Elora Resource Center, Centre Regional Office 6484 Wellington Road 7, Unit 10 Elora, Ontario N0B 1S0 Tammy Armstrong, Manager (Acting) E: tammy.armstrong@ontario.ca Tel: (519) 400-4242 General Tel: (519) 846-0941	Natalie Kelloway | Facility Manager CBRE Limited l Global Workplace Solutions IO Property and Land Management Services Cell: 226 203 0183 Kelloway, Natalie @ CBRE GCS Canada Natalie.Kelloway@cbre.com

20	Department of Fisheries & Oceans Canada Burlington Office 3027 Harvester Road, Unit 304 Burlington, Ontario L7R 4K3	TRIAGE Group E: fisheriesprotection@dfo-mpo.gc.ca Tel: 1-855-852-8320

TOWNSHIP OF CENTRE WELLINGTON

	Name & Address	Contact Information
21	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Mayor Kelly Linton mayor@centrewellington.ca 519-846-9691 Ext. 294
22	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Kerri O'Kane, Manager of Legislative Services / Municipal Clerk kokane@centrewellington.ca 519-846-9691 Ext. 243
23	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Andy Goldie, Chief Administrative Officer agoldie@centrewellington.ca 519-846-9691 Ext. 234
24	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Dan Wilson, Managing Director of Corporate Services / Treasurer DWilson@centrewellington.ca 519-846-9691 Ext. 224
25	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Kyle Davis, Risk Management Official, Source Water Protection kdavis@centrewellington.ca
26	Township of Centre Wellington Planning & Development Department 1 MacDonald Square Elora, Ontario N0B 1S0	Mariana Iglesias, Senior Planner miglesias@centrewellington.ca 519-846-9691 Ext. 289 cc: Brett Salmon, Managing Director of Planning & Development bsalmon@centrewellington.ca 519-846-9691 Ext. 297
27	Township of Centre Wellington Public Works Department 7444 Wellington Road 21 Elora, Ontario N0B 1S0	Colin Baker, Managing Director of Infrastructure Services cbaker@centrewellington.ca 519-846-9691 Ext. 357
28	Township of Centre Wellington Public Works Department 7444 Wellington Road 21 Elora, Ontario N0B 1S0	Rob Rosso, Superintendent of Public Works rrosso@centrewellington.ca 519-846-9691 Ext. 363
29	Township of Centre Wellington Fire Department 250 Queen Street West Fergus, Ontario N1M 1S8	Tom Mulvey, Fire Chief 519-846-9691 Ext. 389 tmulvey@centrewellington.ca
30	Township of Centre Wellington Emergency Services 1 MacDonald Square Elora, Ontario N0B 1S0	Chantalle Pellizzari, Community Emergency Management Coordinator 519-846-9691 Ext. 241 cpellizzari@centrewellington.ca Shannon Koestner, Community Emergency Management Coordinator

		519-846-9691 Ext. 249 skoestner@centrewellington.ca
31	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Kendra Martin, Communications Officer kmartin@centrewellington.ca 519-846-9691 Ext. 220
32	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Pat Newson, Managing Director of Community Services pnewson@centrewellington.ca 519-846-9691 Ext. 319
33	Township of Centre Wellington Councillors	Bob Foster bobfoster2@hotmail.com
		Neil Dunsmore neildunsmore@neildunsmore.com
		Ian MacRae ianmacrae@ianmacrae.org
		Kirk McElwain inverhaugh@gmail.com
		Steven VanLeeuwen asem.inc@gmail.com
		Stephen Kitras skitras@kitras.com

RESIDENTS AND STAKEHOLDERS

	Name & Address	Contact Information
34	BLUHM, Audrey Mary BLUHM, Larry Otto 6502 First Line West Garafraxa, RR3 Fergus, Ontario N1M 2W4	
35	LUNN, Gordon Gregory MADORE Donna Marie 6504 First Line Fergus, Ontario N1M 2W4	E: gordonlunn@bellnet.ca Tel: (519) 831-6376
36	LANDONI, Peter Vincent LANDONI, Carol Jean 6506 First Line West Garafraxa, RR3 Fergus, Ontario N1M 2W4	E: plandoni@sympatico.ca
37	THALEN, Alexander THALEN, Laura Leigh 6507 First Line Fergus, Ontario N1M 2W4	
38	Anchor Canadian Reformed ASN For The Handicapped 6528 First Line, RR3 Fergus, Ontario N1M 2W4	
39	REEVES, Robert William REEVES, Doreen Marilyn 6546 First Line RR3 STN MAIN Fergus, Ontario N1M 2W4	

40	EWEN, Barry and Nancy 8105 Wellington Road 19 RR 3 STN MAIN Fergus, Ontario N1M 2W4	
42	LINDSEY, Andrea Kathleen Ruth LINDSEY, Donald Paul 8166 Wellington Road 19 Fergus, Ontario N1M 2W4	
43	MEDEMBLIK, Cornelius Henry MEDEMBLIK, Arlene Joanne 8154 Wellington Road 19 RR 3, STN MAIN Fergus, Ontario N1M 2W4	
44	COULTER, Kelsye 6570 First Line Fergus, ON N1M 2W4	E: kelsye.coulter@icloud.com
45	ALTON, Eddie Allan FLEMING, Cynthia Lee 8140 Wellington Road 19 RR3 Fergus, Ontario N1M 2W4	
46	MILLARD, Lawrence 8144 Wellington Road 19 Fergus, Ontario N1M 2W4	
47	BUNA, Richard David BUNA, Jenna Marie 8146 Wellington Road 19 Fergus, Ontario N1M 2W4	
48	RYAN, Michael Patrick O'NEILL, Courtney Erin 8132 Wellington Road 19 Fergus, Ontario N1M 2W4	
49	JACKSON, Alfreda and Peter 8124 Wellington Road 19 RR 3 Fergus, Ontario N1M 2W4	
50	KROPF, Tyler Joseph Patrick 8103 Wellington Road 19 RR 3 Fergus, Ontario N1M 2W4	
51	Canadian Reformed Church of Fergus North P.O. Box 277 Fergus, Ontario N1M 2W7	
52	1581650 ONTARIO LTD. c/o Leonard Burns 8 Gow Street Fergus, Ontario N1M 3L2	
53	2224171 ONTARIO INC. 5332 Fourth Line, RR 3 Rockwood, Ontario N0B 2K0	

54	ERGO ADVANTAGE INC. P.O. Box 352 Fergus, Ontario N1M 3E2	
55	AVERTEX UTIITY SOLUTIONS INC. 205235 County Road 109 Amaranth, Ontario L9W 0T8	
56	JOHN BURT ENTERPRISES LTD. 5662 Wellington Road 24 P.O. Box 539 Hillsburgh, Ontario N0B 1Z0	
57	RADAJA INC. c/o Ralph Gorgi 5954 Wellington Road 7, RR 5 Guelph, Ontario N1H 6J2	
58	1254887 Ontario Ltd. c/o Andy Vandermarel Box 127, 655 Dickson Drive Fergus, Ontario N1M 2W7	
59	BNR Architectural c/o The Bar Store 640 Dickson Drive, Box 205 Fergus, Ontario N1M 2W7	
60	R& K.POPE HOLDINGS LTD. 770 Glengarry Crescent Fergus, Ontario N1M 2W7	
61	RBS & EJS FERGUS G.P. INC. 3700 Steeles Avenue West Suite 800 Woodbridge, Ontario L4L 8M9	
62	Taylor E-Tech MFG Inc. 185 Curtis Drive Guelph, Ontario N1K 1S9	
63	2075589 ONTARIO INC. 260 Forfar Street East Fergus, Ontario N1M 2X7	
64	7-M PROPERTIES LTD. c/o Voyageur Transportation Services 573 Admiral Court London, Ontario N5V 4L3	

We trust you will find the enclosed to be in order. Should you have any questions or require additional information, please do not hesitate to contact our office.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin Lyttle, P. Eng.
Project Manager

DCL/sjp
Encl.
cc: Ray Kirtz, Triton Engineering Services Limited

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Ministry of Environment, Conservation and Parks (MECP)
Hamilton Regional Office
Ellen Fairclough Building
12th Floor, 119 King Street West
Hamilton, Ontario
L8P 4Y7

Letter Sample

ATTENTION: Mark Badali,
EA Planning Co-Ordinator (West Central Region)
Mark.Badali1@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Sir:

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington is commencing a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015 and 2021). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property is contained on the attached Notice of Commencement for your reference.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.*"

The purpose of this letter is to introduce the project and invite you to provide any preliminary comments. Effective consultation with all stakeholders, approval agencies and First Nation communities will ensure that all environmental features and constraints (natural/social/economic environments, etc.) are identified in a timely manner and will be considered in the assessment of this project.

We look forward to receiving your preliminary comments and should you have any questions or require additional information, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

Student

From: Dustin Lyttle
Sent: July 5, 2021 10:18 AM
To: Shari Page
Subject: FW: Project contact list being created

Morning Shari,

Please see below for the contact list.

Tanks,
Dustin Lyttle
519-362-7649

From: Lee Wheildon <LWheildon@centrewellington.ca>
Sent: July 5, 2021 10:08 AM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: FW: Project contact list being created

Dustin,

Can we add this gentleman to the contact list?

Regards,

Lee Wheildon C.E.T.,rcca | Engineering Technologist - Development

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: johnburt@sympatico.ca [mailto:johnburt@sympatico.ca]
Sent: July 5, 2021 9:32 AM
To: Lee Wheildon <LWheildon@centrewellington.ca>
Subject: Project contact list being created

I would like to be added to the Project contact list being created. I would like more information on purchasing property in the new Site Location.
I look forward to hearing from you.

Thank you John Burt

Virus-free. www.avast.com

Student

From: Dustin Lyttle
Sent: June 24, 2021 1:45 PM
To: Shari Page
Subject: Peter Landoni

Hi Shari,

Another person to add to our contact list.

Once you have the contact list updated at the end of the week, can you send a copy of it to Lee Wheildon? LWheildon@centrewellington.ca ?

Thanks,

Dustin Lyttle
519-362-7649

-----Original Message-----
From: Peter Landoni <plandoni@sympatico.ca>
Sent: June 24, 2021 1:44 PM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject:

Please add me to your information pool.

Thanks.

Peter
Sent from my iPhone

Student

From: Dustin Lyttle
Sent: June 24, 2021 7:41 AM
To: Shari Page
Subject: FW: First Line and Dickson Road Extension.

For the official contact sheet.

Dustin Lyttle
519-362-7649

-----Original Message-----
From: Gordon Lunn <gordonlunn@bellnet.ca>
Sent: June 23, 2021 4:22 PM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Re: First Line and Dickson Road Extension.

Hello Dustin Lyttle.

It was nice talking with you this afternoon. I look forward to be receiving updates on the progress happening with this Project and it's commencement.

Please see our e-mail and contact information to forward any updates or notifications.

Regards,

Donna Madore and Gordon Lunn

gordonlunn@bellnet.ca

519-831-6376

--
This email has been checked for viruses by AVG.
https://www.avg.com

Student

From: Dustin Lyttle
Sent: July 15, 2021 3:00 PM
To: Shari Page
Subject: FW: Development on First Line near dog park pond.....
Attachments: Fergus Dog Park Berm Proposal.pdf; ATT00001.htm

For the M6468C file.

From: Lee Wheildon <LWheildon@centrewellington.ca>
Sent: July 15, 2021 2:35 PM
To: Brett Salmon <BSalmon@centrewellington.ca>; Colin Baker <CBaker@centrewellington.ca>
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: FW: Development on First Line near dog park pond.....

Brett/Colin,

I am not sure whether either of you received this email from earlier today, but it ended up in my spam filter and I had to release it from TrendMicro through IT.

Regardless, I spoke with Kelsye a few weeks back and she had expressed the request for a berm to be installed around the existing pond (wetland) on the proposed Dickson Drive Development Lands. I asked her to put her request in an email to confirm the proposal/request for consideration.

I do not know how the GRCA will feel about this, as it would be directly adjacent to the wetland (within their regulation limit), and this pond is not on the dog park lands whatsoever (although apparently used quite frequently by the dog park users as it appears there are paths around the pond and adjacent property). It looks as though any users would potentially be trespassing to get to this area.

I wanted to get your thoughts on this prior to providing any response back to Kelsye. I suspect providing this information to the GRCA for comment would be warranted to confirm their requirements as well. I have included Dustin on this email as well to ensure he is aware of the Centre Wellington Dog Park Committees request for consideration.

Regards,

Lee Wheildon C.E.T.,rcca | Engineering Technologist - Development

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: Kelsye Coulter [mailto:kelsye.coulter@icloud.com]
Sent: July 15, 2021 10:40 AM
To: Colin Baker <CBaker@centrewellington.ca>
Cc: Karen Hurson <karenhurson@gmail.com>; Brett Salmon <BSalmon@centrewellington.ca>; Lee Wheildon <LWheildon@centrewellington.ca>
Subject: Possible SPAMRe: development on First Line near dog park pond.....

Hi Colin, Brett and Lee,

Regarding the industrial development on the First Line, I'm attaching a diagram of how the Centre Wellington Dog Park Committee imagines how the development might be approached around the dog park pond. We would like to submit this as a proposal and look forward to feedback from any of you.

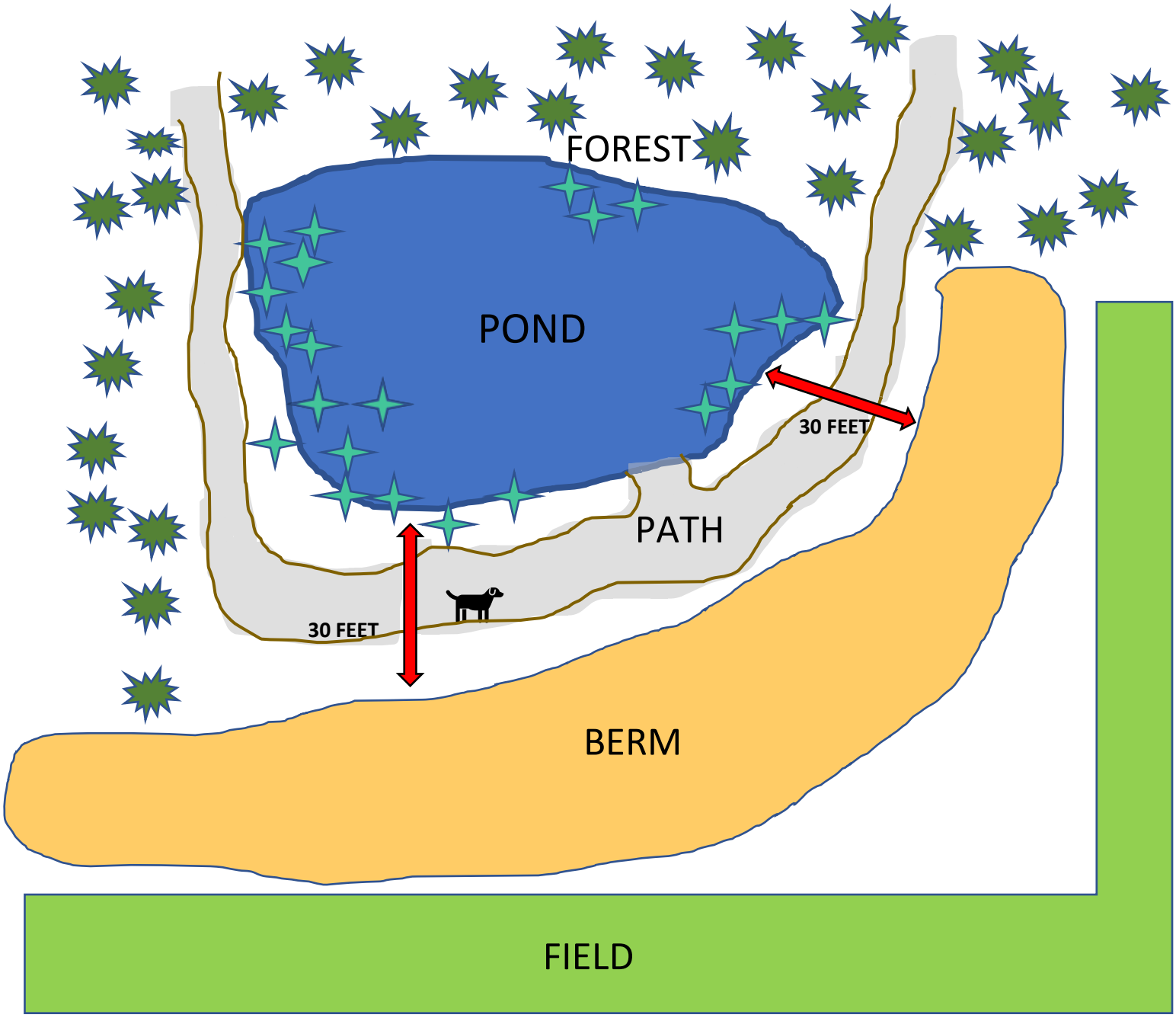
Thanks for your consideration!

_____

Kelsye
kelsye.coulter@icloud.com

Disclaimer: 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. If you are not the intended recipient or authorized agent thereof, you are hereby notified that any review, retransmission, 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 the sender by return e-mail and delete or destroy all copies of this message. Warning: Although the Township of Centre Wellington has taken reasonable precautions to ensure no viruses are present in this email, the company cannot accept responsibility for any loss or damage arising from the use of this email or attachments.

Fergus Dog Park Fencing/Berm Proposal



Proposal: This is a diagram showing how the Centre Wellington Dog Park Committee imagines a high berm, planted with native evergreens, being built behind our beloved pond that will protect our dogs from the newly planned industrial park.

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: June 28, 2021 6:29 PM
To: Dustin Lyttle
Cc: Lee Wheildon; Shari Page
Subject: Re: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Thanks Dustin

Kind Regards,

Tanya j. Hill-Montour Hons. BA
SNGREC Archaeology Supervisor
c.226.388.0665
e. tanyahill-montour@sixnations.ca

On Jun 28, 2021, at 11:50 AM, Dustin Lyttle <dlyttle@tritoneng.on.ca> wrote:

Hi Tanya,

I apologize, I need to clarify.

There is an Archeological Assessment that is going to be completed, however it has not started yet. Once this is completed it will be included in the project file.

Thanks,
Dustin C. Lyttle, P. Eng.

<image001.jpg>
Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • Fax - (519) 843-1943
• www.tritoneng.on.ca

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---

From: Dustin Lyttle
Sent: June 28, 2021 9:17 AM
To: Tanya j. Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Lee Wheildon <LWheildon@centrewellington.ca>; Shari Page <spage@tritoneng.on.ca>
Subject: RE: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Good morning Tanya,

Thank you for responding to our Notice of Commencement.

We are not aware of any outstanding archeological assessments pertaining to the project site.

If you have any other questions or concerns, please do not hesitate to contact me.

Thanks again,

Dustin C. Lyttle, P. Eng.

<image001.jpg>
Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • Fax - (519) 843-1943
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From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Sunday, June 27, 2021 8:45 AM
To: Shari Page <spage@tritoneng.on.ca>
Subject: Re: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Good Morning Shari,

We have interest in the project , is there any outstanding archaeological assessment pertaining to the project?

Kind Regards,

Tanya j. Hill-Montour B.A Hons.
Six Nations of the Grand River - Archaeology Supervisor.
c.226.388.0665
t.519.754.0665
e. tanyahill-montour@sixnations.ca

> On Jun 21, 2021, at 3:56 PM, Shari Page <spage@tritoneng.on.ca> wrote:
>
> Good afternoon,

On behalf of the Township of Centre Wellington, please find attached, the *NOTICE OF COMMENCEMENT, Municipal Class Environmental Assessment, Schedule B, for the Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus, Ontario*.

This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, June 24th and July 1st, 2021.

Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Shari Page

<image001.jpg>
Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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<Six Nations (Hill-Montour-Archaeological) -Notice of Commencement.pdf>

Student

From: Consultations <Consultations@metisnation.org>
Sent: June 21, 2021 3:16 PM
To: Shari Page
Subject: Automatic reply: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

This is an automatically generated response from consultations@metisnation.org. Please do no reply to this e-mail address.

The MNO is adjusting standard work practices due to the Covid-19 outbreak and to better enable staff to work remotely. **Please note that the MNO's Lands, Resources and Consultations (LRC) Branch will no longer review hard copy consultation notices mailed to MNO offices.** The LRC Branch will review all electronic notices and process them in accordance with our standard operating procedures. All consultation notices must be sent electronically to consultations@metisnation.org.

The Métis Nation of Ontario's LRC Branch acknowledges your information notice. The MNO reserves the right to request additional information, meetings and consultations in respect of the project should the MNO deem it to be necessary.

For additional information pertaining to consulting with Ontario Métis please visit the MNO web site at: http://www.metisnation.org/programs/lands,-resources--consultations/duty-to-consult.

Student

From: Aldo Salis <aldos@wellington.ca>
Sent: June 28, 2021 12:29 PM
To: Shari Page
Cc: Don Kudo; Meagan Ferris
Subject: RE: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Shari,

Thank you for circulating the Notice of Commencement and related information. At this time, the office has no comments or concerns.

Please continue to inform us of this project as it progresses (email is adequate).

Thanks again,

Aldo L. Salis, BES, M.Sc. MCIP, RPP
Director of Planning and Development
County of Wellington
74 Woolwich Street
Guelph, ON N1H 3T9
519.837.2600 x 2100
www.wellington.ca

From: Shari Page <spage@tritoneng.on.ca>
Sent: June 21, 2021 12:12 PM
To: Aldo Salis <aldos@wellington.ca>
Subject: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you know the contents to be safe.

Good afternoon,

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Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Student

From: Dustin Lyttle
Sent: June 23, 2021 10:52 AM
To: Shari Page
Subject: FW: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Attachments: OMAFRA -Notice of Commencement.pdf

Importance: High

FYI.

Thanks,

Dustin Lyttle
519-362-7649

From: Kelloway, Natalie @ CBRE GCS Canada <Natalie.Kelloway@cbre.com>
Sent: June 23, 2021 9:31 AM
To: lwheildon@centrewellington.ca; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Cc: Armstrong, Tammy (OMAFRA) <Tammy.Armstrong@ontario.ca>; Buckley, Lorraine (OMAFRA) (Lorraine.Buckley@ontario.ca) <Lorraine.Buckley@ontario.ca>
Subject: FW: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

Good morning Lee and Dustin,

Please add me to the contact list to receive communications on this project.

Thank you in advance.
Regards,

Natalie Kelloway | Facility Manager
CBRE Limited I Global Workplace Solutions
IO Property and Land Management Services
1 Stone Road West
Guelph ON N1G 4Y2
C 226 203 0183

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From: Shari Page <spage@tritoneng.on.ca>
Sent: June 21, 2021 4:07 PM
To: Armstrong, Tammy (OMAFRA) <Tammy.Armstrong@ontario.ca>
Subject: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

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Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Shari Page

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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Student

From: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>
Sent: June 21, 2021 11:29 AM
To: Shari Page
Cc: Del Villar Cuicas, Joan (MECP)
Subject: FW: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Attachments: Instructions for Providing Class EA Notices to the Ministry of the Environment Conservation and Parks.pdf

Importance: High

Thank you for your email.

As of May 1, 2018, the MECP has a new mandatory notification procedure for providing Class EA notices to the MECP. Per our notification procedures: Notices of Commencement, Completion, Addendum and Statements of Completion when applicable are required to be sent to the appropriate MECP regional email address, and other notices such as notices of public information centres can either be sent to the regional email address or directly to the Regional Environmental Assessment Coordinator who is assigned to your project. Please review the attached document and re-submit your notice to the appropriate MECP Regional Email address. Instructions on how to determine the appropriate email address are included in the document.

Thank you,

Mark Badali (he/him)
Environmental Resource Planner & EA Coordinator – Southwest Region
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Mark.Badali1@ontario.ca | (416) 457-2155

From: Shari Page <spage@tritoneng.on.ca>
Sent: June 21, 2021 11:13 AM
To: Badali, Mark (MECP) <Mark.Badali1@ontario.ca>
Subject: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

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Good morning,

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This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, June 24th and July 1st, 2021.

Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Shari Page



Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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Student

From: EA Notices to WCRegion (MECP) <eanotification.wcregion@ontario.ca>
Sent: June 24, 2021 11:31 AM
To: Shari Page
Subject: RE: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Attachments: Instructions for Providing Class EA Notices to the Ministry of the Environment, Conservation and Parks.pdf

Hello Shari,

Thanks for circulating this Notice of Commencement. Could you please submit the information project form as well?
I have attached some instructions for your reference.

Thank you,

Joan

Joan Del Villar Cuicas
Environmental Resource Planner & Environmental Assessment Coordinator
Project Review Unit | Environmental Assessment Branch
Ontario Ministry of the Environment, Conservation and Parks
Joan.delvillarcuicas@ontario.ca | Phone: 365-889-1180

From: Shari Page <spage@tritoneng.on.ca>
Sent: June 21, 2021 12:06 PM
To: EA Notices to WCRegion (MECP) <eanotification.wcregion@ontario.ca>
Subject: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached, the *NOTICE OF COMMENCEMENT, Municipal Class Environmental Assessment, Schedule B, for the Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus, Ontario*.

This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, June 24th and July 1st, 2021.

Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Ministry of the Environment, Conservation and Parks

Environmental Assessment Branch

1st Floor
135 St. Clair Avenue W
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax.: 416 314-8452

Ministère de l'Environnement, de la Protection de la nature et des Parcs

Direction des évaluations environnementales

Rez-de-chaussée
135, avenue St. Clair Ouest
Toronto ON M4V 1P5
Tél. : 416 314-8001
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Ontario

July 20, 2021

Lee Wheildon
Township of Centre of Wellington

Dustin Lyttle
Triton Engineering Services Limited

Re: **Dickson Drive Extension, Fergus, Ontario**
Schedule B Municipal Class Environmental Assessment
Response to Notice of Commencement

Dear Lee Wheildon and Dustin Lyttle,

This letter is in response to the Notice of Commencement for the above noted project. The Ministry of the Environment, Conservation and Parks (MECP) acknowledges that the Township of Centre of Wellington 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 **updated (February 2021)** attached "Areas of Interest" document provides guidance regarding the ministry's interests with respect to the Class EA process. Please address all areas of interest in the EA documentation at an appropriate level for the EA study. Proponents who address all the applicable areas of interest can minimize potential delays to the project schedule. **Further information is provided at the end of the Areas of Interest document relating to recent changes to the Environmental Assessment Act through Bill 197, Covid-19 Economic Recovery Act 2020.**

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 MECP 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 proponent is required to consult with the following communities who have been identified as potentially affected by the proposed project:

- Mississaugas of the Credit First Nation
- Six Nations of the Grand River (both Elected Council and Haudenosaunee Confederacy Chiefs Council)

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". 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, including the MECP's expectations for EA report documentation related to consultation with communities.

The proponent must contact the Director of Environmental Assessment Branch (EABDirector@ontario.ca) under the following circumstances subsequent to initial discussions with the communities identified by MECP:

- Aboriginal or treaty rights impacts are identified to you by the communities
- You have reason to believe that your proposed project may adversely affect an Aboriginal or treaty right
- Consultation with Indigenous communities or other stakeholders has reached an impasse
- A Part II Order request is expected on the basis of impacts to Aboriginal or treaty rights

The MECP 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 you will be asked to play should additional steps and activities be required.

A draft copy of the report should be sent directly to me 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 ensure a copy of the final notice is sent to the ministry's West Central Region EA notification email account (eanotification.wcregion@ontario.ca) after the draft report is reviewed and finalized.

Should you or any members of your project team have any questions regarding the material above, please contact me at joan.delvillarcuicas@ontario.ca or 365-889-1189.

Yours truly,



Joan Del Villar C
Regional Environmental Planner – West Central Region

cc Katy Potter, Supervisor, Environmental Assessment Services, MECP

Attach: Areas of Interest
A Proponent's Introduction to the Delegation of Procedural Aspects of Consultation with Aboriginal Communities

AREAS OF INTEREST (v. February 2021)

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

☐ **Planning and Policy**

- Projects located in MECP Central Region are subject to **A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020).** Parts of the study area may also be subject to the Oak Ridges Moraine Conservation Plan (2017), Niagara Escarpment Plan (2017), Greenbelt Plan (2017) or Lake Simcoe Protection Plan (2014). Applicable plans and the applicable policies should be identified in the report, and the proponent should describe how the proposed project adheres to the relevant policies in these plans.

- The **Provincial Policy Statement (2020)** contains policies that protect Ontario's natural heritage and water resources. Applicable policies should be referenced in the report, and the proponent should describe how the proposed project is consistent with these policies.

- In addition to the provincial planning and policy level, the report should also discuss the planning context at the municipal and federal levels, as appropriate.

☐ **Source Water Protection**

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 that are subject to the Environmental Assessment Act that fall under a Class EA, or one of the Regulations, have the potential to impact sources of drinking water if they occur in designated vulnerable areas or in the vicinity of other at-risk drinking water systems (i.e. systems that are not municipal residential systems). MEA Class EA 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.

- 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, please include a section in the report on source water protection.**

    - The proponent should identify the source protection area and 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. Specifically, the report should discuss whether or not the project is located in a vulnerable area and provide applicable details about the area.

- If located in a vulnerable area, proponents should document whether any project activities are prescribed drinking water threats and thus pose a risk to drinking water (this should be consulted on with the appropriate Source Protection Authority). Where an activity poses a risk to drinking water, the proponent must document and discuss in the report how the project adheres to or has regard to applicable policies in the local source protection plan. This section should then be used to inform and be reflected in other sections of the report, such as the identification of net positive/negative effects of alternatives, mitigation measures, evaluation of alternatives etc.

- 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. Note that various layers (including WHPAs, WHPA-Q1 and WHPA-Q2, IPZs, HVAs, SGRAs, EBAs, ICAs) can be turned on through the "Map Legend" bar on the left. 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 must contact the appropriate source protection authority. **Please consult with the local source protection authority to discuss potential impacts on drinking water. Please document the results of that consultation within the report and include all communication documents/correspondence.**

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 MECP.

Climate Change

The document "Considering Climate Change in the Environmental Assessment Process" (Guide) is now a part of the Environmental Assessment program's Guides and Codes of Practice. The Guide sets out the MECP's expectation for considering climate change in the preparation, execution and documentation of environmental assessment studies and processes. The guide provides examples, approaches, resources, and references to assist proponents with consideration of climate change in EA. Proponents should review this Guide in detail.

- **The MECP expects proponents of Class EA projects to:**

1. Consider during the assessment of alternative solutions and alternative designs, the following:
    a. the project's expected production of greenhouse gas emissions and impacts on carbon sinks (climate change mitigation); and
    b. resilience or vulnerability of the undertaking to changing climatic conditions (climate change adaptation).
2. Include a discrete section in the report detailing how climate change was considered in the EA.

How climate change is considered can be qualitative or quantitative in nature and should be scaled to the project's level of environmental effect. In all instances, both a project's impacts on climate change (mitigation) and impacts of climate change on a project (adaptation) should be considered.

- The MECP has also prepared another guide to support provincial land use planning direction related to the completion of energy and emission plans. The "Community Emissions Reduction Planning: A Guide for Municipalities" document is designed to educate stakeholders on the municipal opportunities to reduce energy and greenhouse gas emissions, and to provide guidance on methods and techniques to incorporate consideration of energy and greenhouse gas emissions into municipal activities of all types. We encourage you to review the Guide for information.

Air Quality, Dust and Noise

- If there are sensitive receptors in the surrounding area of this project, a quantitative 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 for further consultation on the level of Air Quality Impact Assessment required for this project if not already advised.**

- If a quantitative Air Quality Impact Assessment is not required for the project, the MECP expects that the report contain a qualitative assessment which includes:

    - A discussion of local air quality including existing activities/sources that significantly impact local air quality and how the project may impact existing conditions;
    - A discussion of the nearby sensitive receptors and the project's potential air quality impacts on present and future sensitive receptors;
    - A discussion of local air quality impacts that could arise from this project during both construction and operation; and
    - A discussion of 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 MECP recommends that non-chloride dust-suppressants be applied. For a comprehensive list of fugitive dust prevention and control measures that could be applied, refer to *Cheminfo Services Inc. Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities* report prepared for Environment Canada. March 2005.

- The report 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 report should describe any proposed mitigation measures and how project planning will protect and enhance the local ecosystem.

- Natural heritage and hydrologic 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:

- Key Natural Heritage Features: Habitat of endangered species and threatened species, fish habitat, wetlands, areas of natural and scientific interest (ANSIs), significant valleylands, significant woodlands; significant wildlife habitat (including habitat of special concern species); sand barrens, savannahs, and tallgrass prairies; and alvars.
- Key Hydrologic Features: Permanent streams, intermittent streams, inland lakes and their littoral zones, seepage areas and springs, and wetlands.
- Other natural heritage features and areas such as: vegetation communities, rare species of flora or fauna, Environmentally Sensitive Areas, Environmentally Sensitive Policy Areas, federal and provincial parks and conservation reserves, Greenland systems etc.

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.

Species at Risk

- The Ministry of the Environment, Conservation and Parks has now assumed responsibility of Ontario's Species at Risk program. Information, standards, guidelines, reference materials and technical resources to assist you are found at https://www.ontario.ca/page/species-risk.

- The Client's Guide to Preliminary Screening for Species at Risk (Draft May 2019) has been attached to the covering email for your reference and use. Please review this document for next steps.

- For any questions related to subsequent permit requirements, please contact SAROntario@ontario.ca.

Surface Water

- The report must include enough 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 report 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 report 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 report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, except for certain water taking activities that 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. Please review the Water Taking User Guide for EASR for more information. Additionally, an Environmental Compliance Approval under the OWRA is required for municipal stormwater management works.

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 report.

- If the potential construction or decommissioning of water wells is identified as an issue, the report 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 report. A Permit to Take Water (PTTW) under the OWRA will be required for any water takings that exceed 50,000 L/day, with the exception of certain water taking activities that 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. Please review the Water Taking User Guide for EASR for more information.

- Consultation with the railroad authorities is necessary wherever there is a plan to use construction dewatering in the vicinity of railroad lines or where the zone of influence of the construction dewatering potentially intercepts railroad lines.

Excess Materials Management

- In December 2019, MECP released a new regulation under the Environmental Protection Act, titled "On-Site and Excess Soil Management" (O. Reg. 406/19) to support improved management of excess construction soil. This regulation is a key step to support proper management of excess soils, ensuring valuable resources don't go to waste and to provide clear rules on managing and reusing excess soil. New risk-based standards referenced by this regulation help to facilitate local beneficial reuse which in turn will reduce greenhouse gas emissions from soil transportation, while ensuring strong protection of human health and the environment. The new regulation is being phased in over time, with the first phase in effect on January 1, 2021. For more information, please visit https://www.ontario.ca/page/handling-excess-soil.

- The report should reference that activities involving the management of excess soil should be completed in accordance with O. Reg. 406/19 and the MECP's current guidance document titled "Management of Excess Soil – A Guide for Best Management Practices" (2014).

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

Contaminated Sites

- Any current or historical waste disposal sites should be identified in the report. 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. We recommend referring to the MECP's D-4 guideline for land use considerations near landfills and dumps.
    - Resources available may include regional/local municipal official plans and data; provincial data on large landfill sites and small landfill sites; Environmental Compliance Approval information for waste disposal sites on Access Environment.

- Other known contaminated sites (local, provincial, federal) in the study area should also be identified in the report (Note – information on federal contaminated sites is found on the Government of Canada's website).

- The location of any underground storage tanks should be investigated in the report. 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.

- 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 appropriate MECP District Office for further consultation if contaminated sites are present.

Servicing, Utilities and Facilities

- The report should identify any above or underground utilities in the study area such as transmission lines, telephone/internet, oil/gas etc. The owners should be consulted to discuss impacts to this infrastructure, including potential spills.

- The report should identify any servicing infrastructure in the study area such as wastewater, water, stormwater that may potentially be impacted by the project.

- 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 MECP's Environmental Permissions Branch to determine whether a new or amended ECA will be required for any proposed infrastructure.

- We recommend referring to the ministry's environmental land use planning guides 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 report 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 report, as outlined in Section A.2.5 and A.4.1 of the MEA Class EA parent document.

Consultation

- The report 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 report that identifies concerns that were raised and **describes how they have been addressed by the proponent** throughout the planning process. The report should also include copies of comments submitted on the project by interested stakeholders, and the proponent's responses to these comments (as directed by the Class EA to include full documentation).

- Please include the full stakeholder distribution/consultation list in the documentation.

Class EA Process

- 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**, 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, although the plan itself would not be. **Please include a description of the approach being undertaken (use Appendix 4 as a reference).**

- If this project is a Master Plan: Any identified projects should also include information on the MCEA schedule associated with the project.

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

- The Class EA requires the consideration of the effects of each alternative on all aspects of the environment (including planning, natural, social, cultural, economic, technical). The report should include a level of detail (e.g. hydrogeological investigations, terrestrial and aquatic assessments, cultural heritage 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 report.

- Please include in the report a list of all subsequent permits or approvals that may be required for the implementation of the preferred alternative, including but not limited to, MECP's PTTW, EASR Registrations and ECAs, conservation authority permits, species at risk permits, MTO permits and approvals under the *Impact Assessment Act*, 2019.

- 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 report.

Amendments to the EAA through the Covid-19 Economic Recovery Act, 2020

Once the EA Report is finalized, the proponent must issue a Notice of Completion providing a minimum 30-day period during which documentation may be reviewed and comment and input can be submitted to the proponent. The Notice of Completion must be sent to the appropriate MECP Regional Office email address (for projects in MECP Southwest Region, the email is eanotification.swregion@ontario.ca).

The public has the ability to request a higher level of assessment on a project if they are concerned about potential adverse impacts to constitutionally protected Aboriginal and treaty rights. In addition, the Minister may issue an order on his or her own initiative within a specified time period. The Director (of the Environmental Assessment Branch) will issue a Notice of Proposed Order to the proponent if the Minister is considering an order for the project within 30 days after the conclusion of the comment period on the Notice of Completion. At this time, the Director may request additional information from the proponent. Once the requested information has been received, the Minister will have 30 days within which to make a decision or impose conditions on your project.

Therefore, the proponent cannot proceed with the project until at least 30 days after the end of the comment period provided for in the Notice of Completion. Further, the proponent may not proceed after this time if:

- a Part II Order request has been submitted to the ministry regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, or
- the Director has issued a Notice of Proposed order regarding the project.

Please ensure that the Notice of Completion advises that outstanding concerns are to be directed to the proponent for a response, and that in the event there are outstanding concerns regarding potential adverse impacts to constitutionally protected Aboriginal and treaty rights, Part II Order requests on those matters should be addressed in writing to:

Minister Jeff Yurek
Ministry of Environment, Conservation and Parks
777 Bay Street, 5th Floor
Toronto ON M7A 2J3
minister.mecp@ontario.ca

and

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto ON, M4V 1P5
EABDirector@ontario.ca

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 documentation;
- clearly articulating the potential impacts of the proposed project on Aboriginal or treaty rights; and
- discussing ways to mitigates 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.

Student

From: MNRF Ayl Planners (MNRF) <MNRF.Ayl.Planners@ontario.ca>
Sent: July 8, 2021 9:29 AM
To: Shari Page
Subject: RE: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Attachments: image001.emz; NHGuide_MNRF_2019-04-01.pdf

Ontario

Ministry of Northern Development, Mines, Natural Resources and Forestry | **Ministère du Développement du Nord, des Mines, des Richesses naturelles et des Forêts**

July 8, 2021

Subject: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

The Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) received the notice for the Dickson Drive Extension in Fergus project. Thank you for circulating this information to our office, however, please note that we have not completed a screening of natural heritage or other resource values for the project at this time. Please also note that it is your responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals.

This response provides information to guide you in identifying and assessing natural features and resources as required by applicable policies and legislation, and engaging with the Ministry for advice as needed.

Natural Heritage & Endangered Species Act

In order to provide the most efficient service possible, the attached Natural Heritage Information Request Guide has been developed to assist you with accessing natural heritage data and values from convenient online sources.

It remains the proponent's responsibility to complete a preliminary screening for each project, to obtain available information from multiple sources, to conduct any necessary field studies, and to consider any potential environmental impacts that may result from an activity. We wish to emphasize the need for the proponents of development activities to complete screenings prior to contacting the Ministry or other agencies for more detailed technical information and advice.

The Ministry continues to work on updating data housed by Land Information Ontario and the Natural Heritage Information Centre, and ensuring this information is accessible through online resources. Species at risk data is regularly being updated. To ensure access to reliable and up to date

information, please contact the Ministry of the Environment, Conservation and Parks at SAROntario@ontario.ca.

Petroleum Wells & Oil, Gas and Salt Resource Act

There may be petroleum wells within the proposed project area. Please consult the Ontario Oil, Gas and Salt Resources Library website (www.ogsrlibrary.com) for the best known data on any wells recorded by NDMNRF. Please reference the 'Definitions and Terminology Guide' listed in the publications on the Library website in order to better understand the well information available. Any oil and gas wells in your project area are regulated by the *Oil, Gas and Salt Resource Act*, and the supporting regulations and operating standards. If any unanticipated wells are encountered during development of the project, or if the proponent has questions regarding petroleum operations, the proponent should contact the Petroleum Operations Section at POSRecords@ontario.ca or 519-873-4634.

Public Lands Act & Lakes and Rivers Improvement Act

Some projects may be subject to the provisions of the *Public Lands Act* or the *Lakes and Rivers Improvement Act*. Please review the information on NDMNRF's web pages provided below regarding when an approval is required or not. Please note that many of the authorizations issued under the *Lakes and Rivers Improvement Act* are administered by the local Conservation Authority.

- For more information about the *Public Lands Act*: https://www.ontario.ca/page/crown-land-work-permits
- For more information about the *Lakes and Rivers Improvement Act*: https://www.ontario.ca/document/lakes-and-rivers-improvement-act-administrative-guide

After reviewing the information provided, if you have not identified any of NDMNRF's interests stated above, there is no need to circulate any subsequent notices to our office.

If you have any questions or concerns, please feel free to contact me.

Sincerely,
Karina

Karina Černiavskaja | District Planner
Ministry of Northern Development, Mines, Natural Resources and Forestry
Email: MNRF.Ayl.Planners@ontario.ca

Ontario

As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

From: Verhaeghe, Tammy (MNRF) <Tammy.Verhaeghe@ontario.ca>
Sent: June-21-21 3:01 PM
To: Shari Page <spage@tritoneng.on.ca>

Cc: Thornton, Ian (MNRF) <ian.thornton@ontario.ca>
Subject: RE: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Hi Shari,

Thanks for the email.

I wanted to reach out to let you know that I am on assignment elsewhere in the ministry at this time. I did want to make sure that you're email was received by the right folks. By way of this email, I'll connect you with Ian Thornton the Resources Operations Supervisor in Guelph District.

Best,

Tammy

a/Renewal Planning Manager, Recovery and Renewal Secretariat
[Phone: 519.994.4922]

Visit the MNRF Recovery and Renewal Intranet Site!

Please Note: As part of providing accessible customer service, please let me know if you have any accommodation needs or require communication supports or alternate formats.

From: Shari Page <spage@tritoneng.on.ca>
Sent: June 21, 2021 12:22 PM
To: Verhaeghe, Tammy (MNRF) <Tammy.Verhaeghe@ontario.ca>
Subject: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached, the *NOTICE OF COMMENCEMENT, Municipal Class Environmental Assessment, Schedule B, for the Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus, Ontario*.

This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, June 24th and July 1st, 2021.

Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Shari Page

Ministry of Heritage, Sport, Tourism and Culture Industries

Programs and Services Branch
401 Bay Street, Suite 1700
Toronto, ON M7A 0A7
Tel: 613.242.3743

Ministère des Industries du Patrimoine, du Sport, du Tourisme et de la Culture

Direction des programmes et des services
401, rue Bay, Bureau 1700
Toronto, ON M7A 0A7
Tél: 613.242.3743

Ontario

July 9, 2021 EMAIL ONLY

Dustin Lyttle, P. Eng.
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
dlyttle@tritoneng.on.ca

MHSTCI File	**:**	**0014531**
Proponent	**:**	**Township of Centre Wellington**
Subject	**:**	**Notice of Project Commencement**
Project	**:**	**Dickson Drive Extension**
Location	**:**	**Township of Centre Wellington**

Dear Dustin Lyttle:

Thank you for providing the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) with the Notice of Commencement for the above-referenced project. MHSTCI's interest in this Environmental Assessment (EA) project relates to its mandate of conserving Ontario's cultural heritage.

Under the EA process, the proponent is required to determine a project's potential impact on cultural heritage resources.

Project Summary
The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The Township is initiating a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015 and 2021).

Identifying Cultural Heritage Resources
While some cultural heritage resources may have already been formally identified, others may be identified through screening and evaluation. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous 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.

Cultural heritage resources are often of critical importance to Indigenous communities. Indigenous communities may have knowledge that can contribute to the identification of cultural heritage resources, and we suggest that any engagement with Indigenous communities includes a discussion about known or potential cultural heritage resources that are of value to them.

Archaeological Resources
This EA project may impact archaeological resources and should be screened using the MHSTCI *Criteria for Evaluating Archaeological Potential* to determine if an archaeological assessment is needed. MHSTCI archaeological sites data are available at *archaeology@ontario.ca*. If the 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 MHSTCI for review.

Built Heritage Resources and Cultural Heritage Landscapes
A Cultural Heritage Report: Existing Conditions and Preliminary Impact Assessment will be undertaken for the entire study area during the planning phase and will be summarized in the EA Report. This study will:

1. Describe the existing baseline cultural heritage conditions within the study area by identifying all known or potential built heritage resources and cultural heritage landscapes, including a historical summary of the study area. MHSTCI has developed screening criteria that may assist with this exercise: *Criteria for Evaluating for Potential Built Heritage Resources and Cultural Heritage Landscapes*.

2. Identify preliminary potential project-specific impacts on the known and potential built heritage resources and cultural heritage landscapes that have been identified. The report should include a description of the anticipated impact to each known or potential built heritage resource or cultural heritage landscape that has been identified.

3. Recommend measures to avoid or mitigate potential negative impacts to known or potential built heritage resources and cultural heritage landscapes. The proposed mitigation measures are to inform the next steps of project planning and design.

Given that this project covers a large study area, MHSTCI recommends that the Cultural Heritage Report is carried out so that step 1 described above is undertaken early in the planning process. Then, steps 2 and 3 can be undertaken once the preferred alternatives have been selected.

Environmental Assessment Reporting
All technical cultural heritage studies and their recommendations are to be addressed and incorporated into EA projects. Please advise MHSTCI whether any technical cultural heritage studies will be completed for this EA project, and provide them to MHSTCI before issuing a Notice of Completion or commencing any work on the site. If 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 MHSTCI on this project and please continue to do so throughout the EA process. If you have any questions or require clarification, do not hesitate to contact me.

Sincerely,

Joseph Harvey
Heritage Planner
joseph.harvey@Ontario.ca

Copied to: Shari Page, Triton Engineering Services Ltd.
Lee Wheildon, Township of Centre Wellington

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. MHSTCI 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 MHSTCI 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 MHSTCI 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 Registrar, Burials of the Ministry of Government and Consumer Services (416-326-8800) must be contacted. In situations where human remains are associated with archaeological resources, MHSTCI 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*.

Section 2

Municipal Development of Elora/Fergus – Business Case

Township of Centre Wellington

Municipal Development of Elora/Fergus Employment Areas - Business Case

Final Report

April 25, 2018

Plaza Three
101–2000 Argentia Rd.
Mississauga, Ontario
Canada L5N 1V9

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e-mail: info@watson-econ.ca

www.watson-econ.ca

Planning for growth

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List of Acronyms and Abbreviations

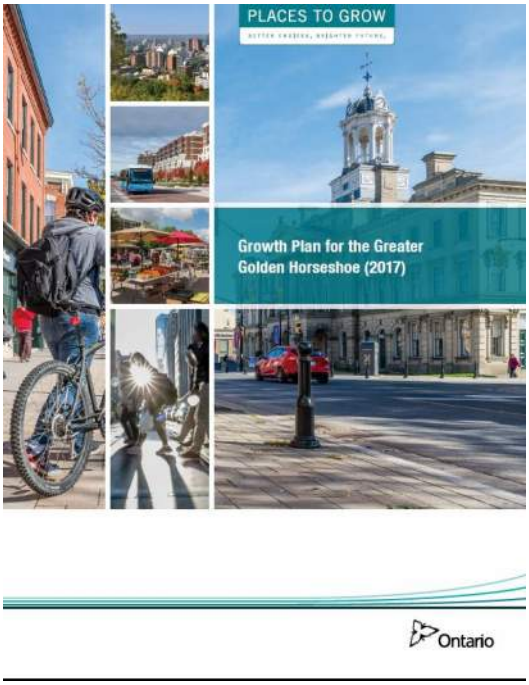
DC	Development charge
DCA	Development Charges Act, 1997 (as amended)
FIR	Financial Information Return
FSI	Floor space index
GDP	Gross Domestic Product
GFA	Gross Floor Area
GGH	Greater Golden Horseshoe
GMS	Growth Management Strategy
GTHA	Greater Toronto and Hamilton Area
ha	Hectare
LQ	Location Quotient
NFPOW	No fixed place of work
OMAFRA	Ontario Ministry of Food and Rural Affairs
OP	Official Plan
OPA	Official Plan Amendment
PSTS	Professional, scientific and technical services
sq.ft.	Square foot
sq.m	Square metre
TPIA	Toronto Pearson International Airport
U.S.	United States

1. Introduction

1.1 Terms of Reference

The Township of Centre Wellington retained Watson & Associates Economists Ltd. (Watson) in 2017 to undertake a business case analysis which explores the feasibility of industrial land development in Fergus and Elora. This analysis has been provided within the context of anticipated long-term demand for industrial development within the Township of Centre Wellington and the broader regional market area. The market assessment provided herein also addresses the competitive position of Centre Wellington relative to the surrounding market area in terms of the overall cost of non-residential development.

1.2 Provincial Planning and Growth Context



There have been considerable changes since 2005 in the provincial policies that guide planning in Central Ontario, with the Province taking a stronger role in managing growth and mandating a fundamental shift in focus, which places a priority on the intensification of existing developed areas over greenfield development. This change in focus is reflected in the Growth Plan for the Greater Golden Horseshoe (the Growth Plan), which was released on June 16, 2006.

Wellington County and the Township of Centre Wellington are located within the jurisdiction of the Growth Plan in the northwest region of the Greater Golden Horseshoe (GGH). The Growth Plan is intended to "guide decisions on a wide range of issues – transportation, infrastructure planning, land-use planning, urban form, housing, natural heritage and resource protection – in the interest of promoting economic prosperity" (section 1.1).[1]

[1] Places to Grow, Better Choices, Brighter Future, Growth Plan for the Greater Golden Horseshoe, 2006. Office Consolidation. Ministry of Infrastructure.

In June 2013, the Ministry of Infrastructure released Amendment No. 2 to update and extend the Growth Plan population and employment forecasts to 2041 and revise the interim forecasts (i.e. 2031B). In the spring of last year, the Province released the 2017 Growth Plan, under the *Places to Grow Act, 2005.* In effect since July 1, 2017, the Growth Plan provides new targets with respect to residential intensification and greenfield density; however, the 2031 and 2041 population and employment targets for Wellington County remain unchanged.

As set out in Schedule 3 of the 2017 Growth Plan, Wellington County's population and its employment base are forecast to reach 122,000 and 54,000, respectively, by 2031 (2031B).[1] By 2041, Wellington County's population and its employment base are forecast to reach 140,000 and 61,000, respectively.

1.3 Wellington County Growth Context

In response to Growth Plan Amendment No. 2, Wellington County retained Watson & Associates Economists Ltd. (Watson) in January 2014 to undertake an update to the County's 2008 Population, Household and Employment Forecast Study.[1] The revised 2031, 2036 and 2041 population, household and employment forecasts are summarized in Part 3 the Wellington County Official Plan.[2] The County-wide growth forecast and allocations to Centre Wellington are summarized below in Figure 1-1.

[1] Wellington County Population, Housing and Employment Forecast Update, 2006-2031. Final. April 24, 2008.
[2] As per Official Plan Amendment No. 99.

Figure 1-1
Wellington County Official Plan Population and Employment Forecast and Allocations to the Township of Centre Wellington, 2041

Year/Forecast Period	2016	2031	2036	2041	2016-2031	2016-2041
Wellington County						
Population	95,800	122,000	132,000	140,000	26200	44,200
Employment	40,100	54,000	57,000	61,000	13900	20,900
Centre Wellington						
Population *	29,900	43,300	48,500	52,300	13400	22,400
Employment *	12,000	19,000	20,100	22,800	7000	10,800
% Wellington County Population	31%	35%	37%	37%	51%	51%
% Wellington County Employment	30%	35%	35%	37%	50%	52%

Source: Wellington County Official Plan. May 6, 1999 (Last Revision September 1, 2016).

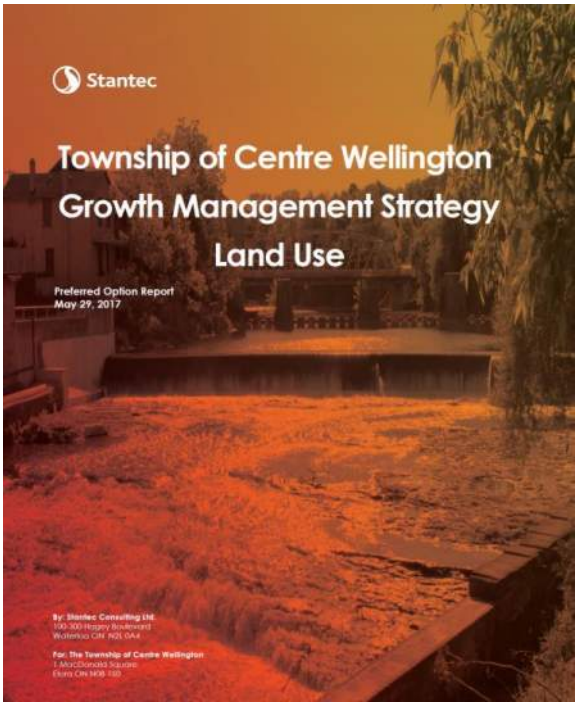
* 2031 population and employment figures derived from Wellington County 2031 Population, Household and Employment Forecast Update, 2011 to 2041., pg. E-2. Watson & Associates Economists Ltd. 2017

Relative to historical growth trends, the level of employment growth allocated to the Township of Centre Wellington is substantial. Between 2001 and 2016, the Township's employment base increased by approximately 3,000, from approximately 9,000 to 12,000 jobs. As identified in Figure 1-1, the Township's employment base is forecast to grow by an additional 11,000 jobs between 2016 and 2041. Of this total, approximately 35% jobs will need to be accommodated within the Township's existing, planned and future Employment Areas. Based on anticipated employment density trends, a total of 144 net ha (356 net acres) of employment land will be required between 2016 and 2031 to accommodate the Wellington County employment growth allocations to Centre Wellington. Employment land requirements are forecast to increase to approximately 215 ha (531 acres) between 2016 and 2041.[1]

1.4 Growth Management in Centre Wellington

The Township of Centre Wellington has engaged Stantec Consulting Ltd. to undertake the preparation of a Growth Management Strategy (GMS), to understand the implications of growth pressures on the Township and provide direction for future growth and infrastructure upgrading/extensions. Specifically, the strategy will identify growth areas, establish future development phasing, development growth-related policies which are coordinated on a Township basis, and provide direction for infrastructure improvements to serve growth areas.

[1] Employment land requirements represent estimations for the purpose of this business case analysis.



The GMS results from the recognition that it is not possible to develop in all growth areas at once. The timing and costs of growth-related services must be coordinated. In May 2016, a background report was completed introducing the project, the applicable policies that the GMS needed to address, and the intended outcome of the Strategy.[1] Subsequently, in March 2017, an Options and Approaches Report was released, which presented three Growth Options for allocating density across the Urban Centres in the Township. Feedback from the Community and Stakeholders with respect to these options was gathered prior to preparing a Final Report with a preferred direction, servicing analysis and final recommendations for Council's adoption.

1.5 Why is Planning for Employment Lands Development Important for the Township of Centre Wellington?

Employment lands (also known as industrial lands) typically include a broad range of designated lands, including light, medium and heavy industrial lands, business parks and rural industrial lands. Employment lands accommodate primarily export-based employment, including a wide range of industrial uses (e.g. manufacturing, distribution/ logistics, transportation services), as well as specific commercial and institutional uses (e.g. office, service, ancillary/accessory retail) which generally support the industrial/ business function of the Employment Areas. Employment Areas in the Township of Centre Wellington are comprised of lands designated Industrial and Future Employment Areas.[2]

Employment lands form a vital component of the Township's land-use structure and are an integral part of the local economic development potential of the Township and the County. Through development of its industrial land base, the Township is better positioned to build more balanced, complete and competitive communities.

[1] Township of Centre Wellington, Growth Management Plan. Background Report, May 20, 2016.
[2] Centre Wellington Township Official Plan, Consolidated January 2013. Schedule A-1.

Development typically accommodated on employment lands generates relatively strong economic multipliers (i.e. spin-off effects) that benefit the Township and surrounding area directly and indirectly. In addition, employment lands development typically generates high-quality employment opportunities which can improve local socio-economic conditions (i.e. live/work opportunities). Furthermore, achieving non-residential growth adds to the Township's assessment base, which can help support lower property taxes and stronger municipal service levels. Industrial land development also tends to produce more favourable net fiscal benefits when compared to other types of development (e.g. residential and retail). Thus, a healthy balance between residential and non-residential development is considered an important policy objective for the Township of Centre Wellington and Wellington County as a whole.

1.6 A Case of Municipal Employment Lands Development

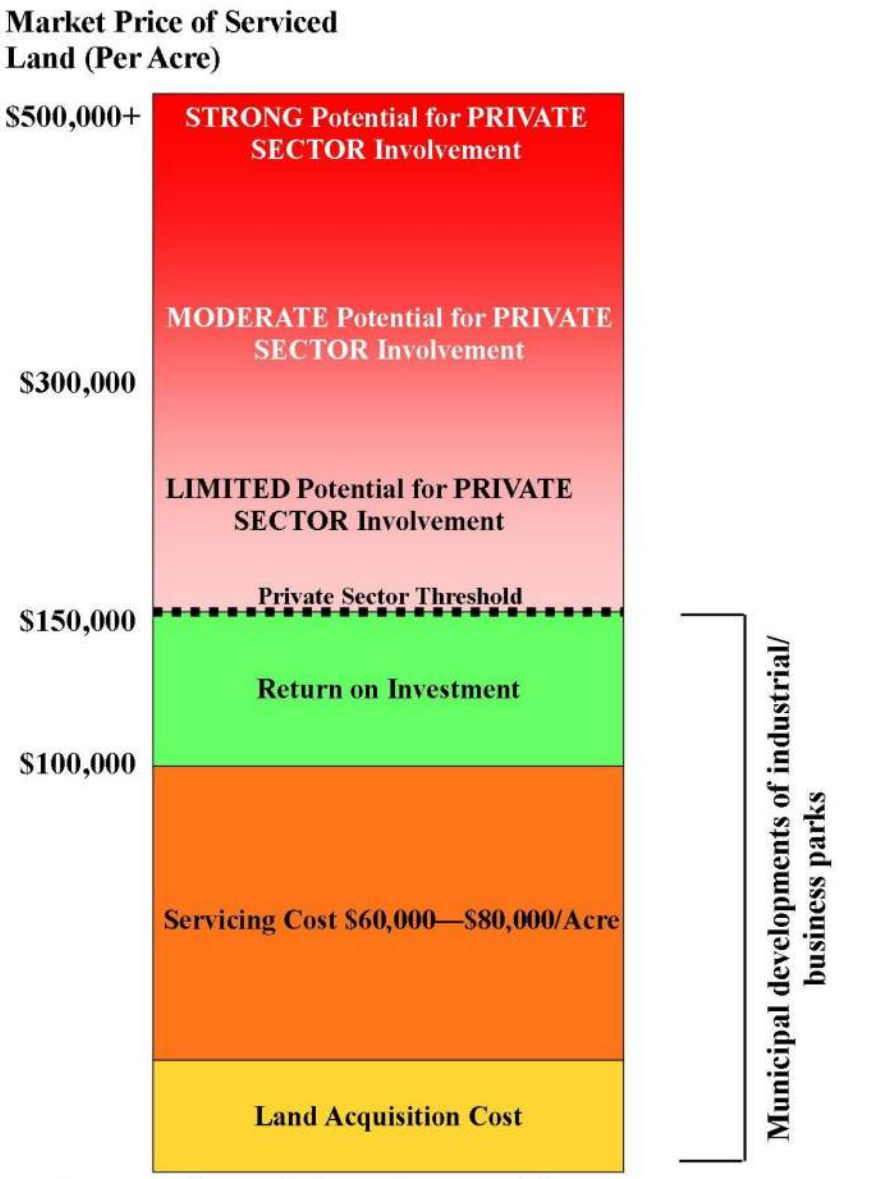
Within the larger urban municipalities of the Greater Toronto and Hamilton Area (GTHA) and the GGH Outer Ring,[1] most industrial/business parks are privately developed. Relatively low industrial land prices and slower rates of development activity in smaller urban/rural communities in Ontario, however, can create difficulties in attracting and sustaining private-sector development of employment lands. The relatively low market price of serviced land creates conditions that limit private-sector interest and involvement in industrial land development (i.e. the costs of servicing lands are too high relative to market prices of serviced land). The absence of the private sector necessitates municipal development of industrial/business parks. Under these circumstances, many municipalities take a pro-active approach and develop municipal industrial/business parks, investing municipal dollars to buy, subdivide and fully service the land. Recouping municipally funded servicing costs (in full or in part) occurs through land sales to end users who then develop the parcels.

Figure 1-2 illustrates the cost components to servicing land, the potential return on investment and the corresponding market price of land required to sustain the private-sector development market. Servicing land is a costly undertaking, typically averaging between $60,000 and $80,000 per acre. Factoring in the cost of land acquisition (typically between $20,000 and $40,000 per acre), the total cost of serviced land can easily exceed $100,000 per acre. To allow for a minimum return on investment, the market value of serviced land typically must be in excess of $150,000 per acre. The potential for private-sector development above this point increases with the market

[1] The GGH Outer Ring includes all municipalities within Central Ontario (GGH) excluding the GTHA.

value of serviced land. Most communities in rural Ontario, including Centre Wellington, have land market values well below $150,000 per acre.

Figure 1-2
Employment Lands Public Sector/Private Sector Development Continuum



Note: Conceptual structure based on sample survey. Local circumstances may vary.

The relatively high threshold point for the private sector is driven by the differing cost/ benefit methods and expectations regarding return on investment. The private sector typically only includes the revenue of the sale of serviced land in its return on investment analysis. This is unlike the public sector which factors in not only the

revenue generated from the sale of serviced land, but also potential employment, tax assessment and other potential revenues, as well as broader economic impacts (i.e. employment growth and economic development) generated from the industrial development.

1.6.1 Opportunities and Challenges of Municipal Industrial Land Development

Municipal development of Employment Areas can offer many opportunities and challenges for the Township of Centre Wellington including the following:

Opportunities

- **Degree of Control of Development** – Municipal development of employment lands tends to provide stronger control over the type and appearance of development that can be more consistent and supportive of a municipal strategy and other policy directions. This includes the ability to be more selective in the sale of land to end users and promotion of target sectors. In Centre Wellington, this may include the development of target sectors and "incubator" industries. Municipal land development also offers stronger control over design guidelines, uniform standards as well as energy conservation and other "green" initiatives.
- **Degree of Control over Development Timing** – Under municipal development, the control of project phasing/timing can be catered to municipal needs as opposed to being market driven and less dependent on private-sector interests. Through municipal land development, there is more control through Title Control measures (normally contained within Development Covenants & Restrictions attached to land sales), which prevents speculative activity. Municipalities are often more receptive to developing more difficult and problematic lands than the private sector. Further, these lands may be surrounded by considerable uncertainty regarding approval, which can be mitigated through municipal coordination.
- **Market Choice** – The private sector provides options to end users that the Township cannot, such as offering build-to-suit options for sale or lease. Private-sector development in a municipality typically involves more than one developer, which provides greater market choice and the more diverse approach mitigates risk. Private land developers, however, may be restrictive, not willing to sell land outright but only offer build-to-suit opportunities or lease of land. In addition, the private development approach tends to be less interested in smaller-scale properties where the return on investment is smaller than on a larger project. The results of the market analysis provided herein indicates that a large share of

industrial demand within the Township of Centre Wellington will be for smaller-scale industrial development.

- **Marketing** – Development of employment lands must be followed by aggressive marketing campaigns. Ontario municipalities have a long history and successful track record of developing and marketing employment lands. In addition, the Township can take advantage of its international connections working with the Ontario Ministry of Food and Rural Affairs (OMAFRA) as well as other agencies. Meanwhile, private-sector developments tend to be larger organizations, national and multinational, and typically have significant resources and established marketing and advertising networks to promote their products.
- **Access to Senior Government Industrial Development Programs** – For rural municipalities, business expansion is more likely to come from the expansion of existing employers rather than the attraction of new businesses. As such, there is a need to ensure that both new businesses and expansion requirements from existing businesses can be accommodated. In some cases, however, industrial development may not be feasible, especially for smaller-scale development, due to excessive site development costs (i.e. engineering works, stormwater drainage, required studies, etc.). Given the potential challenges with respect to development feasibility, there is a need to reduce uncertainty associated with planning approvals and development costs. To address this, some Ontario municipalities are undertaking pre-screening of studies required for industrial development (e.g. servicing strategies, environmental studies, source water protection requirements, archaeological assessment studies, etc.). Past and existing provincial programs (Investment Ready Certified Program) exist to help fund a portion of the costs required to make industrial areas/business parks investment-ready.

Challenges

- **Project Risk and Financial Commitments** – Municipal land development requires extensive financial resources and exposes a municipality to financial and market risk. High up-front land acquisition and development costs are demanding for small to medium-sized municipalities such as Centre Wellington. The Township's reserves for industrial land acquisition are limited, leaving the Township with limited options to acquire new land. In contrast, under a private-sector development scenario, land acquisition, development and marketing costs are borne by the private sector.

1.6.2 Public-Private Partnerships

Public-private partnerships offer the Township an alternative with a number of advantages:

- They are an effective mechanism to minimize risk and/or to share the risk with the private sector;
- Township does not need to finance industrial projects entirely on its own;
- Each party has something unique to offer, potentially creating a “win-win” outcome;
- Township can take advantage of the private sector’s marketing resources or access to private-sector financing; and
- The private sector can take advantage of municipal clout, which offers a potentially more efficient means of moving through the development approval process.

Key potential disadvantages include:

- Potential conflicting goals and objectives between the two parties; and
- The private market requires a return on investment which, at current market prices, potentially constrains the level of servicing, and possibly jeopardizes the ability of the Township to develop its Employment Areas to standards it would like to see.

2. Township of Centre Wellington Industrial Market Assessment

As part of this business case analysis, a detailed review of existing conditions and forecast industrial market demand was prepared for the Township of Centre Wellington, within the context of economic trends within the broader market area. The results of this assessment are detailed in Appendix A, through a presentation made to Township of Centre Wellington Committee of the Whole on March 19, 2018. Key highlights of the industrial market assessment are summarized below. Additional background materials related to macro-economic trends are provided in Appendix B.

2.1 Macro-Economic Trends Influencing Development on Employment Lands within the Township of Centre Wellington

In many respects, Centre Wellington's long-term economic growth potential is largely tied to the success of the GGH as a whole. Collectively, the population for the entire GGH is forecast to increase from 9.0 million in 2011 to 13.5 million in 2041, while the employment base is forecast to increase from 4.5 million in 2011 to 6.3 million in 2041. This represents a population increase of 4.4 million people (148,000 annually) and an employment increase of 1.8 million (60,000 annually). This represents a substantial increase in population and employment relative to other North American metropolitan regions of comparable population.

The GTHA, located within the core of the GGH, is the fourth largest urban region in North America[1] and has a diverse and highly competitive economy. The GTHA represents an economic powerhouse in Ontario and the center of a large portion of economic activity in Canada. The GTHA is also economically diverse with most of the top 20 traded industry clusters throughout North America having a strong presence in this region. Historically, population and employment growth rates have been relatively strong in the GTHA compared to the GGH Outer Ring. It is important to note, however, that the share of population and employment growth within the GGH is forecast to continue to gradually shift from the most populated urban municipalities of the GTHA[2] to

[1] GTHA population estimates in comparison to recent U.S. Metropolitan Statistical Areas data.

[2] Includes the City of Toronto, City of Hamilton, City of Burlington, Town of Oakville, City of Mississauga, City of Brampton, City of Vaughan, Town of Richmond Hill, Town of Markham, City of Pickering, Town of Ajax, Town of Whitby and the City of Oshawa.

the municipalities within the "GTHA countryside"[1] and the GGH Outer Ring over the 2016 to 2041 planning horizon.

The strength of the broader regional GGH economy presents a tremendous opportunity for Wellington County's economy and its residents within commuting distance to growing regional employment markets, primarily to the south. In addition to the growing employment opportunities for Wellington County commuters, Wellington County, itself, is also forecast to accommodate significant population and employment growth at a rate generally consistent with the GGH as a whole. As previously mentioned, between 2011 and 2041, Wellington County's population base is forecast to increase by approximately 140,000 persons or 1.5% annually. This represents an average annual population growth rate close to 50% greater than the Province of Ontario. Comparatively, Wellington County is forecast to experience the second highest annual population growth relative to the other upper-tier municipalities across the GGH Outer Ring. While local population and employment growth will directly impact the need for local community services (i.e. retail, personal services and institutional), new development will also drive demand within the construction sector and influence location options with respect to wholesale trade, transportation and warehousing, as well as other emerging industrial operations (i.e. advanced manufacturing, urban warehouses, etc.). As a result, the County's employment base is also forecast to steadily growth by approximately 22,000 jobs, or just over 700 jobs annually between 2011 and 2041.

Despite the recent employment decline in manufacturing, this sector continues to be a dominant component of the GGH industry base. Looking forward, opportunities exist mainly for smaller firms that would benefit from the proximity of Wellington County to the large and growing labour force pool within the City of Guelph and the surrounding west GGH municipalities. A large portion of employment growth in the manufacturing sector is anticipated to come from relocations of existing small-scale industrial establishments in the larger urban GTHA municipalities. Given the relatively lower price of industrial land within Wellington County relative to the GTHA, market demand exists for employment lands in Wellington County, and specifically Centre Wellington, to accommodate smaller-scale manufacturing operations in urban Employment Areas as well as on rural employment lands. Given the lack of market choice to accommodate demand in Centre Wellington, however, land absorption within this sector has been constrained. This issue is discussed further in Chapter 3.

[1] Reflects all remaining GTHA municipalities not listed in the above footnote.

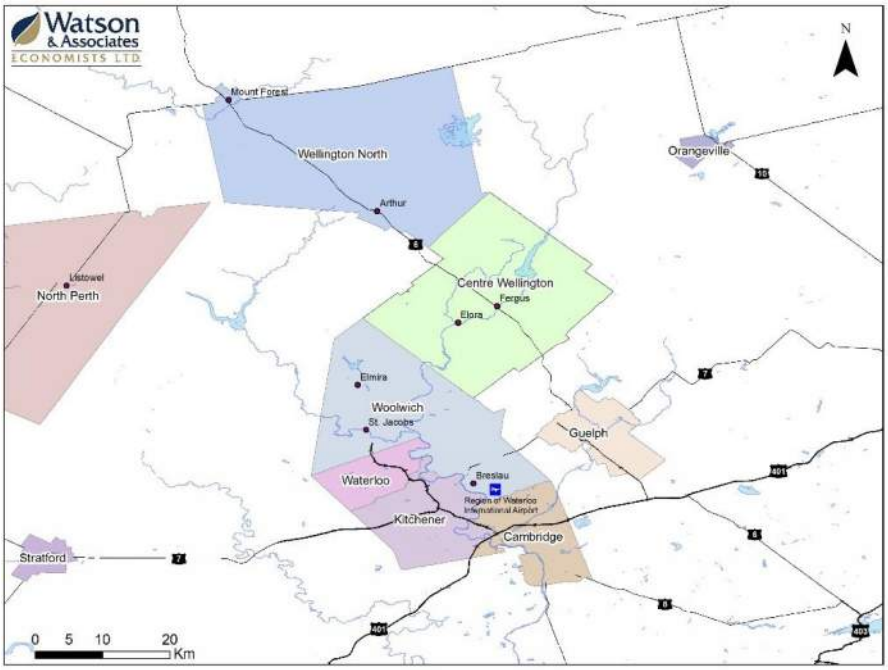
2.2 Review of Centre Wellington's Competitive Position within the Broader Regional Market Area

2.2.1 Comparator Municipality Review

As summarized in Figure 2-1, industrial development conditions and forecast development trends for a number of selected Ontario municipalities were reviewed to better assess the Township of Centre Wellington's competitive position within the broader regional market area. Comparator municipalities reviewed include:

- Cambridge;
- Kitchener;
- Waterloo;
- Woolwich;
- Guelph;
- Orangeville;
- Stratford; and
- North Perth.

Figure 2-1
Township of Centre Wellington
Broader Regional Market Area



Each of the above-listed comparator municipalities were reviewed against a number of economic, physical and fiscal attributes, including:

- Serviced industrial land prices;
- Historical industrial absorption rates, 2017 to 2016;
- Shovel-ready and total designated employment land supply; and
- Industrial absorption by sector and development type (i.e. development size, parcel size).

With respect to long-term employment land needs, the above-listed comparator municipalities were further categorized by large municipalities (population greater than 100,000) and small/medium municipalities (population less than 50,000). Key observations include:

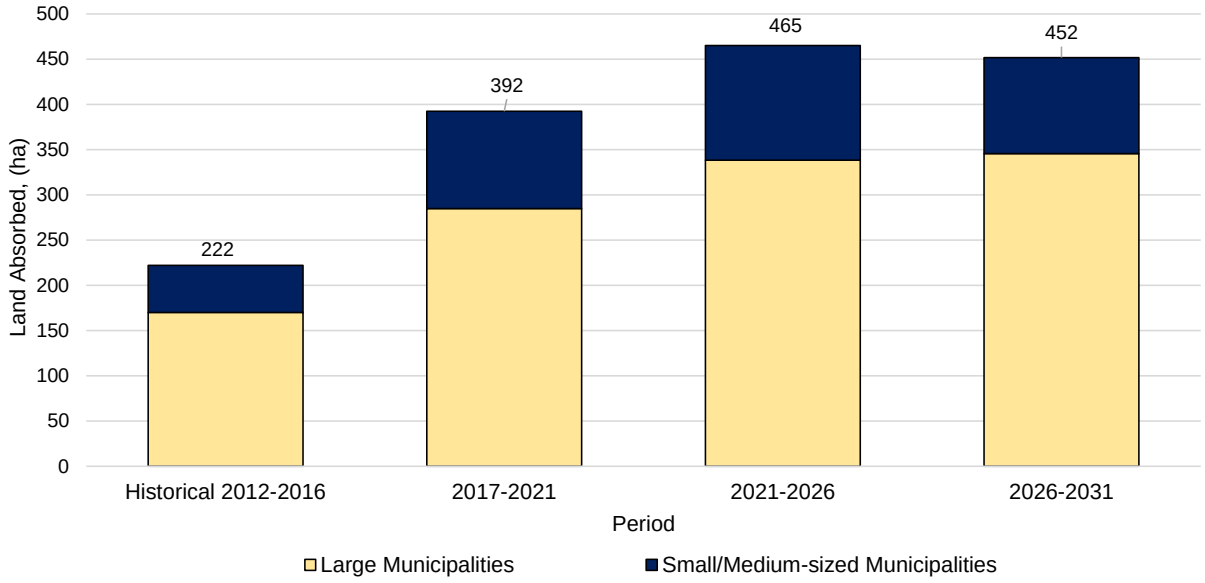
- Relative to the other municipalities surveyed, the Township of Centre Wellington has a very limited supply of shovel-ready employment land totalling approximately 5 ha (12 acres);[1]
- The Township of Centre Wellington has approximately 101 ha (264 acres) of designated employment lands.[2] While this is a greater supply than most of the other small/medium-sized municipalities surveyed, it is insufficient to accommodate long-term employment land needs to 2041;
- With respect to the small/medium-sized municipalities surveyed, the Township of Centre Wellington has experienced the highest level of land absorption on employment lands over the past decade, totalling 24 ha (59 acres) per year;
- Employment land absorption within larger urban municipalities has been focused towards multi-tenant industrial development as well as standalone industrial development within the warehousing/distribution and transportation sector. In contrast, recent employment land development within the smaller municipalities surveyed has been more concentrated in the manufacturing sector; and
- The average size of absorbed employment land parcels does not vary considerably between the large and small/medium municipalities surveyed, averaging between 1.2 (3 acres) and 2.0 ha (5 acres); however, average building sizes on recently absorbed parcels varies considerably. For the Township of Centre Wellington, gross floor area (GFA) of newly absorbed buildings averaged

[1] Excludes brownfield employment lands.
[2] Includes all serviced and unserviced designated greenfield and brownfield sites that have been identified with potential to accommodate future development.

only 7,000, compared to 25,000 and 64,000 for comparator small/medium and large municipalities, respectively.

For each of the comparator municipalities surveyed, a broad assessment of forecast employment land needs was prepared to the year 2031. The results of this assessment are summarized below in Figures 2-2 and 2-3. In accordance with approved OP forecasts for each of the comparator municipalities, employment land absorption rates within the surrounding market area are anticipated to significantly increase between 2017 and 2031, relative to recent historical absorption levels over the past five years. Based on forecast employment absorption rates to 2021, there is a sufficient supply of shovel-ready employment lands to accommodate demand. Over the longer-term period, a small surplus of 96 ha (237 acres) of serviceable lands is also identified. It is noted however, that uncertainty exists with respect to the timing of servicing associated with designated serviceable employment lands within the broader market area by 2031.

Figure 2-2
Forecast Absorption on Employment Lands for Comparator Municipalities, 2017 to 2031
(Excludes Township of Centre Wellington)



Source: Watson & Associates Economists Ltd.

Figure 2-3
Forecast Employment Land Needs for Comparator Municipalities, 2031
(Excludes Township of Centre Wellington)

Employment Land Needs	Municipal Comparators (excluding Centre Wellington)	Net ha
"Shovel-ready"	2017 "Shovel-ready" Vacant Employment Land Supply	494
	2017-2021 Forecast Employment Land Absorption	392
	2021 Employment Land Surplus/(Shortfall)	102
Designated Serviced/Serviceable	2017 Designated Vacant Employment Land Supply	1,405
	2017-2031 Forecast Employment Land Absorption	1,309
	2031 Employment Land Surplus/(Shortfall)	96

Note: Adjustment made to vacant land supply of 15% to account for long-term vacancy.
Source: Watson & Associates Economists Ltd.

2.2.2 Cost Competitiveness Analysis

A significant factor influencing business decisions on where to locate is the cost competitiveness (both capital investment and operating costs) of the development in relation to market demand and potential return on investment. The cost competitiveness of development on employment lands is examined herein, through a series of pro-forma financial analyses assessing the cost of constructing and operating various prototypical industrial/office developments within the Township of Centre Wellington, as well as several other comparator municipalities within the broader regional market area.

For the purposes of this exercise, four prototypical developments were assessed, including a 60,000 sq.ft. manufacturing facility, a 20,000 sq.ft. distribution/logistics centre, a 30,000 sq.ft. multi-tenant industrial building and a small-scale industrial shop/ warehouse. The physical characteristics of the four-building typologies and their respective land requirements are summarized in Figure 2-4.

Figure 2-4
Prototypical Building Typologies

Building Type	Gross Floor Area		Floor Space Index	Land Area	
	sq.m.	sq.ft.		net ha	net acres
Manufacturing Facility	5,575	60,000	30%	1.9	4.6
Distribution/Logistics Centre	1,860	20,000	35%	0.5	1.3
Industrial Shop/Warehouse and Yard	1,115	12,000	15%	0.7	1.8
Multi-Tenant Industrial Condominium Building	2,785	30,000	35%	0.8	2.0

Source: Watson & Associates Economists Ltd.

The cost competitiveness of the select prototypical industrial/office developments was assessed through a review of total development cost and the impact of operating costs (including property taxes and utility costs) in the Township of Centre Wellington and the comparator municipalities.

In the generation of the total development cost of the prototypical developments (expressed in dollars per sq.ft.), the following input costs were included:

- **Land Cost** – average price of serviced vacant employment land per acre based on market data, multiplied by the acreage requirement based on an assumed FSI,[1] e.g. 30%, divided by the GFA for the building size being considered (e.g. 60,000 sq.ft.);
- **Construction Costs**[2] – reflects hard construction costs (e.g. materials, labour) and soft costs (e.g. engineering, consulting services) – average construction costs per sq.ft. vary by development type;
- **Development Charges** – on a sq.ft. basis, calculated based on the current upper- and lower-tier or single-tier municipal schedules and school board DC schedules;
- **Building Permit Fees** – on a sq.ft. basis per current municipal schedules; and
- **Developer Project Profit** – a flat percentage of the total cost (land + construction + DCs + building permit fees per sq.ft.) at 5%.

[1] Floor Space Index (FSI).
[2] Construction costs derived from various market sources by Watson & Associates Economists Ltd. Construction costs vary by municipality based on location factors provided in 2016 RSMeans Building Construction Costs data.

The total development cost was then annualized[1] to determine the average annual cost of developing a building over a defined period (i.e. 25 years) to compare with annual operating costs.

Annual operating costs for each prototypical development were determined based on an assessment of the following:

- **Utility Costs** – Important operating costs for businesses are utility costs, particularly for high consumption users and, for the purposes of this assignment, these include the cost of water/wastewater, electricity and natural gas. Consumption rates for each prototypical development were determined on an annual GFA per sq.ft. basis and held constant across all geographic locations. Annual costs were determined in accordance with the following:
    - **Water/wastewater costs** – multiplying the annual consumption by the average cost per cubic metre within each municipality, reflected on a sq.ft. basis;
    - **Electricity costs** – multiplying the annual consumption by the average cost per kWh within each municipality, reflected on a sq.ft. basis;
    - **Natural gas costs** – multiplying the annual consumption by the average cost per cubic metre within each market, reflected on a sq.ft. basis; and
- **Property Taxes** – Property taxation estimates for the comparator municipalities were based on approximate assessment values utilizing current local taxation rates. Property assessment values were derived based on a survey of comparative developments utilizing MPAC property assessment data.

The annual operating costs (i.e. property taxes and utility costs) were combined with the annualized development costs to generate the total annualized cost per sq.ft. within each location surveyed.

Total Annualized Costs

Total annualized costs (development and operating costs) for the three prototypical developments in the Township of Centre Wellington and the comparator municipalities are summarized in Figures 2-5a and 2-5b. Additional details are provided in Appendix C. Key findings include:

[1] Annualized costs determined using an annualization factor of 6.5% which is based on a 25-year period and discount rate of 4.1% which is representative of industry trends.

DEVELOPMENT COSTS

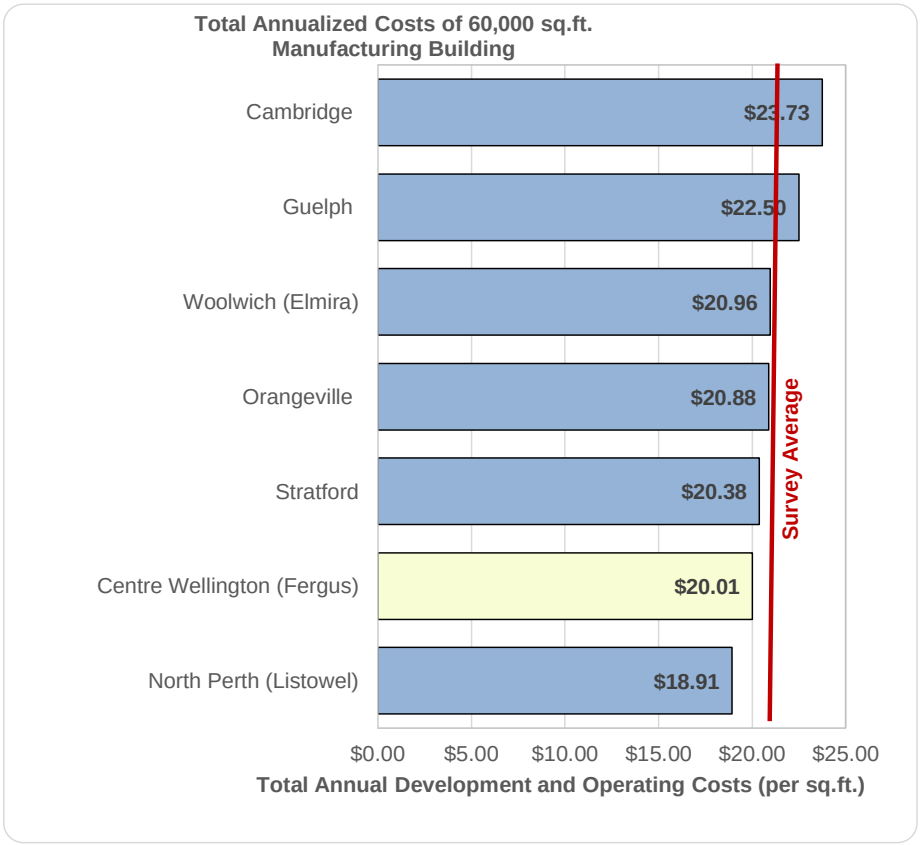
- Development costs are higher in Centre Wellington compared to North Perth and Stratford, largely due to lower or no DCs in North Perth and Stratford;
- Due to higher land prices and higher DCs, development costs are higher for the large urban centres, as well as Orangeville and Woolwich, compared to Centre Wellington, North Perth and Stratford; and
- Overall, Centre Wellington is competitive in respect to development costs, due to low land prices and moderate DC and building permit rates.

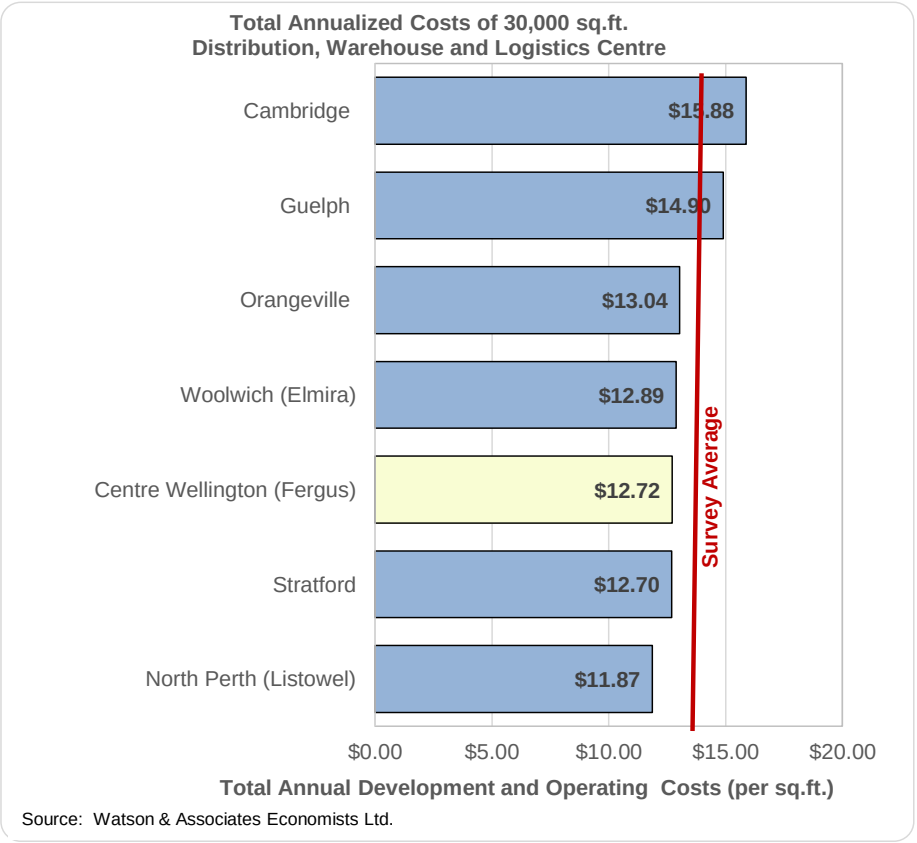
ANNUAL OPERATING COSTS

- In terms of operating costs, Centre Wellington's operating costs are higher than North Perth and Stratford;
- Due to higher property taxes (based on tax rates and average assessment per sq.ft.), Centre Wellington is competitive with the remaining municipal comparators; and
- Water and wastewater costs in Centre Wellington are higher for the manufacturing development scenario, due to higher volume consumption rates in Centre Wellington compared to other municipalities; however, water and wastewater costs are generally offset by lower property tax costs in Centre Wellington.

On average, the Township of Centre Wellington is cost competitive among the comparator markets for industrial development. This is attributed largely to lower operating costs and development costs relative to the adjacent urban municipalities, including the City of Guelph, the City of Cambridge and the Town of Orangeville.

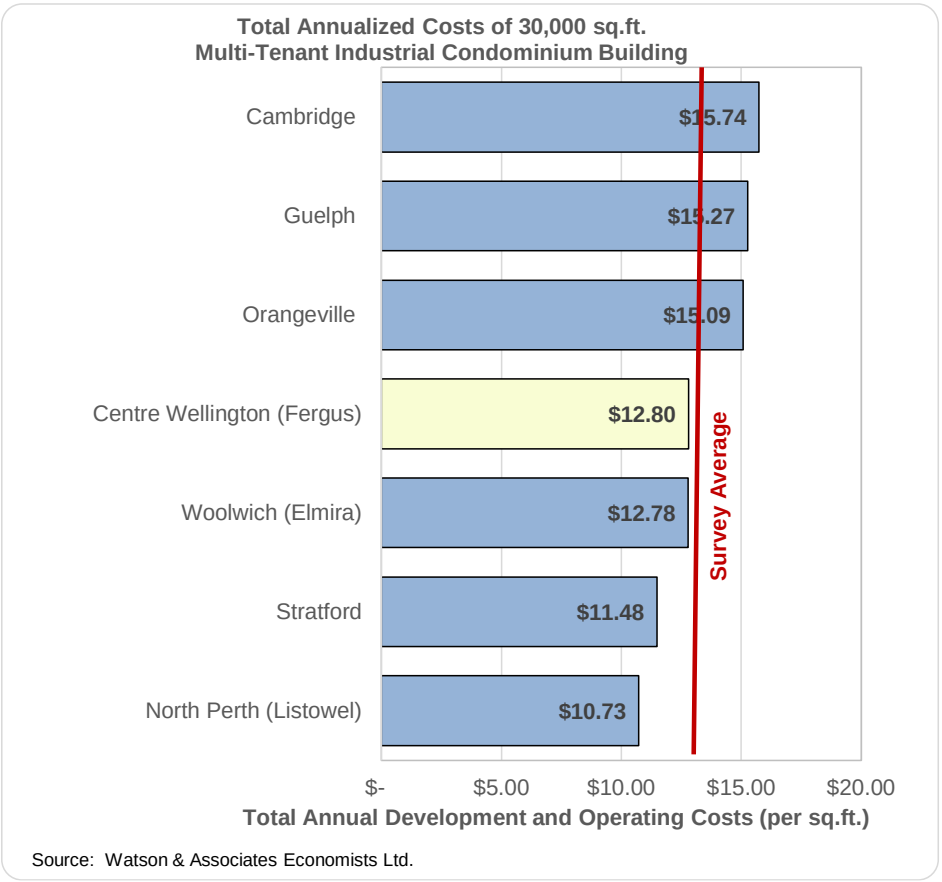
Figure 2-4a
Total Annualized Costs per Sq.ft.



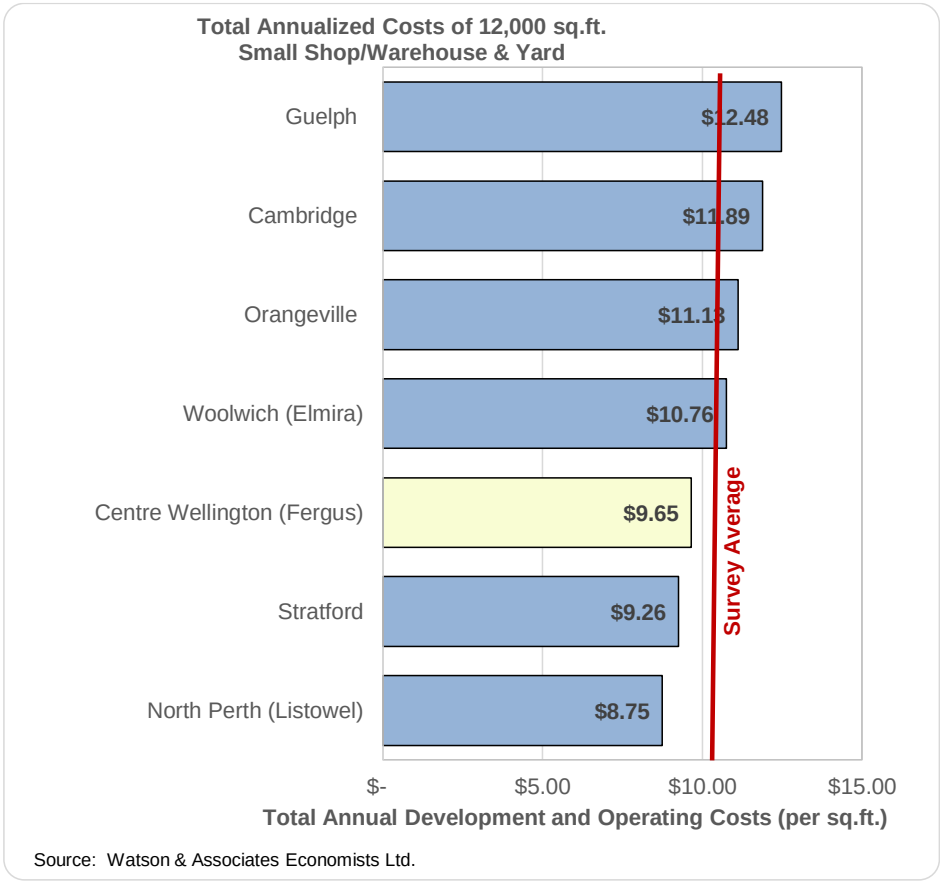


Source: Watson & Associates Economists Ltd.

Figure 2-4b
Total Annualized Costs per Sq.ft. (Cont'd)



Source: Watson & Associates Economists Ltd.



Source: Watson & Associates Economists Ltd.

2.3 Centre Wellington Long-Term Economic Trends

As previously discussed, the provincial and regional economies are transitioning from goods to services production, a feature that is well-documented across national, provincial and regional levels. Looking forward, existing and emerging knowledge-based sectors, such as professional, scientific and technical services (PSTS), finance and insurance, real estate and rental leasing, health care, information technology and agri-businesses, are expected to represent the fastest growing employment sectors for Wellington County.

In addition to growing knowledge-based sectors, manufacturing remains vitally important to the provincial and regional economies with respect to jobs and economic output. At the more local level, the Wellington County and Township of Centre Wellington economies are characterized by a blend of expansive rural lands and vibrant urban settlement areas. The existing employment base is concentrated in retail, small to medium-scale manufacturing, wholesale trade, transportation, government and education, accommodation and food services, agriculture and tourism.

Rising industrial land prices continue to shift the concentration of land-expansive industrial uses within the warehousing and distribution sector from the GTHA to the outer regions of the GGH and beyond, including Wellington County. The focus to-date, however, has been largely concentrated in Puslinch given the Township's proximity/access to Highway 401.

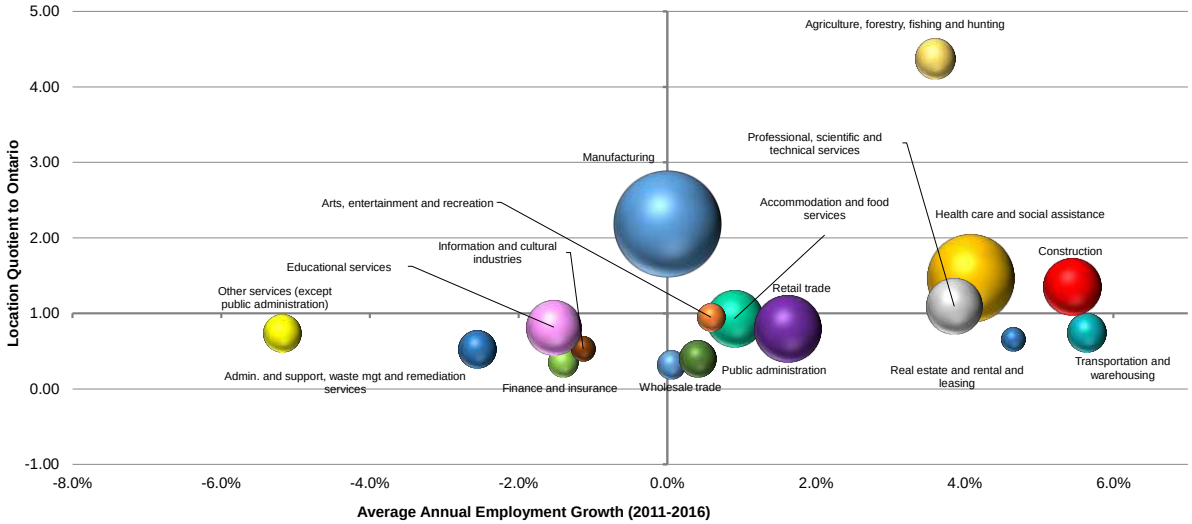
The local employment base is also highly concentrated in the creative economy.[1] People engaged in arts and culture, such as artists, actors, performers, writers and designers, are a large part of the foundation which creates the "quality of place" that attracts new residents to the Township's urban settlement areas and surrounding countryside. The economic base is also highly oriented towards small businesses and home-based occupations. For rural Ontario municipalities such as the Township of Centre Wellington, a large share of business expansion is likely to come from both the expansion of existing employers, as well as the attraction of new businesses (primarily small to medium-sized businesses).

[1] The creative economy is often defined as those industries that have their origin in individual creativity, skill and talent and that have a potential for wealth and job creation through the generation and exploitation of intellectual property. People engaged in arts and culture as artists, actors, performers, writers and designers form a large part of the Township's economic foundation which creates the "quality of place" that attracts new residents to this area.

Figure 3-6 illustrates the concentration (i.e. location quotient or LQ) of Centre Wellington's employment sectors (i.e. employment clusters) relative to the Province between 2011 and 2016. The historical employment growth rate, as well as the relative size of the employment sectors, are also summarized in Figure 3-6. The results of this analysis indicate the following:

- The Township has a large, established and concentrated manufacturing base relative to the Province as a whole, but has experienced limited growth in this sector over the past 5 years;
- Within the industrial sector, other emerging industrial clusters exist related to construction, transportation and warehousing. While these sectors are smaller in terms of their employment base, they have been growing at a very strong pace over the past five years; and
- Employment sectors oriented to office development have historically had a relatively low employment concentration within the Township of Centre Wellington. The Township, however, has recently been experiencing strong employment growth in business services sectors related to PSTS as well as real estate, rental and leasing. The Township's PSTS sector currently has an LQ comparable to the Province as a whole. The anticipated growth of the business services cluster is important to monitor as most businesses within this sector are permitted in the Township's Employment Areas.

Figure 2-5
Township of Centre Wellington Relative to Ontario
Industrial Cluster Size and Growth Matrix



Note: Due to high LQ, Mining, Quarrying, and Oil and Gas Extraction, Management of Companies and Utilities are not displayed as they each have an employment base less than 60.
Source: Watson & Associates Economists Ltd.
Data source: Location quotients based on comparison to South Simcoe Area derived from EMSI OMARFA Analyst, 2011-2016.

2.4 Township-Wide Employment Forecast, 2018 to 2031

As summarized in Figure 2-6a, the Township's employment base is anticipated to reach approximately 19,000 jobs by 2031. This represents an increase of 8,100 jobs over the 2018 to 2031 forecast period. This forecast is based on the Wellington County Official Plan (OP) employment growth forecast allocation to the Township of Centre Wellington as per Wellington County OPA 99 and is referred to as Scenario 1.[1] Figure 2-6b summarizes the industrial employment forecast for Wellington County under Scenario 1. The industrial sector is a key component of non-residential development for Centre Wellington, representing approximately over one-third of forecast employment growth over the next decade. In accordance with Scenario 1, the employment activity rate (ratio of jobs to population) for industrial employment activity rate is anticipated to steadily increase from 8% in 2016 to 12% by 2031.

Figure 2-7a summarizes the long-term employment forecast for Centre Wellington to 2031, assuming no additional employment lands within the Township are serviced by 2031. It is noted that under each scenario it is assumed that the Township's serviced brownfield industrial sites (12 ha or 30 acres) are developed by 2031. Under Scenario 2, the Township is forecast to add approximately 700 industrial jobs to its base by 2031,

[1] Wellington County Population, Household and Employment Forecast Update, 2011-2041 prepared by Watson & Associates Economists Ltd., May 5, 2015 (as amended January 8, 2016).

compared to 2,900 industrial jobs under Scenario 1. Under Scenario 2, the employment activity rate (ratio of jobs to population) for industrial employment is anticipated to decline from 8% in 2016 to 7% by 2031.

A review of the anticipated tax assessment has been provided for each of the growth scenarios. In each scenario, the 2016 Financial Information Return (FIR) was used to determine the 2016 split between residential and non-residential tax assessment. Additional tax assessment is added based on each growth scenario. For residential tax assessment, the average per-unit assessment based on the 2016 FIR was used. For commercial and industrial tax assessment, the average assessment assumptions utilized in the fiscal analysis in Chapter 3 of this report were utilized to estimate future anticipated tax assessment. Figure 2-6c provides for the residential/non-residential tax assessment shares based on the Wellington County OPA 99 forecast (Scenario 1). Alternatively, Figure 2-7c provides for the forecast tax assessment shares between residential and non-residential development assuming no additional employment lands within the Township are serviced by 2031. In Figure 2-6c (Scenario 1), the non-residential share of total tax assessment increases from 20% in 2016 to 27% by 2031. In Figure 2-7c, the non-residential share of total assessment increases more moderately to 23% by 2031.

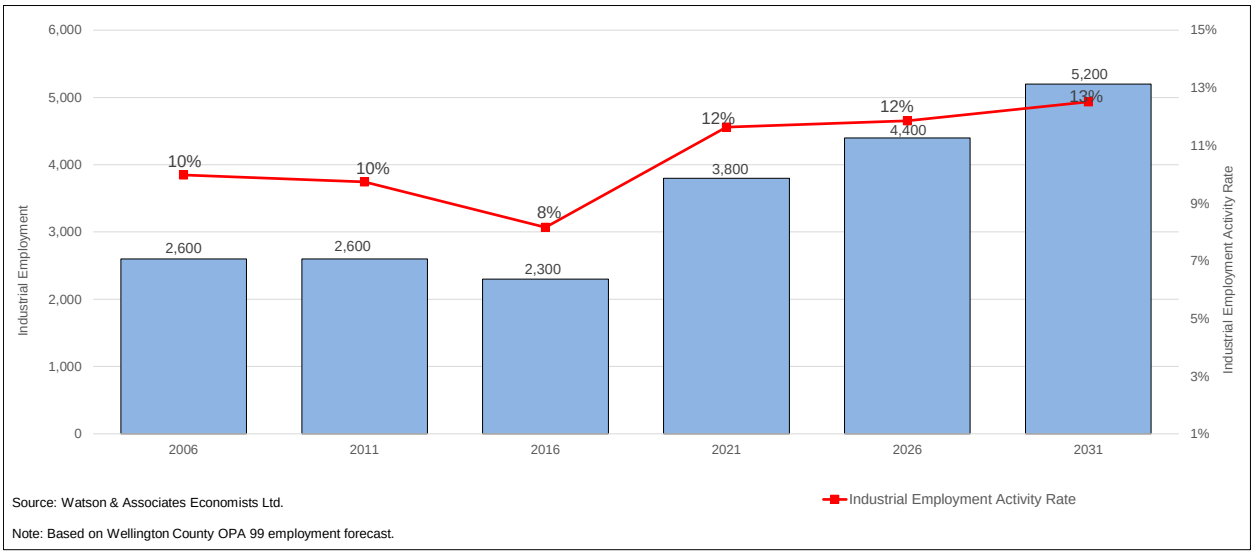
Figure 2-6a
2031 Employment Forecast
Scenario 1: Wellington County OPA 99 Employment Forecast

Period	Population	Total Employment Activity Rate	Employment								Employment
			Primary	Work at Home	Industrial	Commercial/ Population Related	Institutional	Total	NFPOW [1]	Total Employment (Including NFPOW)	Total (Excluding NFPOW and Work at Home)
Mid-2006	26,049	40%	100	1,500	2,600	3,200	1,600	9,000	1,500	10,500	7,500
Mid-2011	26,693	40%	200	1,600	2,600	2,900	2,000	9,300	1,400	10,700	7,700
Mid-2016	28,191	39%	200	1,500	2,300	3,400	2,100	9,500	1,500	11,000	8,000
Early-2018	29,600	39%	200	1,600	2,400	3,600	2,200	10,000	1,600	11,600	8,400
2031 Based on OPA 99	41,600	46%	300	2,600	5,200	5,200	3,300	16,600	2,400	19,000	14,000
Incremental Change											
Mid-2006 to Mid-2011	644	0%	100	100	0	-300	400	300	-100	200	200
Mid-2011 to Mid-2016	1,498	-1%	0	-100	-300	500	100	200	100	300	300
Mid-2016 to Early-2018	1,409	0%	0	100	100	200	100	500	100	600	400
Mid-2016 to 2031 Based on OPA 99	13,409	7%	100	1,100	2,900	1,800	1,200	7,100	900	8,000	6,000

Source: Watson & Associates Economists Ltd., 2018.

[1] Statistics Canada defines no fixed place of work (NFPOW) employees as "persons who do not go from home to the same work place location at the beginning of each shift". Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc.

Figure 2-6b
2031 Industrial Employment Forecast
Scenario 1: Based on Wellington County OPA 99 Employment Forecast



Source: Watson & Associates Economists Ltd.

Note: Based on Wellington County OPA 99 employment forecast.

Figure 2-6c
Forecast Tax Assessment Ratios
Scenario 1: Based on Wellington County OPA 99 Employment Forecast

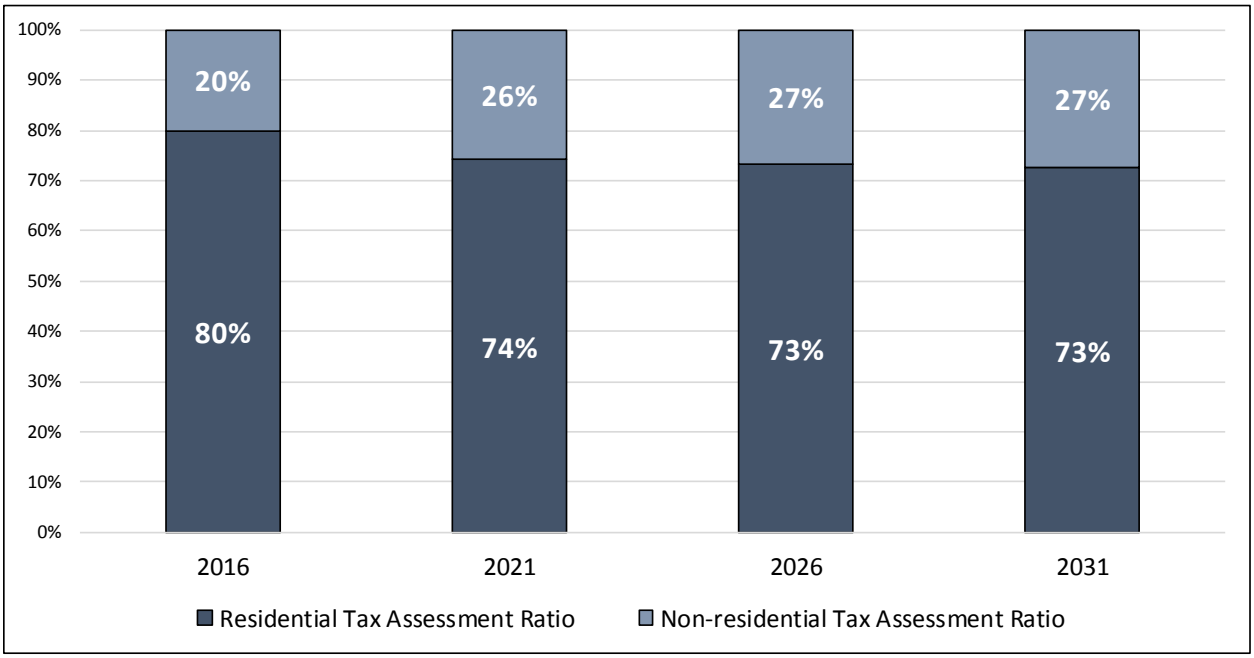


Figure 2-7a
2031 Employment Forecast
Scenario 2: Assumes No Additional Employment Lands are Serviced in Centre Wellington by 2031

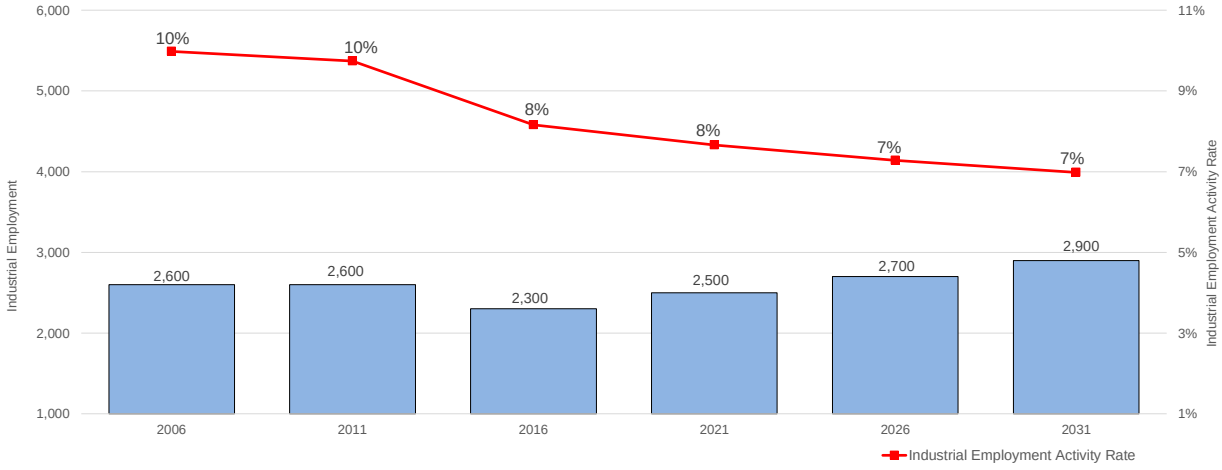
Period	Population	Total Employment Activity Rate	Employment								Employment
			Primary	Work at Home	Industrial	Commercial/ Population Related	Institutional	Total	NFPOW [1]	Total Employment (Including NFPOW)	Total (Excluding NFPOW and Work at Home)
Mid-2006	26,049	40%	100	1,500	2,600	3,200	1,600	9,000	1,500	10,500	7,500
Mid-2011	26,693	40%	200	1,600	2,600	2,900	2,000	9,300	1,400	10,700	7,700
Mid-2016	28,191	39%	200	1,500	2,300	3,400	2,100	9,500	1,500	11,000	8,000
Early-2018	29,600	39%	200	1,600	2,400	3,600	2,200	10,000	1,600	11,600	8,400
2031 Based on Serviced Land Supply[2]	41,600	40%	300	2,600	2,900	5,100	3,300	14,200	2,400	16,600	11,600
Incremental Change											
Mid-2006 to Mid-2011	644	0%	100	100	0	-300	400	300	-100	200	200
Mid-2011 to Mid-2016	1,498	-1%	0	-100	-300	500	100	200	100	300	300
Mid-2016 to Early-2018	1,409	0%	0	100	100	200	100	500	100	600	400
Mid-2016 to 2031 Based on Serviced Land Supply[2]	13,409	1%	100	1,100	600	1,700	1,200	4,700	900	5,600	3,600

Source: Watson & Associates Economists Ltd., 2018.

[1] Statistics Canada defines no fixed place of work (NFPOW) employees as "persons who do not go from home to the same work place location at the beginning of each shift". Such persons include building and landscape contractors, travelling salespersons, independent truck drivers, etc.

[2] Includes employment accommodated on serviced urban greenfield and brownfield sites and rural areas, as well as employment growth through intensification.

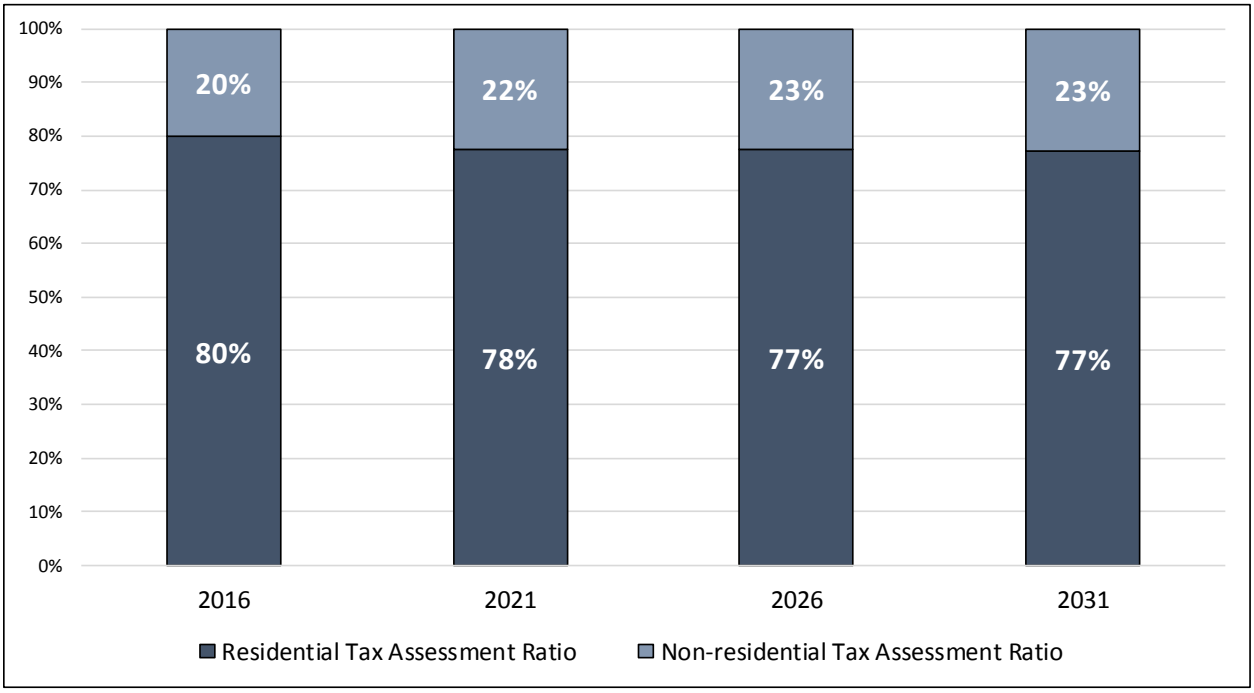
Figure 2-7b
2031 Industrial Employment Forecast
Scenario 2: Assumes No Additional Employment Lands are Serviced in Centre Wellington by 2031



Source: Watson & Associates Economists Ltd.

Note: Includes employment accommodated on serviced urban greenfield and brownfield sites and rural areas, as well as employment growth through intensification.

Figure 2-7c
Tax Assessment Ratios
Scenario 2: Assumes No Additional Employment Lands are Serviced in Centre Wellington by 2031

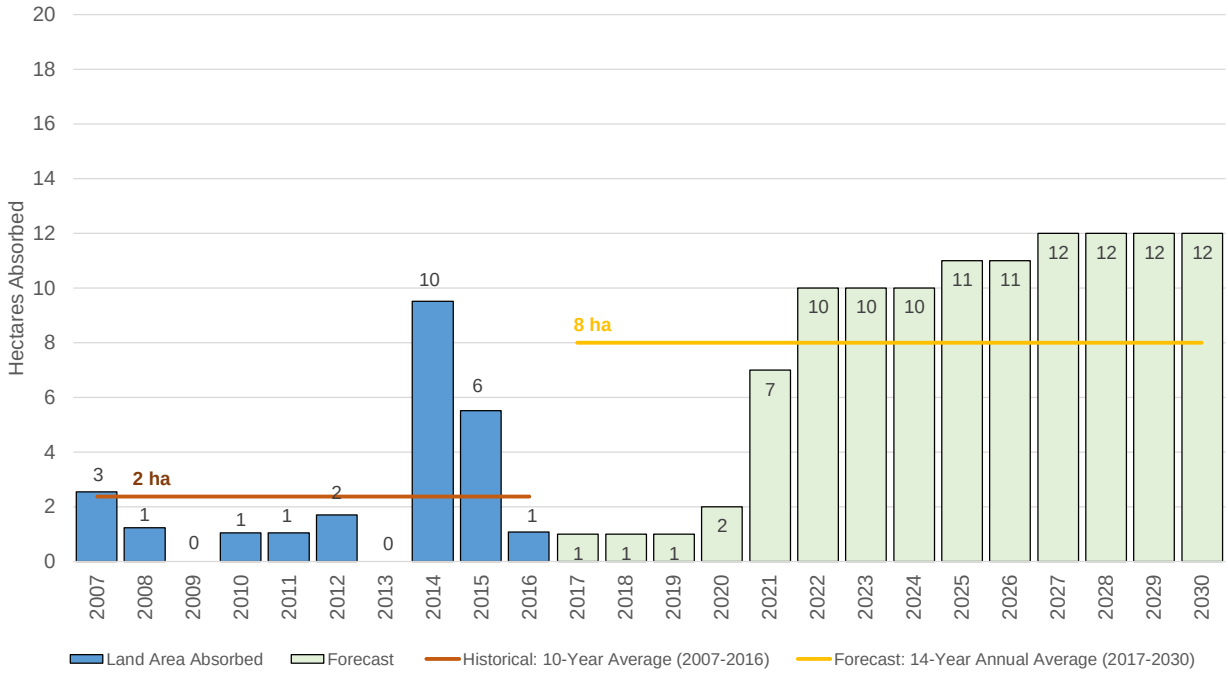


2.5 Forecast Employment Growth on Employment Lands, 2017 to 2031

Building on the long-term employment forecast prepared for Wellington County, an assessment of anticipated employment land absorption has been identified in Figures 2-8a and 2-8b, based on the two employment growth scenarios summarized in section 2.4. Corresponding employment land demand associated with the employment growth scenarios described in section 2.4 has been determined based on a review of the following:

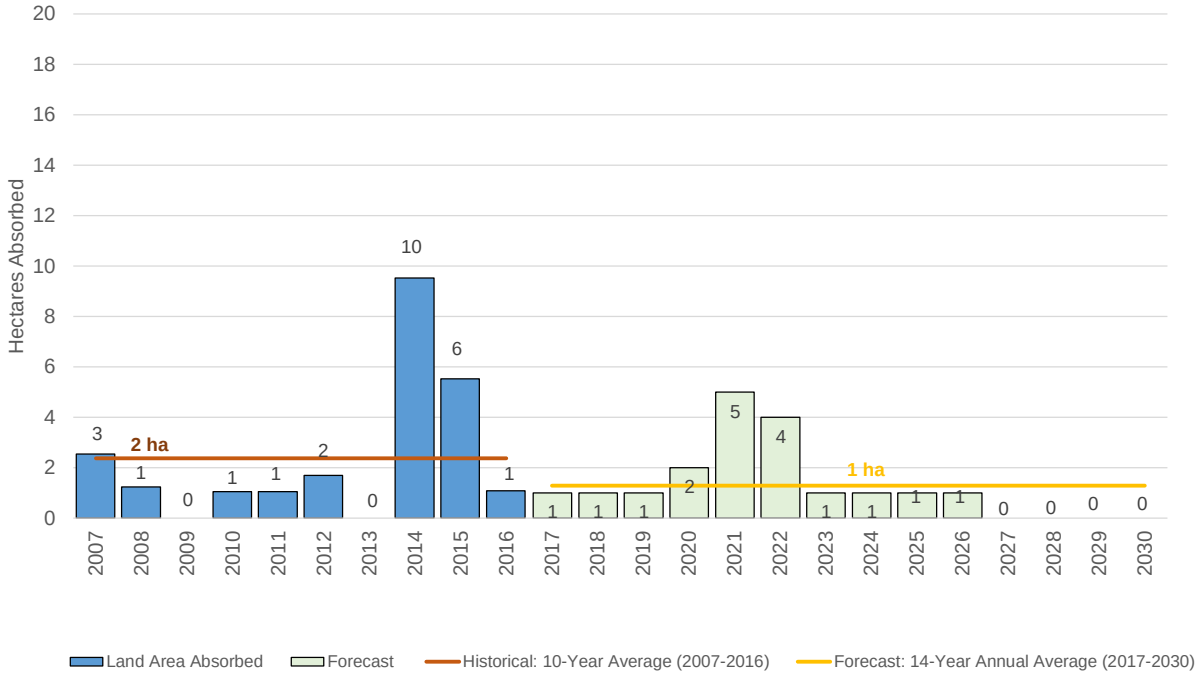
- Estimated share of employment growth on employment lands by I.C.I. (industrial, commercial, institutional);
- Estimated share of employment growth to be accommodated through intensification (expansions of existing buildings, development on underutilized parcels, development on partially vacant parcels and development on brownfield industrial sites); and
- Forecast density assumptions (i.e. employees/net hectare or acre) for employment lands.

Figure 2-8a
Township of Centre Wellington
Scenario 1: Based on OPA 99 Employment Forecast



Source: Watson & Associates Economists Ltd., 2017.

Figure 2-8b
Township of Centre Wellington
Scenario 2: Assumes No Additional Employment Lands are Serviced in Centre Wellington by 2031



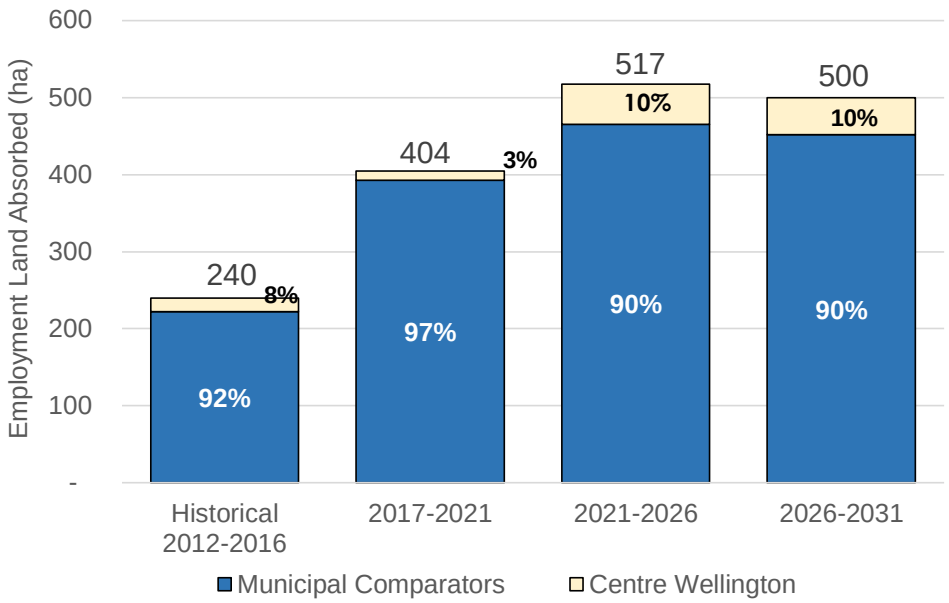
Source: Watson & Associates Economists Ltd., 2017.

2.6 Market Capture

Figure 2-9a summarizes the share of the forecast employment lands absorption within the Township of Centre Wellington relative to the broader market area from 2017 to 2031 based on Scenario 1: OPA 99. As summarized, over the 2012 to 2016 period the Township of Centre Wellington represented 8% of employment land absorption within the broader regional market area.

Following a decline in share of absorption over the next five years, the Township of Centre Wellington is forecast to rebound by 2021 and capture a slightly larger share of the regional employment absorption under Scenario 1.

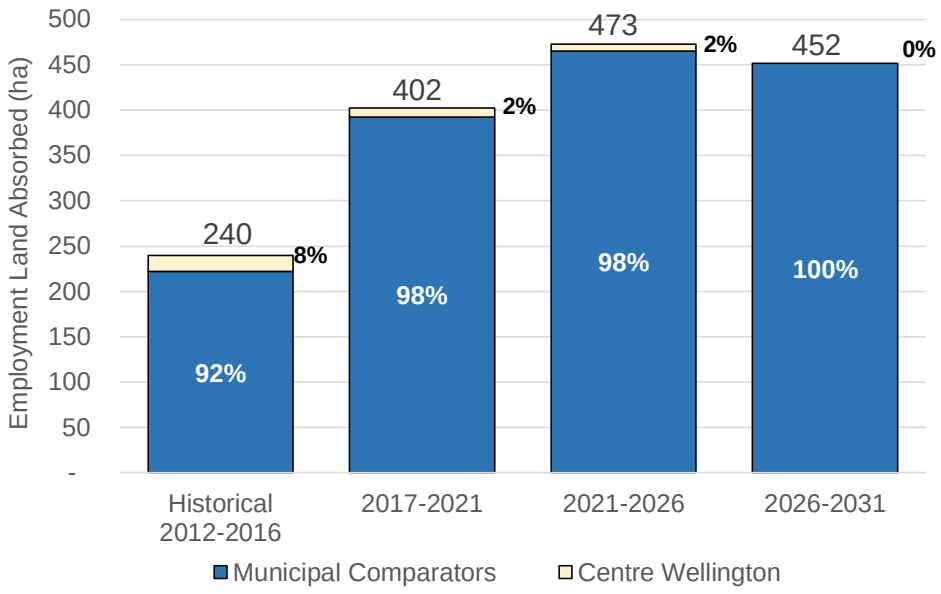
Figure 2-9a
Regional Market Area[1]
Scenario 1: OPA 99 Employment Forecast
Share of Land Absorbed in the Broader Regional Market Area



Under Scenario 2, as summarized in Figure 2-9b, the Township of Centre Wellington is forecast to capture a minimal share of the forecast regional employment land absorption based on the OPA 99 employment forecast, capturing approximately 1% of the forecast urban employment land absorption over the 2017 to 2031 period.

[1] Regional market area includes the Township of Centre Wellington, Township of Wellington North, City of Waterloo, City of Kitchener, City of Cambridge, City of Guelph, Town of Orangeville, Municipality of North Perth, City of Stratford, Township of Woolwich, Town of Bradford West Gwillimbury and Town of Innisfil.

Figure 2-9b
Regional Market Area [1]
Scenario 2: Based on Serviced Land Supply
Share of Land Absorbed in the Broader Regional Market Area



[1] Regional market area includes the Township of Centre Wellington, Township of Wellington North, City of Waterloo, City of Kitchener, City of Cambridge, City of Guelph, Town of Orangeville, Municipality of North Perth, City of Stratford, Township of Woolwich, Town of Bradford West Gwillimbury and Town of Innisfil.

3. Conclusions and Recommendations

The Township of Centre Wellington is faced with a difficult dilemma with respect to the future development of its Employment Areas. Over the 2031 and 2041 planning horizon, considerable population and employment growth has been allocated to the Township as per the County OP. More specifically, just over 50% of County-wide population and employment has been allocated to the Township between 2016 and 2041. The Township's central location within the County, existing labour force and population base, available existing/future urban land supply potential and municipal servicing capacity all support the Wellington County growth allocations.

Despite steady forecast employment land demand within Centre Wellington over the 2031 and 2041 planning horizon, the Township's supply of shovel-ready employment land is very limited. Furthermore, given the relatively low development feasibility associated within industrial land development, there is limited private-sector interest to service and develop the Township's existing and future lands designated for employment lands development.

The capital costs associated with development of the industrial sites in Fergus and Elora are significant. Funding of these works needs to be considered within the context of the DCA, the Township's DC background study and the Township's development policies.

The Township of Centre Wellington's DC Local Service Policy identifies what capital costs are to be included in the DC background study versus those costs which are deemed to be a direct developer responsibility. Local service policy guidelines are based on the size and nature of engineered infrastructure (e.g. watermains greater than 250 mm are to be included in the Township-wide DC). Accordingly, the Township's Local Service Policy guidelines form a key document regarding the potential capital cost recovery options for the subject lands.

In accordance with the Township's Local Service Policy, approximately 28% of the estimated capital costs will be funded through the Township-wide DC. The residual 72% of costs are identified as a local service and would be borne by developing landowners. These costs, or a portion thereof, can be secured as follows:

Area-specific DC

- Capital costs associated with local water/wastewater infrastructure could be funded through an area-specific D.C., which is consistent to the approach used in other areas of the Province for very localized services.

Cost Sharing Agreement

- Under Part 12 of the Municipal Act, 2001, non-DC eligible capital costs could be recovered though a capital charge related to all local developer costs.

The results of the analysis indicate that there are challenges related to the feasibility of industrial development within some areas of the Township of Centre Wellington. These challenges primarily relate to the relatively low value of serviced industrial lands within the local market area and the relatively high costs of capital associated with municipal infrastructure to service the lands.

Notwithstanding the above challenges associated with development feasibility of industrial development within the Township of Centre Wellington, it is important to recognize that there are also broader economic benefits associated with the potential growth of the Township's employment land base. The primary economic benefit relates to employment growth associated with the development of the Township's Employment Areas. Collectively, the development of industrial areas is anticipated to generate a total of 1,020 direct local industrial jobs as well as 810 indirect jobs within the Township and beyond. A total of 95 temporary jobs would also be generated within the Township associated with construction employment.

In addition to the direct, indirect and temporary employment growth associated with the development of industrial land, induced economic effects can also be anticipated from increased labour income and wealth generated from local employment opportunities. In turn, this will generate growth in household savings, taxation, consumption of goods and services within the local economy.

Local employment growth and, more specifically, export-based employment growth are important objectives to the Township. In addition to generating local tax assessment, local employment opportunities provide live/work opportunities for Township residents, thereby reducing commuting dependencies to larger employment markets within the GGH. In addition to the economic benefits, reduced commuting dependency also generates positive environmental impacts as well as quality of life enhancements.

From a land-use planning perspective, local industrial development within the Township of Centre Wellington directly supports the vision of the Township and County OPs, as well as the guiding principles of the Provincial Growth Plan. Economic prosperity is also a key goal of the Township of Centre Wellington Strategic Plan. The Township's Strategic Plan recognizes the importance of employment lands in expanding the Township's economic base.[1] These documents all stress the importance of a strong, diversified, vibrant, complete and sustainable economy. To achieve this vision, it is recognized that balanced growth between residential and non-residential development is a critical element.

The results of this report are intended to provide background information to inform Township staff and Council with respect to decision making as it relates to municipal development of employment lands within Centre Wellington. This report represents a first step in identifying opportunities and challenges the Township can expect to encounter from a market demand and development feasibility perspective.

Moving forward, the Township will need to explore and prioritize next steps towards an implementation strategy (e.g. more detailed land-use planning studies where applicable, approaches to industrial development land acquisition, budget requirements and legal considerations). One of the immediate actions the Township should explore is the development of an Economic Development Action Plan. This Action Plan should focus on, but not be limited to, the identification of target industry sectors, investment attraction, marketing, monitoring, reporting, as well as strategic economic development goals and implementation.

[1] Centre Wellington. Council Priorities and Initiatives, 2015-2018, September 28, 2015.

Appendix A – March 19, 2018 Committee of the Whole Presentation

Township of Wellington Centre Municipal Development of Elora/Fergus Employment Areas Business Case Analysis

Preliminary Report Findings

Council Presentation





March 19, 2018

Watson & Associates ECONOMISTS LTD.

Outline

- Study Purpose
- Planning Policy Context
- A Case for Municipal Development of Employment Lands
- Township of Centre Wellington Industrial Market Assessment
  - Review of Macro-Economic Trends
  - Centre Wellington's Competitive Position
  - Cost Competitiveness Analysis
  - Long-Term Employment Land Needs and Market Capture
- Conclusions and Recommendations

Study Purpose

- The Township of Centre Wellington retained Watson & Associates Economists Ltd. (Watson) in 2017 to undertake a business case analysis which explores the municipal development of various sites within existing/future industrial/ business parks in Fergus and Elora
- Prior to finalizing the business case analysis, a market assessment has been provided to address the competitive position of Centre Wellington relative to the surrounding market area in terms of the overall cost of non-residential development

Provincial Planning Policy Context

- In effect since July 1, 2017, the Growth Plan provides direction with respect to the amount, timing and form of development in the GGH
- The 2031 and 2041 population and employment targets for Wellington County remain unchanged





Wellington County Policy Context

- Considerable population and employment growth is allocated to Centre Wellington between 2016 and 2041

Year/Forecast Period	2016	2031	2036	2041	2016-2031	2016-2041
Wellington County						
Population	95,800	122,000	132,000	140,000	26200	44,200
Employment	40,100	54,000	57,000	61,000	13900	20,900
Centre Wellington						
Population *	29,900	43,300	48,500	52,300	13400	22,400
Employment *	12,000	19,000	20,100	22,800	7000	10,800
% Wellington County Population	31%	35%	37%	37%	51%	51%
% Wellington County Employment	30%	35%	35%	37%	50%	52%

Source: Wellington County Official Plan. May 6, 1999 (Last Revision September 1, 2016).

Consistent with OPA 99 growth forecast and allocation for Township of Centre Wellington.

* 2031 population and employment figures derived from Wellington County 2031 Population, Household and Employment Forecast Update, 2011 to 2041., pg. E-2. Watson & Associates Economists Ltd. 2017

Watson & Associates ECONOMISTS LTD

Why are Employment Lands Important?

- Employment lands form a vital component of the Township's land-use structure and are an integral part of the local economic development and employment growth potential; they are home to many of the Township's larger employers
- Benefits of employment lands:
  - Strong economic multipliers
  - High-quality employment opportunities
  - Contributions to Township and assessment base, and
  - Positive net fiscal benefits

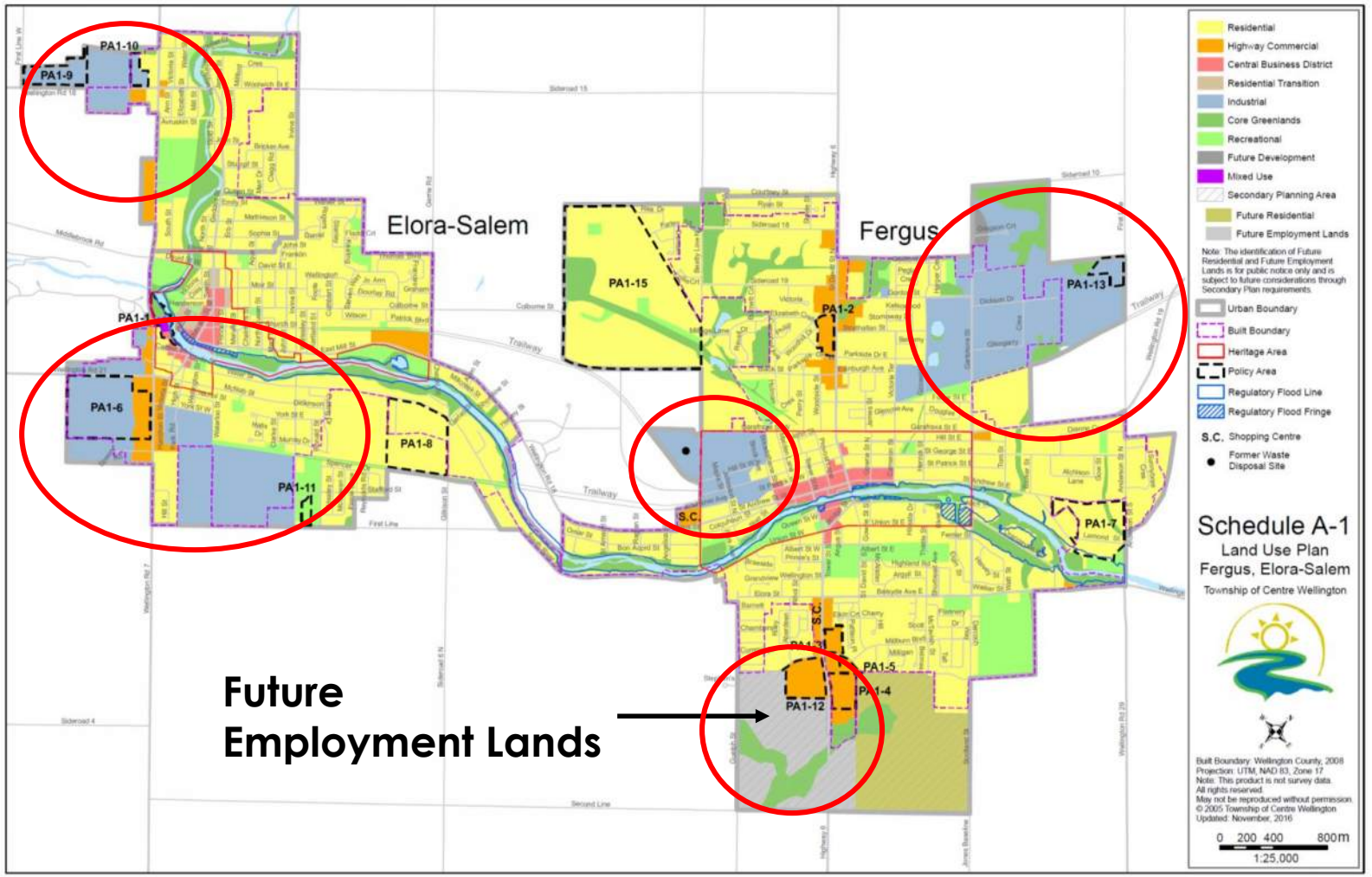






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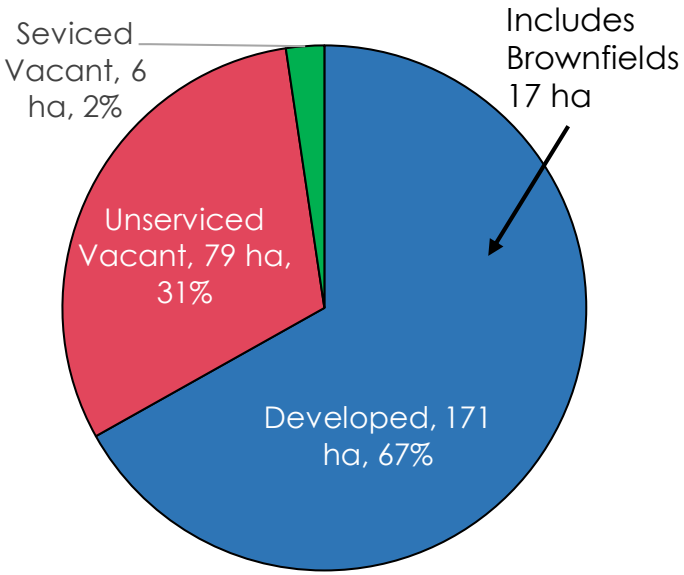
Township of Centre Wellington Designated Employment Lands



Designated Employment Lands – Vacant and Developed

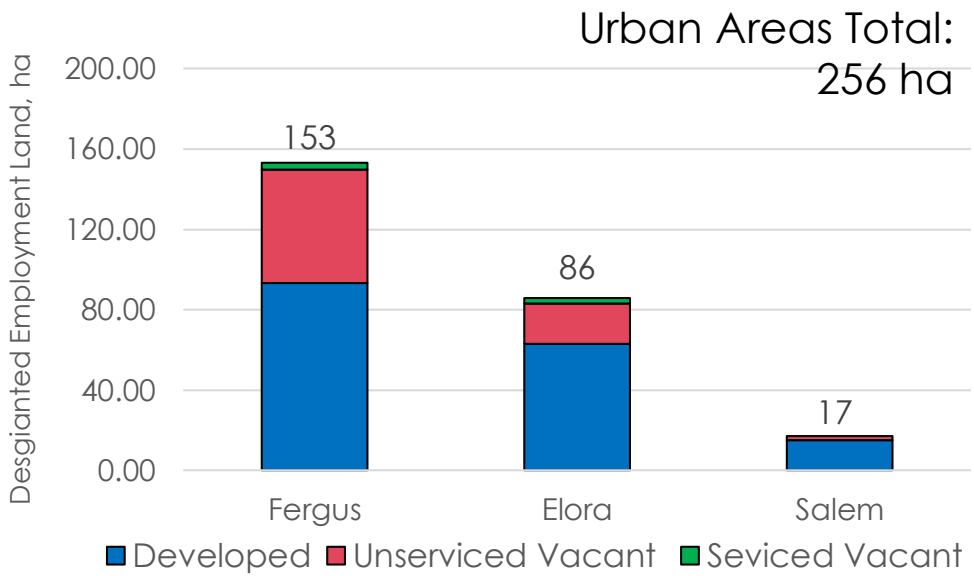
Centre Wellington
Urban Areas
Designated Employment Lands as of March 2018

Designated Employment Lands by Status



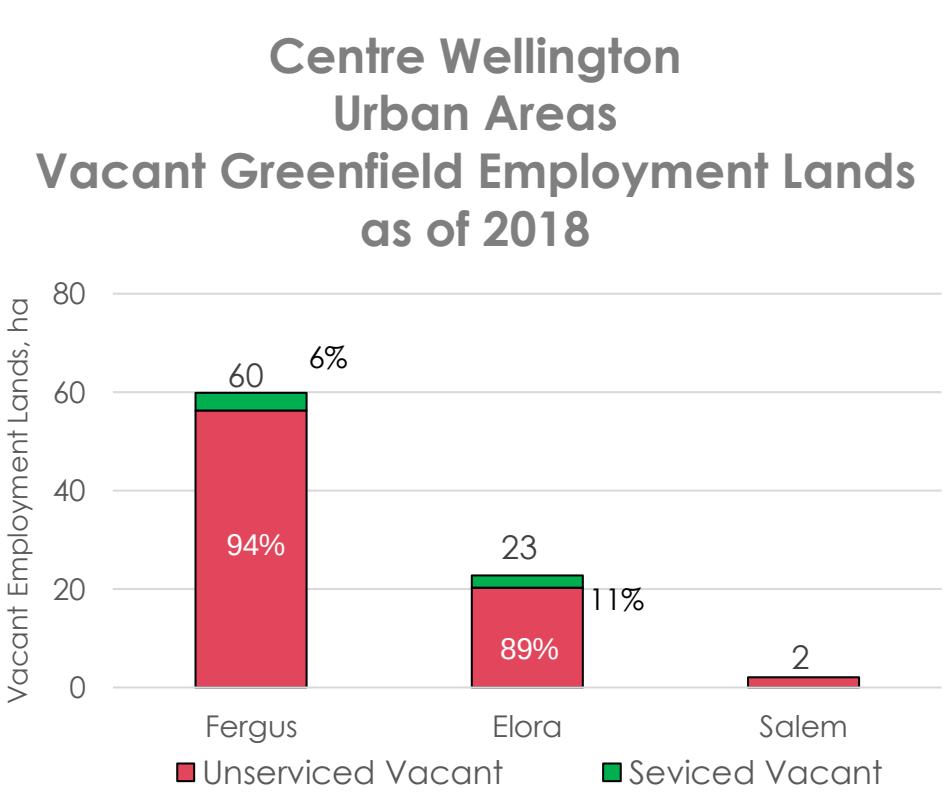
Source: Watson & Associates Economists Ltd., 2018.

Designated Employment Lands by Status and Location



Source: Watson & Associates Economists Ltd., 2018.

Vacant Employment Lands by Location and Servicing Status



Source: Watson & Associates Economists Ltd., 2018.

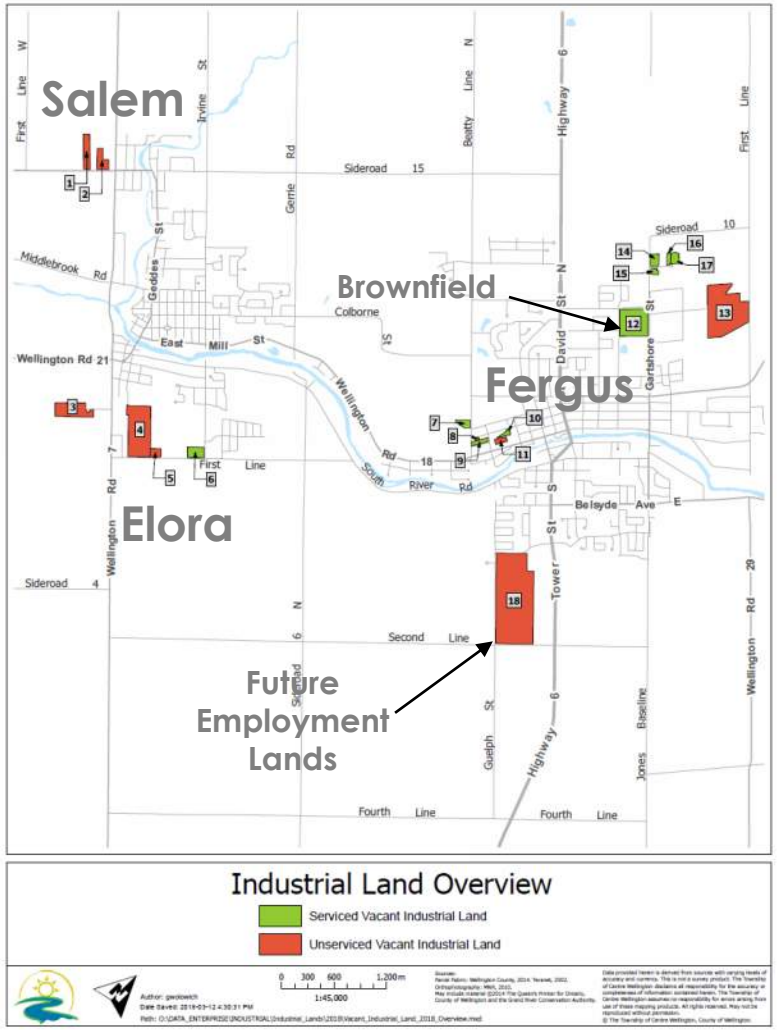
Unserviced: 79 ha

Serviced Greenfield: 6 ha

Total Greenfield: 85 ha

Serviced Brownfield: 12 ha

Unserviced Brownfield: 4 ha



Source: Township of Centre Wellington, 2018

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Vacant Employment Lands by Location and Servicing Status (Cont'd)

Centre Wellington
Urban Areas
Vacant Employment Lands as of March 2018

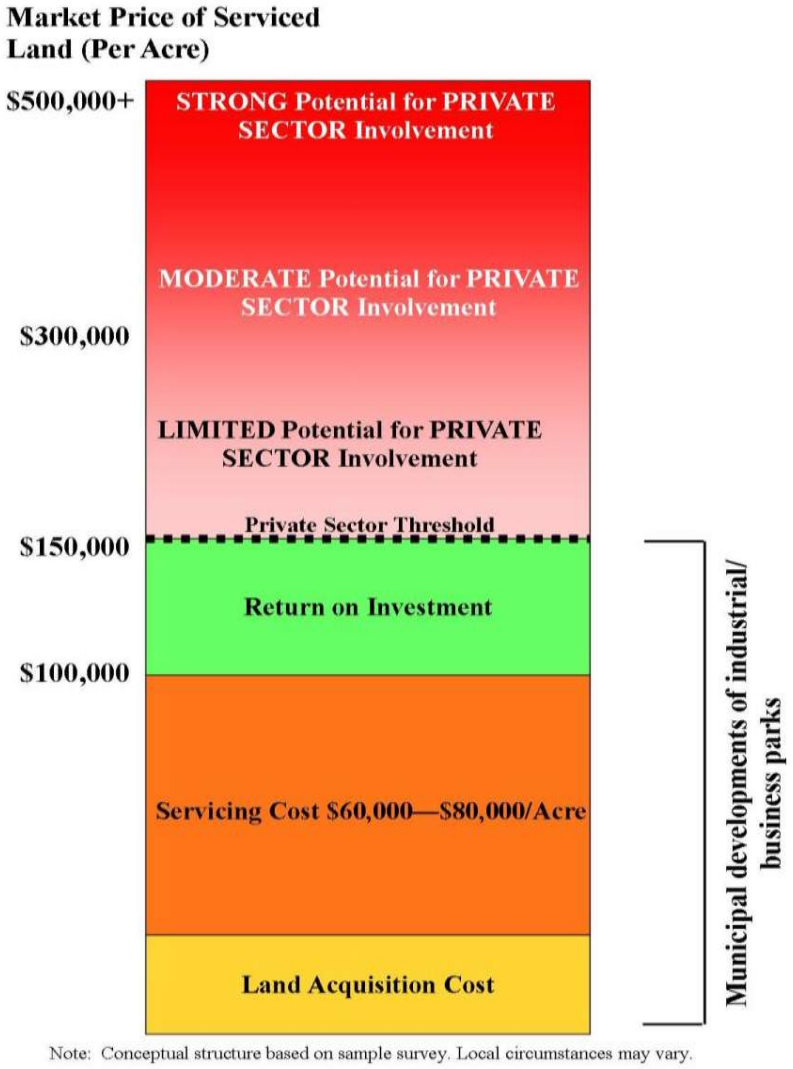
Vacant Employment Land by Status	Developable Lot Area, ha
Serviced Greenfield	**6**
Serviced Brownfield	12
Total Serviced	**18**
Unserviced Greenfield	**79**
Unserviced Brownfield	4
Total Unserviced	**83**
Total Greenfields	**85**
Total Brownfields	17
Total Land Area, including Brownfields	101

Source: Township of Centre Wellington, March 2018.

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A Case for Municipal Employment Lands Development

- Cost components related to the servicing of industrial land



Note: Conceptual structure based on sample survey. Local circumstances may vary.

A Case for Municipal Employment Lands Development (Cont'd)

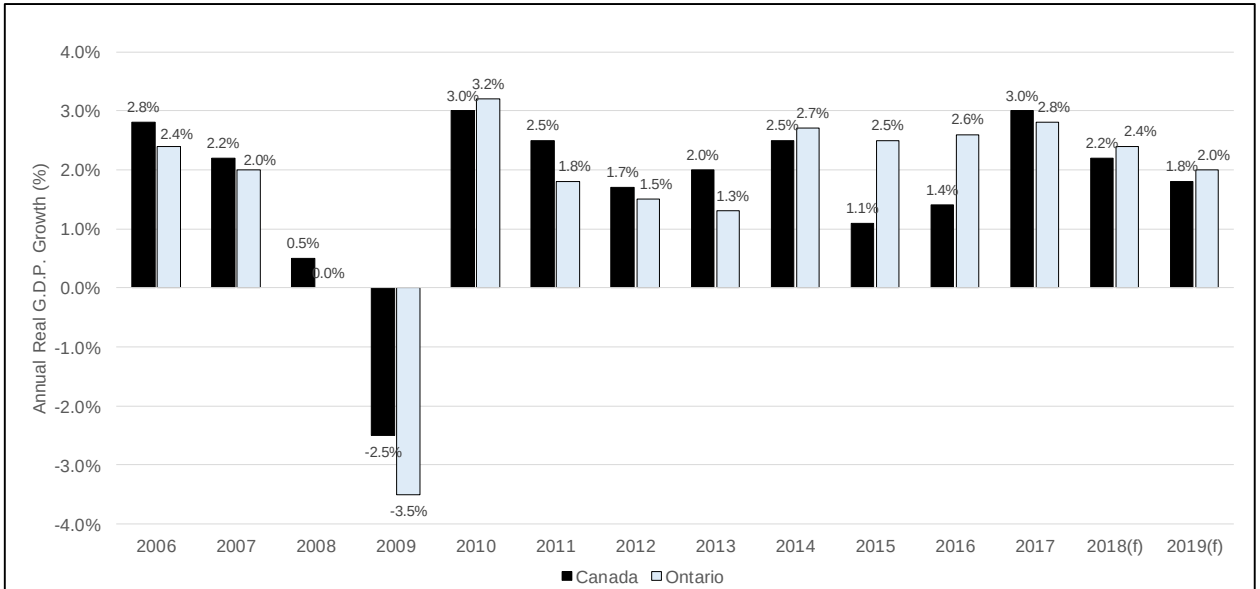
- Opportunities:
  - Higher Degree of Development Control
  - Higher Degree over the Timing of Development
  - Increased Market Choice
  - Marketing
  - Access to Senior Government Programs
  - Availability of Development Land
- Challenges:
  - Financial Commitment and Project Risk

Macro-Economic and Local Industrial Market Assessment

Watson & Associates ECONOMISTS LTD.

National and Provincial Trends

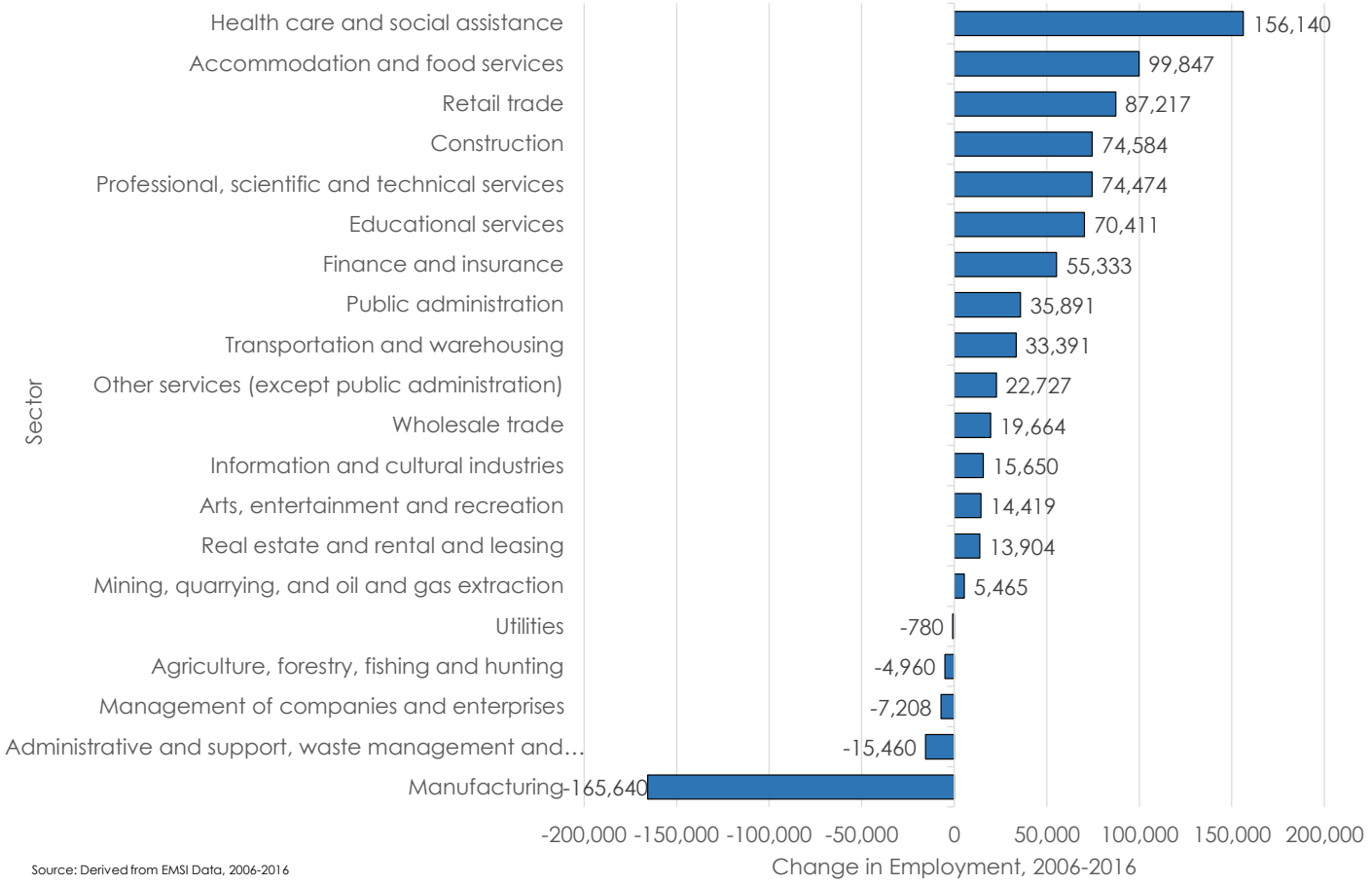
Ontario and Canada
Annual Real GDP Growth (%), 2006 to 2017 and Forecast 2018/2019



Source: Derived from BMO Capital Markets Economics, Provincial Economic Outlook, January, 2018 by Watson & Associates Economists Ltd.
Note: 2018 and 2019 are forecast by BMO Capital Markets Economics.

Provincial Employment Trends

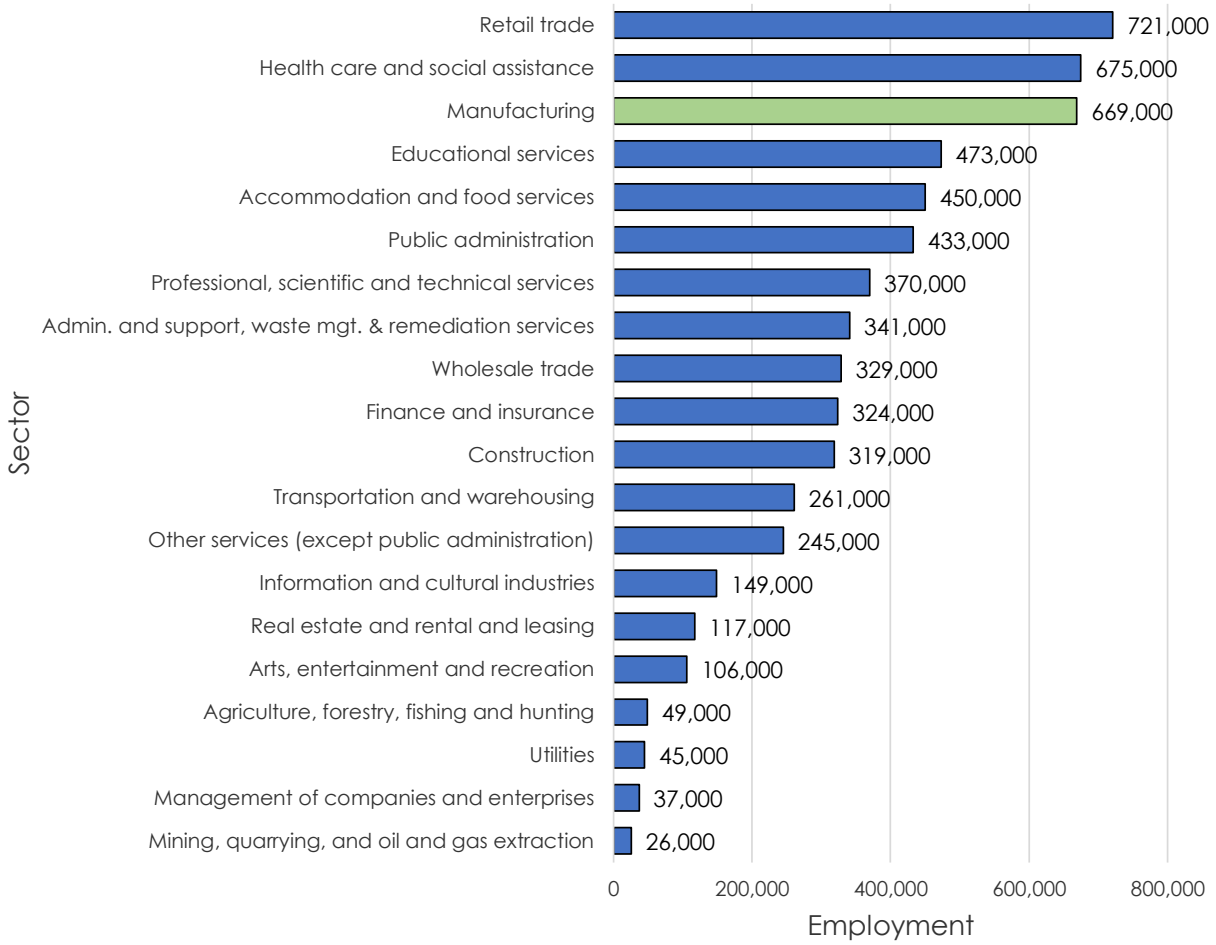
Ontario Employment Change, 2006 to 2016 by Sector



Source: Derived from EMSI Data, 2006-2016

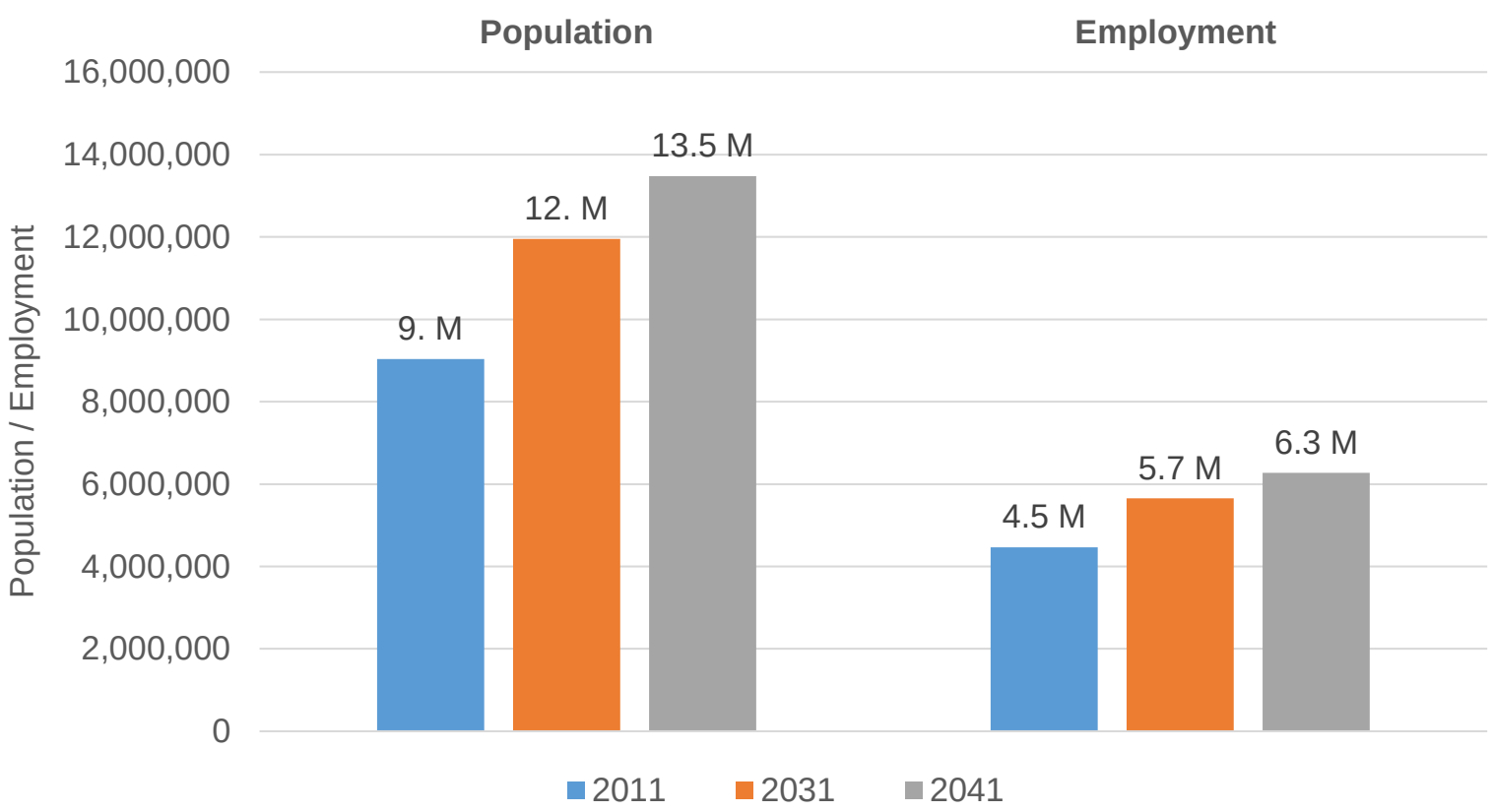
Provincial Employment Trends (Cont'd)

Ontario Employment by Sector, 2016



Macro-Economic Trends/Regional Growth Outlook

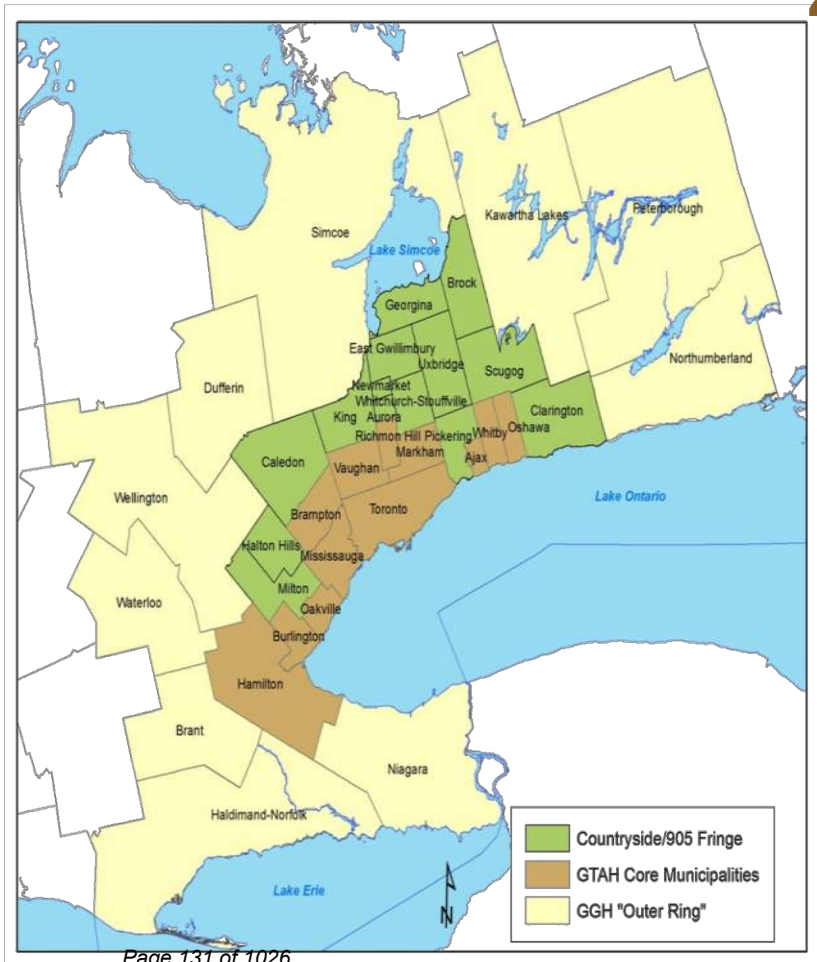
Greater Golden Horseshoe (GGH) Growth Outlook, 2041



Source: Growth Plan for the Greater Golden Horseshoe

Macro-Economic Trends/Regional Growth Outlook (Cont'd)

The Share of Population Growth in the GGH is Changing



	2001-2011	2011-2021	2021-2031
GTHA Core Municipalities	67%	52%	49%
Countryside/905 Fringe	14%	21%	23%
GGH "Outer Ring"	19%	26%	28%

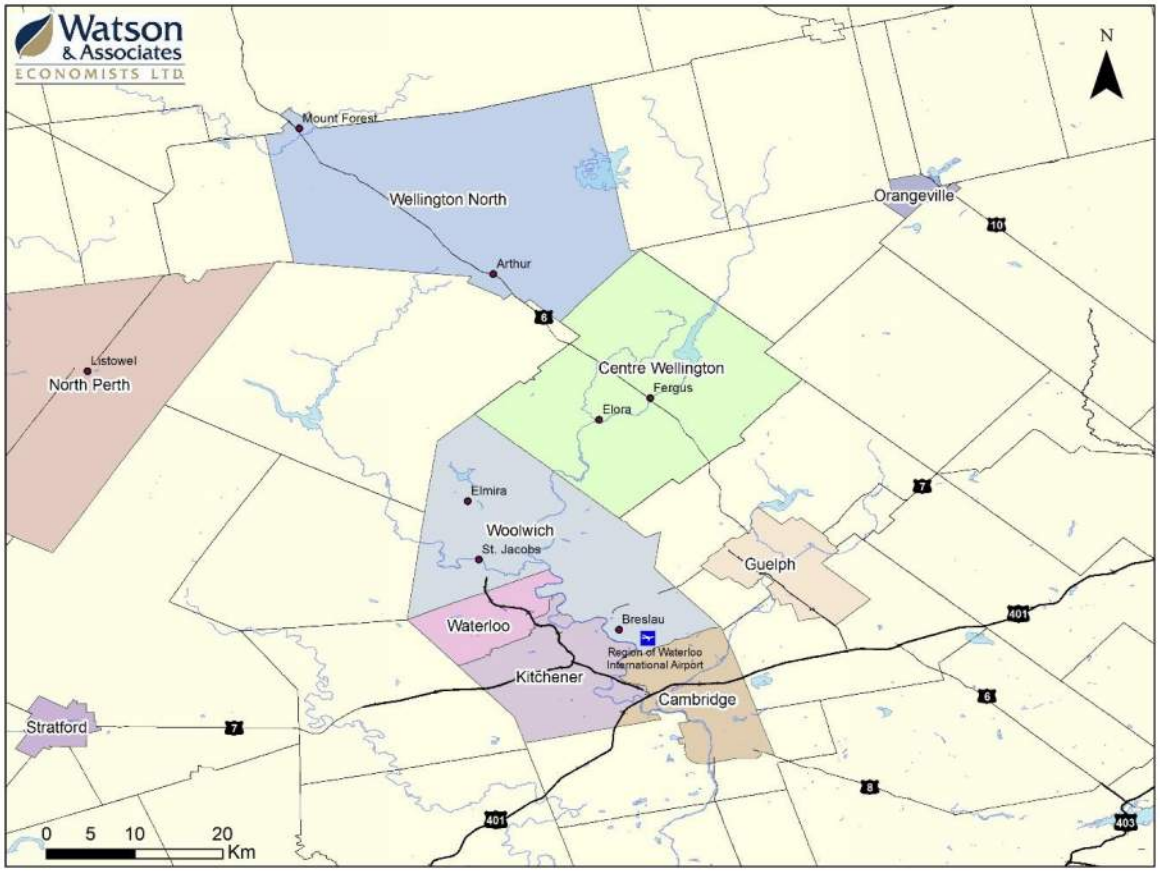
Source: Watson & Associates Economists Ltd.

Municipal Comparator Analysis

Watson & Associates ECONOMISTS LTD.

Municipal Comparator Analysis

Location of Comparators

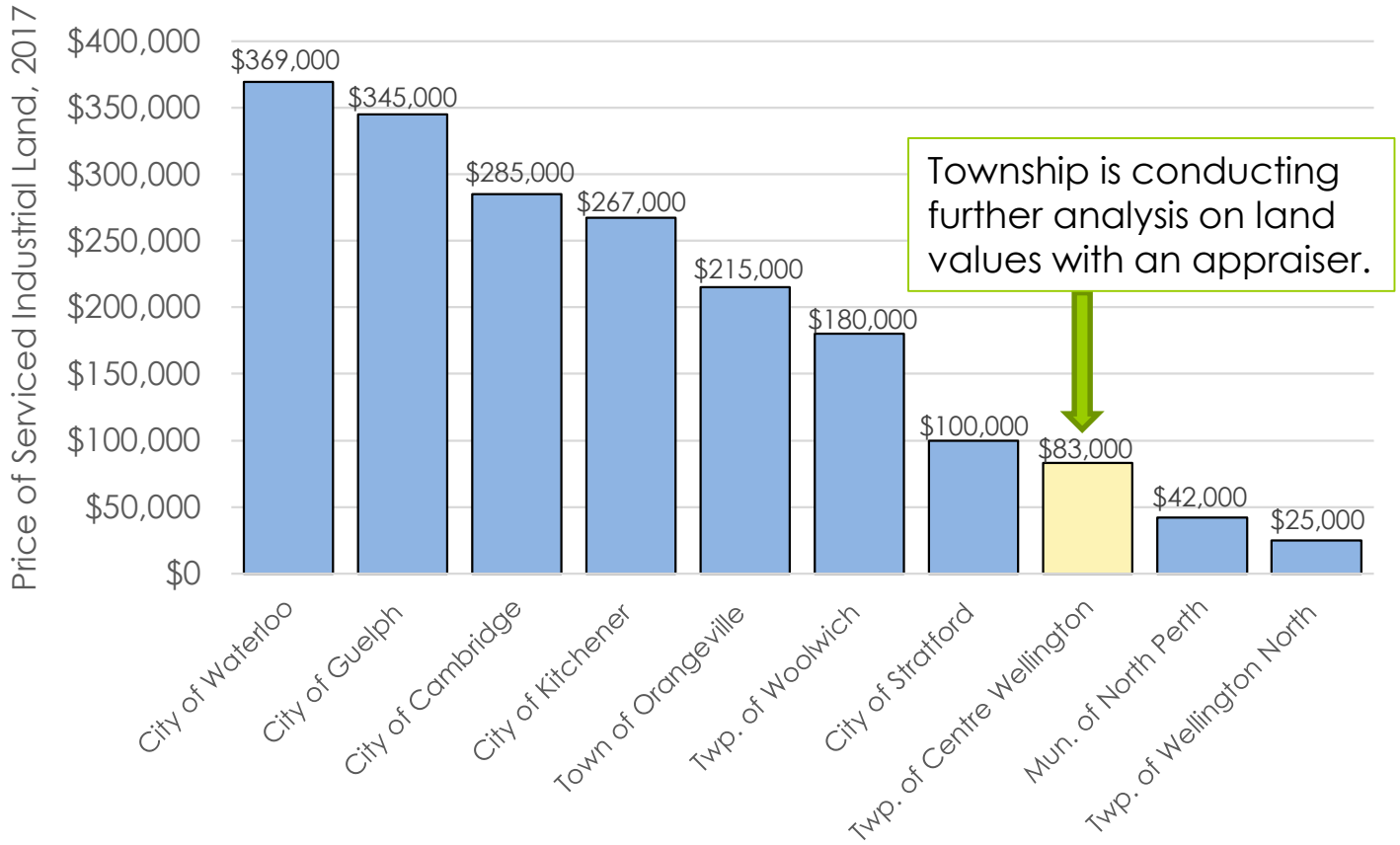


Comparators:

- Wellington North (Mount Forest and Arthur)
- North Perth (Listowel)
- Orangeville
- Stratford
- Woolwich (Elmira and St. Jacobs)
- Guelph
- Waterloo
- Kitchener
- Cambridge

Municipal Comparator Analysis (Cont'd)

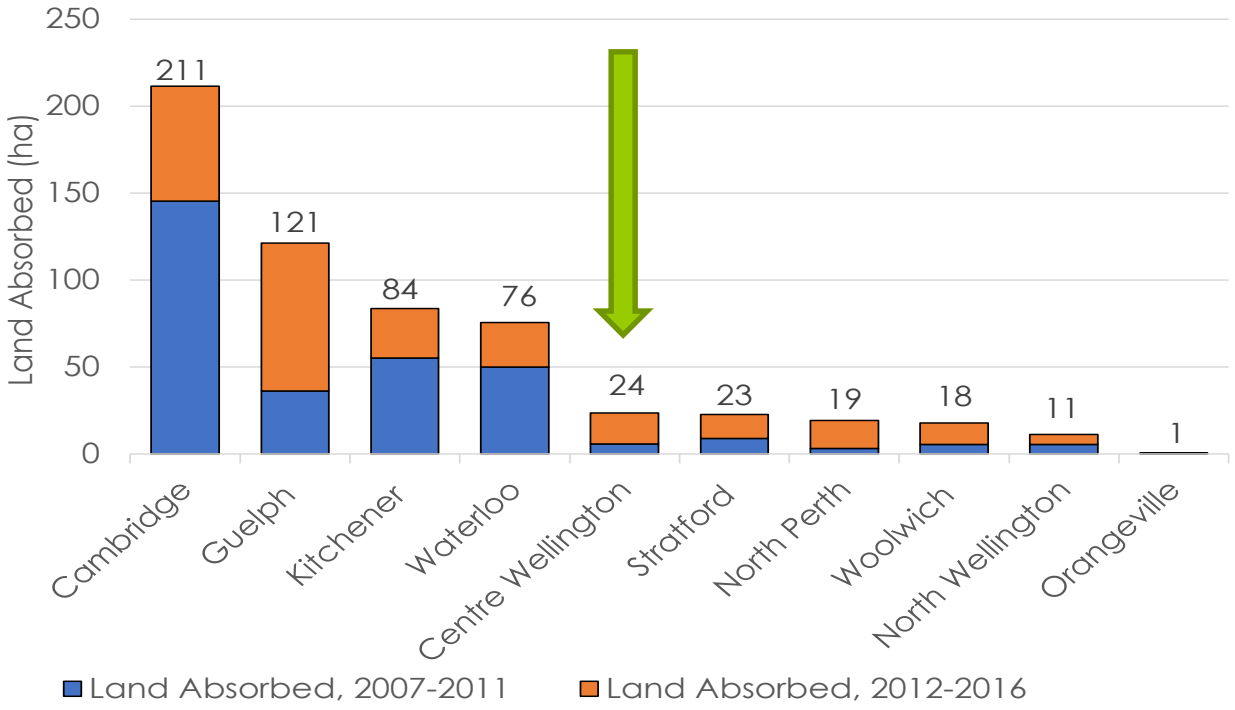
Serviced Urban Employment Land Prices (per acre)



Source: Watson & Associates Economists Ltd.

Municipal Comparator Analysis (Cont'd)

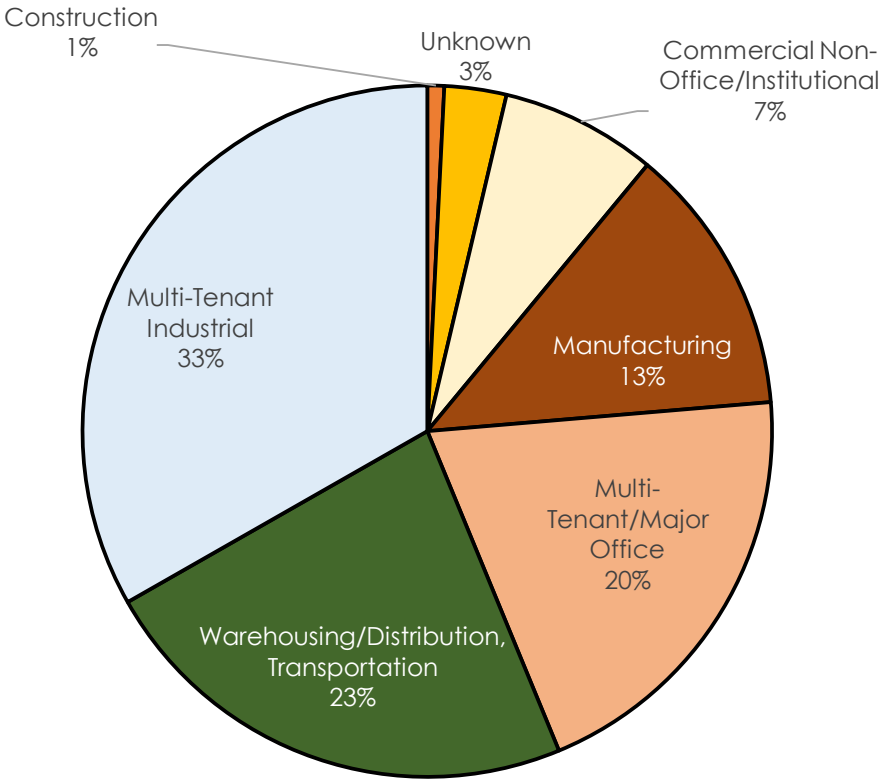
Centre Wellington and Comparators Urban Employment Land Absorption 2007 to 2016



Source: Watson & Associates Economists Ltd.

Municipal Comparator Analysis (Cont'd)

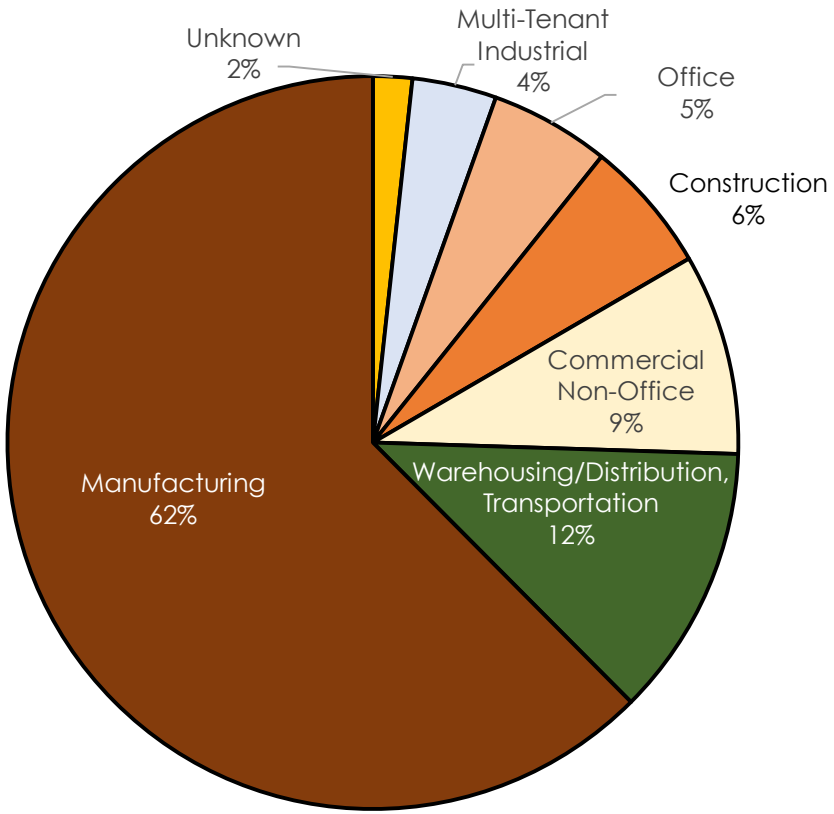
Large Urban Centres
Kitchener, Waterloo, Cambridge and Guelph
Employment Land Absorption by Type of Development



Source: Watson & Associates Economists Ltd.

Municipal Comparator Analysis (Cont'd)

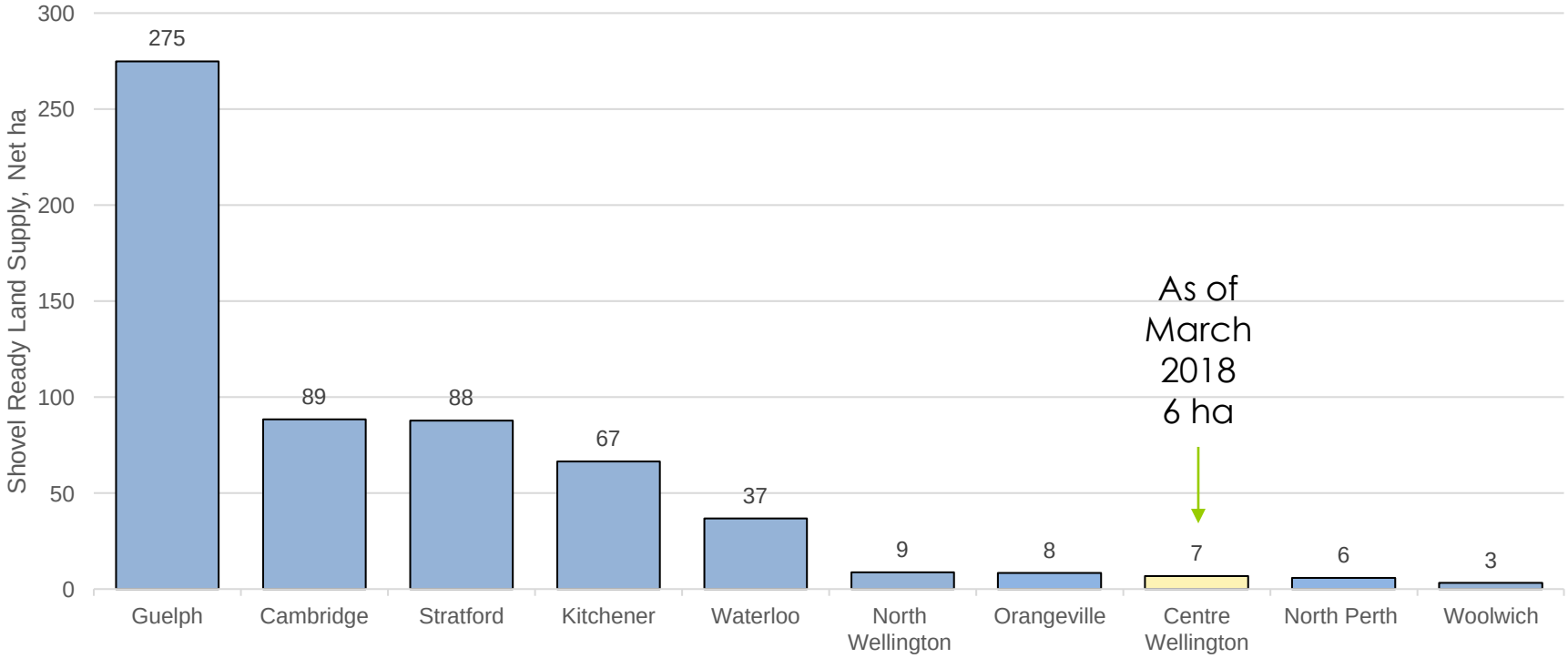
Remaining Municipal Comparators (less than 50,000 population) Employment Land Absorption by Type of Development



Source: Watson & Associates Economists Ltd.

Municipal Comparator Analysis (Cont'd)

Centre Wellington and Comparators Total Designated Shovel-Ready Employment Land Supply (ha), 2017



Source: Watson & Associates Economists Ltd.
Notes: Shovel-ready includes employment lands with servicing and access to roads.
For comparison purposes, the supply of shovel-ready for Centre Wellington is based on data at the time of the survey (2017). Shovel-ready land as of March 2018 is 6 hectares.

Municipal Comparator Analysis (Cont'd)

Employment Land Needs within the Broader Regional Market Area

Employment Land Needs	Municipal Comparators (excluding Centre Wellington)	Net Ha
"Shovel-ready"	2017 "Shovel-ready" Vacant Employment Land Supply	494
	2017-2021 Forecast Employment Land Absorption	392
	2021 Employment Land Surplus/(Shortfall)	102
Designated Serviced/Serviceable	2017 Designated Vacant Employment Land Supply	1,405
	2017-2031 Forecast Employment Land Absorption	1,309
	2031 Employment Land Surplus/(Shortfall)	96

Note: Adjustment made to vacant land supply of 15% to account for long-term vacancy.

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Municipal Comparator Analysis (Cont'd)

Annualized Cost Competitiveness Assessment – Key Inputs

Key Development Cost Inputs:

- Construction Costs – hard and soft costs
- Cost of Land
- Development Charges
- Provision for Developer Profit

Key Operating Cost Inputs:

- Property Taxes
- Average assessment per sq.ft. (sample)
- Utilities
- Water and Wastewater Rates
- Consumption Assumptions

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Municipal Comparator Analysis (Cont'd)

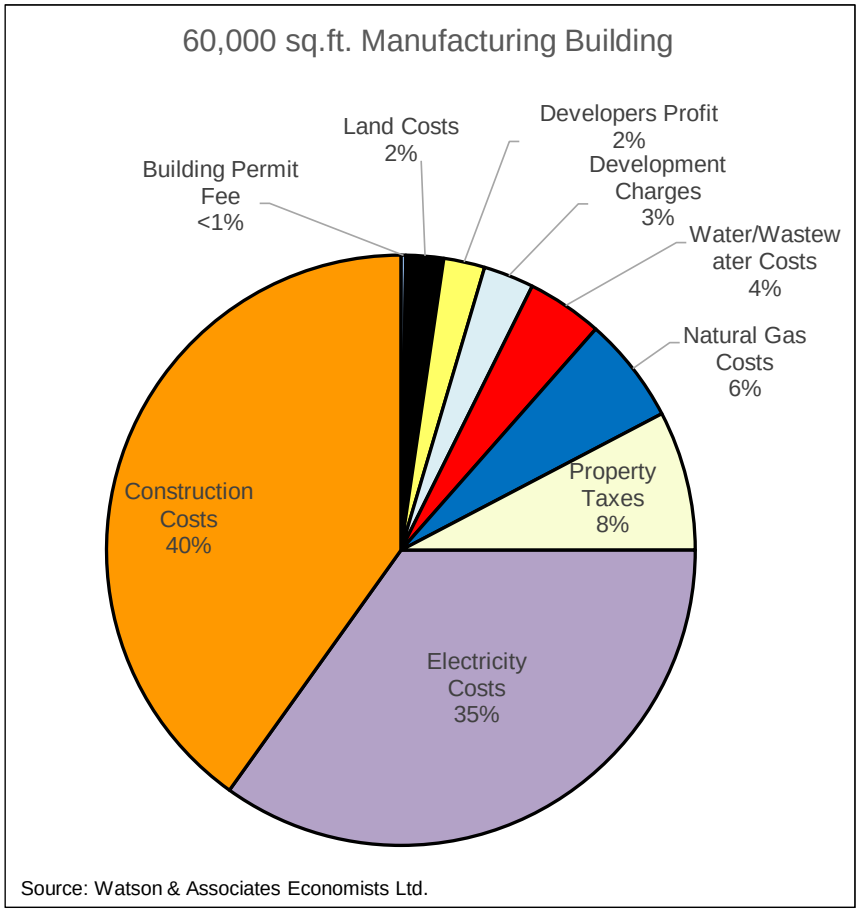
Cost Competitiveness Analysis – Prototype Developments

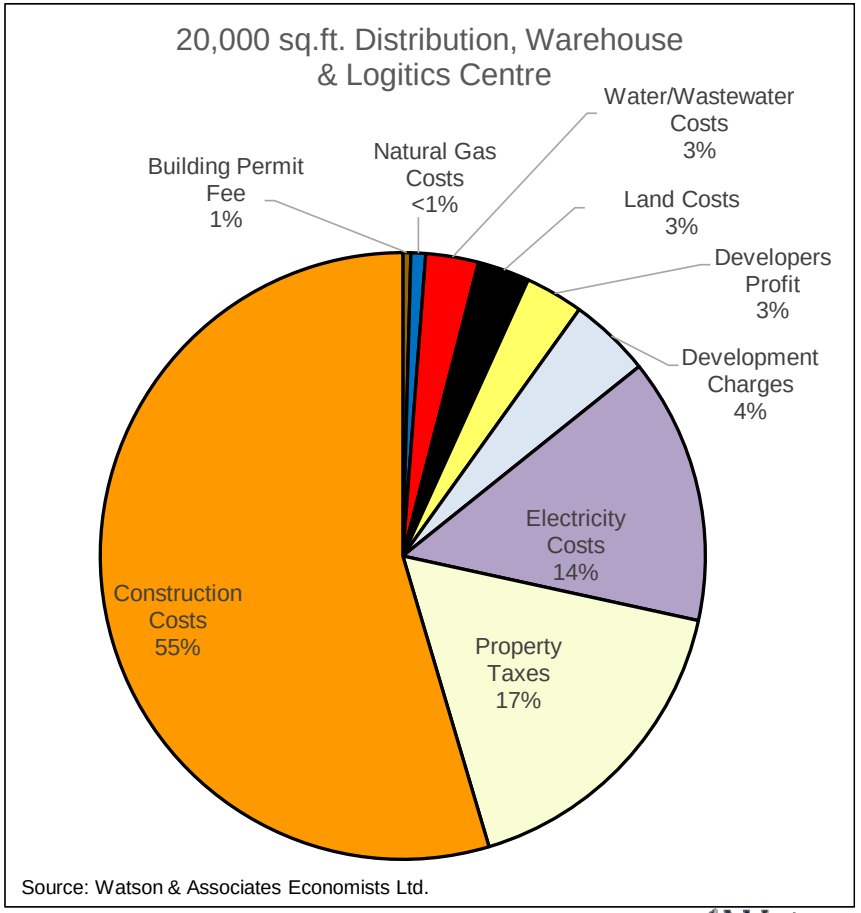
Building Type	Gross Floor Area		Floor Space Index	Land Area	
	sq.m.	sq.ft.		net ha	net acres
Manufacturing Facility	5,575	60,000	30%	1.9	4.6
Distribution/Logistics Centre	1,860	20,000	35%	0.5	1.3
Industrial Shop/Warehouse and Yard	1,115	12,000	15%	0.7	1.8
Multi-Tenant Industrial Condominium Building	2,785	30,000	35%	0.8	2.0

Source: Watson & Associates Economists Ltd.

Annualized Cost Components- Centre Wellington

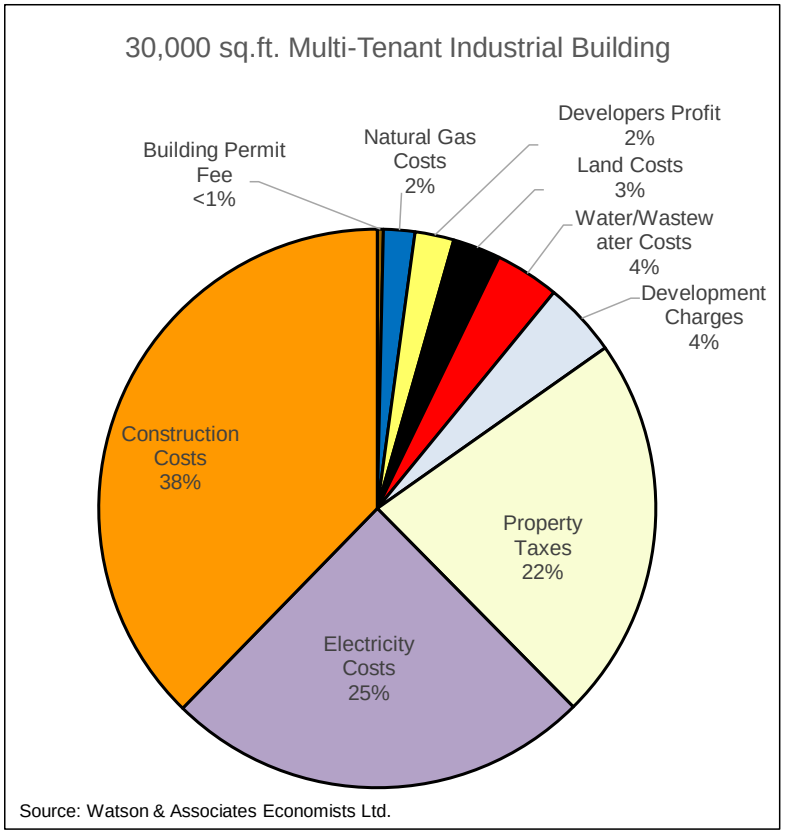
- Figures illustrated the annualized development and operating cost components by development type

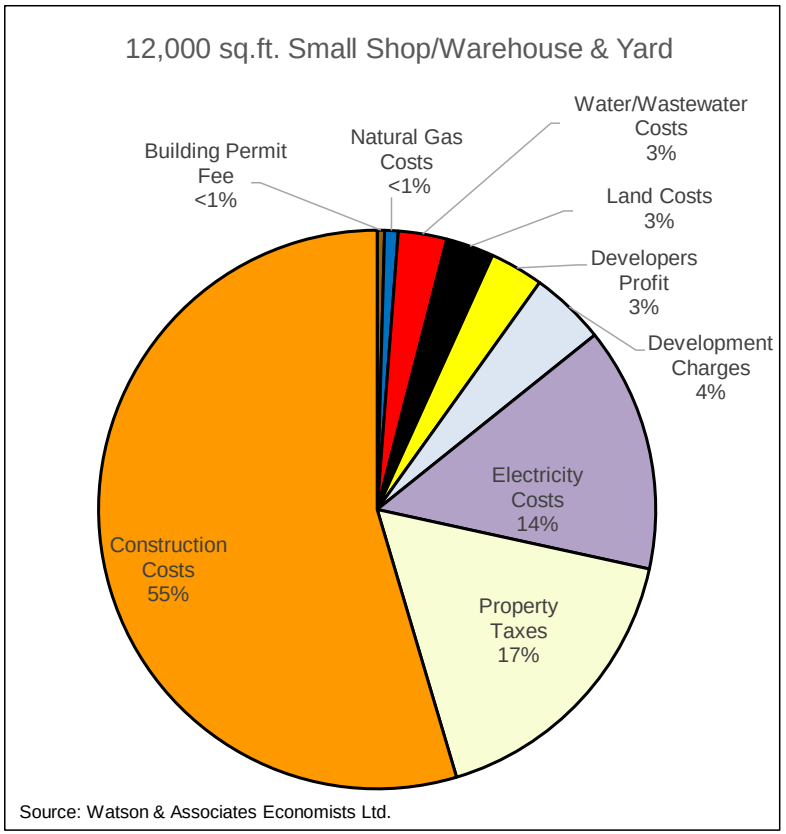




Annualized Cost Components- Centre Wellington (Cont'd)

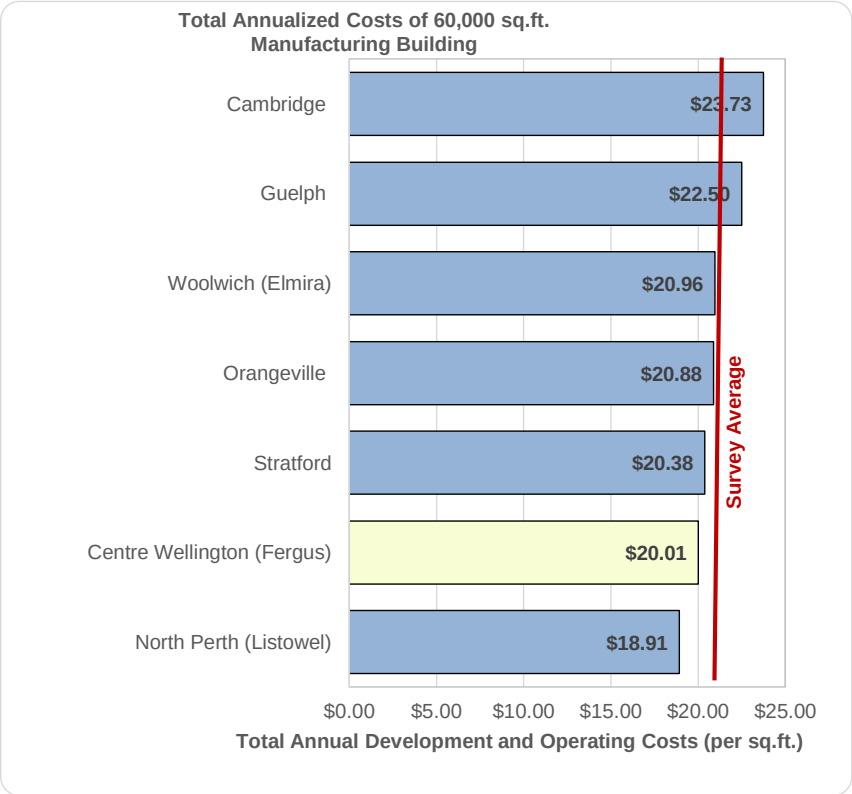
- Figures illustrated the annualized development and operating cost components by development type

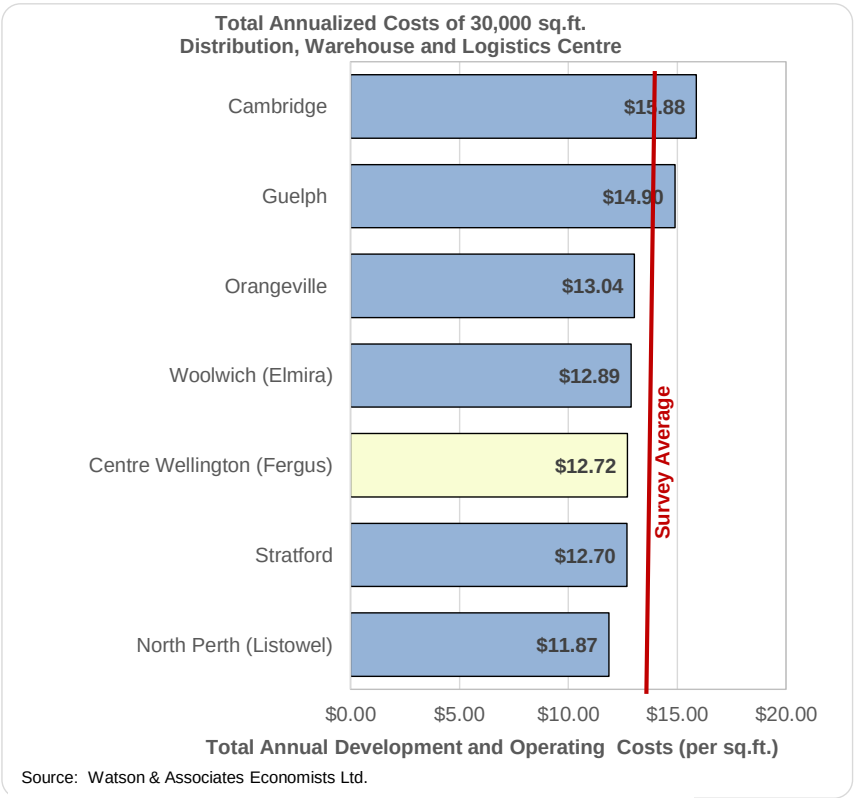




Total Development Cost/Annualized Cost

Annualized Development and Operating Costs (sq.ft.)

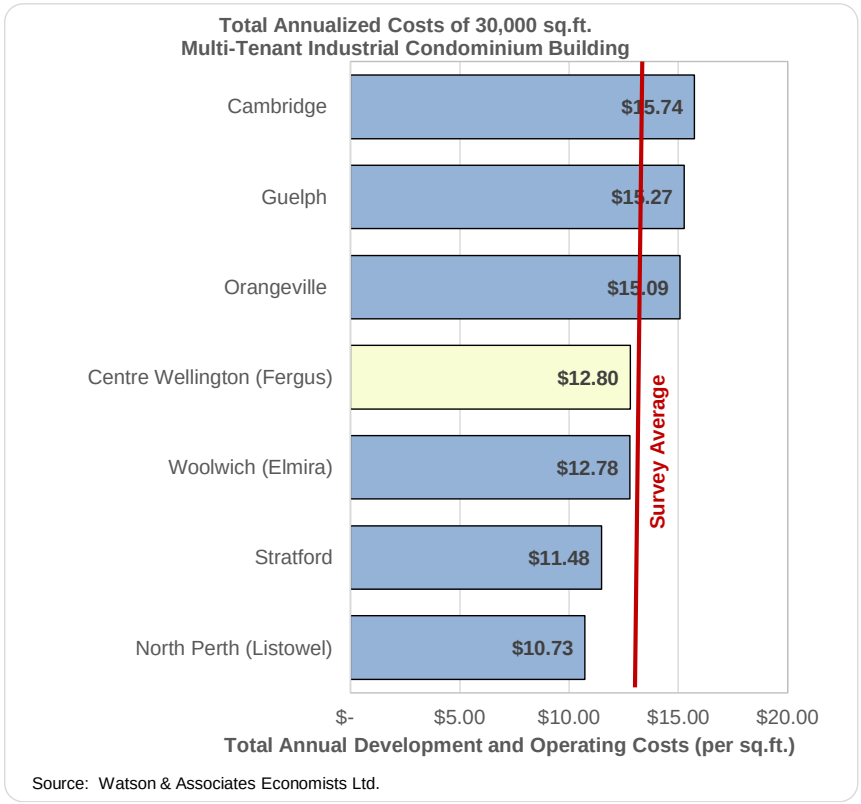




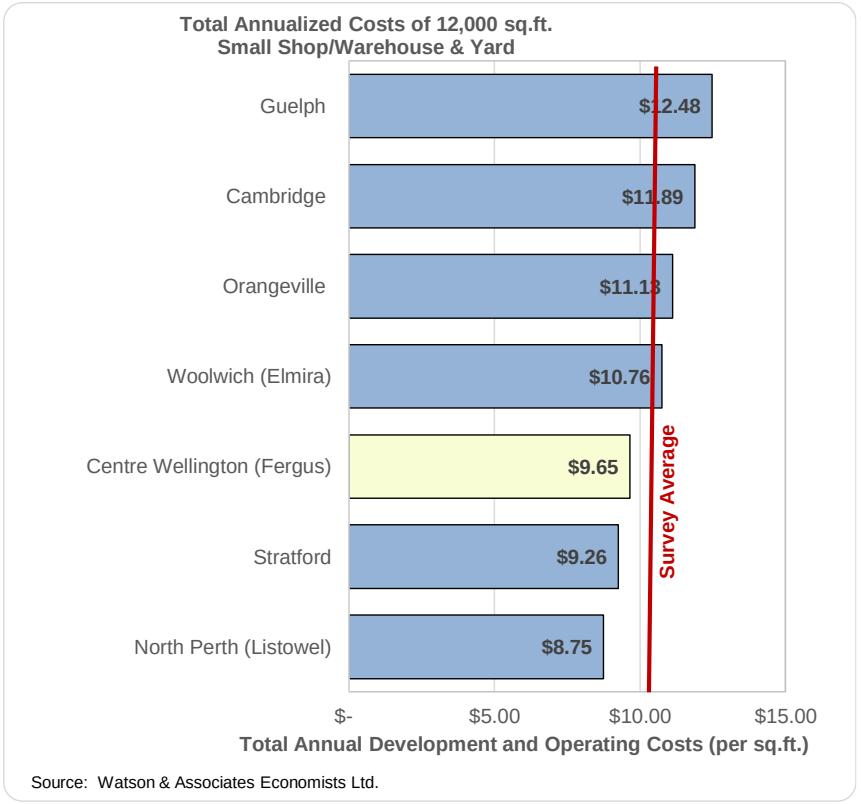
Source: Watson & Associates Economists Ltd.

Total Development Cost/Annualized Cost (Cont'd)

Annualized Development and Operating Costs (sq.ft.)



Source: Watson & Associates Economists Ltd.



Source: Watson & Associates Economists Ltd.

Summary Cost Competitiveness

Development Costs

- Development costs are higher in Centre Wellington compared to North Perth and Stratford, largely due to lower or no development charges in North Perth and Stratford
- Due to higher land prices and higher development charges, development costs are higher for the large urban centres, Orangeville and Woolwich compared to Centre Wellington, North Perth and Stratford
- Overall, Centre Wellington is competitive in respect to development costs due to low land prices and moderate development charge and building permit rates

Summary Cost Competitiveness (Cont'd)

Annual Operating Costs

- In terms of operating costs, Centre Wellington operating are higher than North Peth and Stratford
- Centre Wellington is competitive with the municipal comparators in regards to property taxes;
- Water and wastewater costs in Centre Wellington are higher for the manufacturing development scenario due to higher volume consumption rates in Centre Wellington compared to other municipalities, however water and wastewater costs are generally offset by lower property tax costs in Centre Wellington

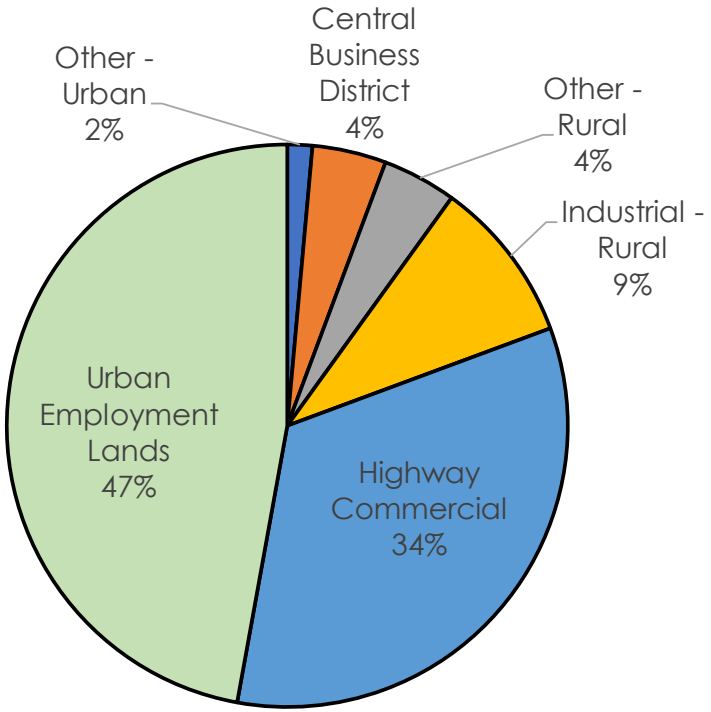
Local Development Characteristics

Watson & Associates ECONOMISTS LTD.

Local Development Trends

Centre Wellington
Non-Residential Building Permit Activity (GFA) by Area, 2007 to 2016

- Between 2007 and 2016, the Township averaged approximately 91,000 sq.ft. of non-residential development activity

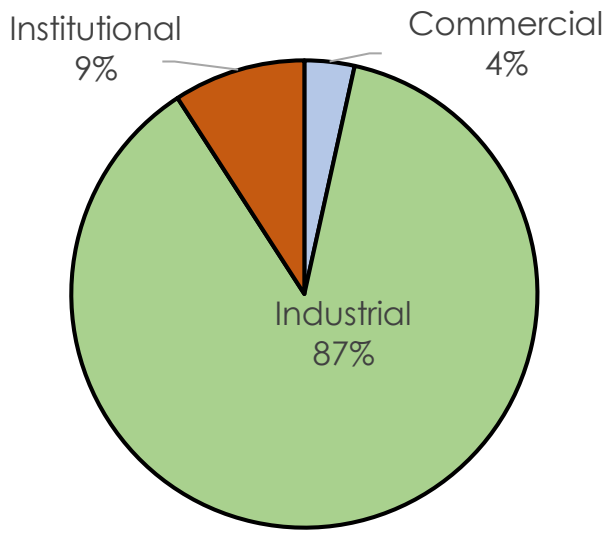


Source: Derived from Township of Centre Wellington Non-Residential Building Permit Activity, 2007-2016 by Watson & Associates Economists Ltd.

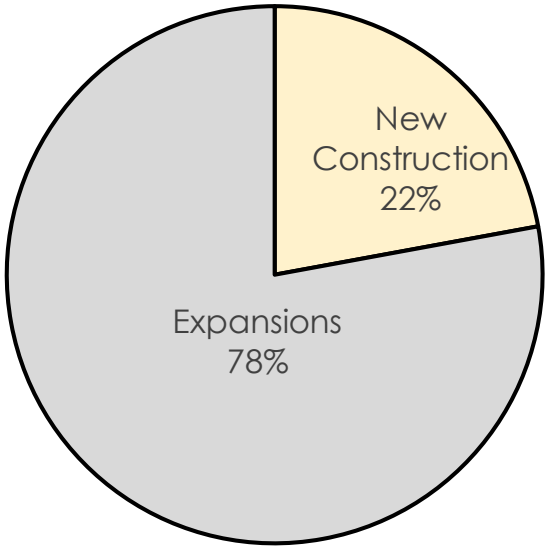
Local Development Trends (Cont'd)

Centre Wellington
Non-Residential Building Permit Activity, Urban Employment Lands, 2007 to 2016

Urban Employment Lands GFA Development by Sector



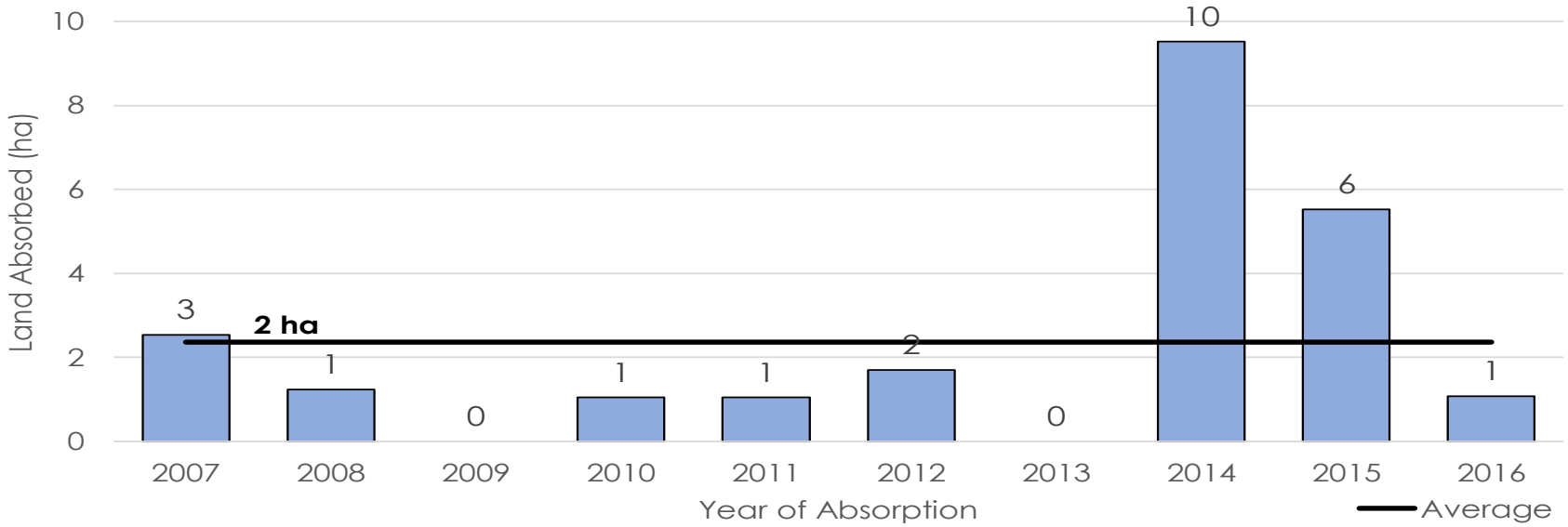
Urban Employment Lands GFA Development by Sector



Source: Derived from Township of Centre Wellington Non-Residential Building Permit Activity, 2007-2016 by Watson & Associates Economists Ltd.

Local Development Trends (Cont'd)

Centre Wellington
Urban Areas
Annual Land Absorption (ha), Employment Lands (Industrial), 2007 to 2016



Source: Watson & Associates Economists Ltd. Absorption data was obtained utilizing new non-residential building permit data

Employment Land Characteristics

Building Characteristics

- The total building GFA on urban employment lands is approximately 2.6 million sq.ft.
- 4 large manufacturing buildings (greater than 60,000 sq.ft.) comprise 51% of the GFA
- 63 of the 73 buildings on employment lands are smaller than 30,000 sq.ft.
- 40% of lots are larger than 1 ha

Employment Land Averages:

Building Footprint: 34,000 sq.ft.

Floor Space per Worker: 1,800 sq.ft./per employee

Average Lot Size (ha): 1.7 ha

Building Site Coverage: 19%

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Employment Land Characteristics

Small Shops – Less than 25,000 sq.ft.

- Represents 30% of the buildings on employment lands and comprise 15% of the developed land area and 10% of the GFA.



Railmaster Stairways Ltd.
952 Glengarry Cres.
GFA: 22,000 sq.ft.
Land Area: 0.8 ha
Density: 21 jobs/ha



H&R Machine
201 Gregson Court
GFA: 6,200 sq.ft.
Land Area: 0.5 ha
Density: 16 jobs/ha

Employment Land Characteristics

Multi-Tenant Buildings – 6,000 – 62,000 sq.ft.

- Comprise 3% of the developed land area and 5% of the GFA.



The Beckett Centre (26 tenants)
820 Gartshore St.
GFA: 28,000 sq.ft.
Land Area: 0.9 ha
Density: 85 jobs/ha



3 Tenants
640 Gartshore St.
GFA: 14,000 sq.ft.
Land Area: 1.3 ha
Density: 8 jobs/ha

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Employment Land Characteristics

Small/Mid-Sized Manufacturing – 25,000 – 60,000 sq.ft.

- Comprises 6% of the developed land area and 11% of the GFA.



Cooke & Denison Plant Two
514 Dickson Dr.
GFA: 30,000 sq.ft.
Land Area: 1.2 ha
Density: 29 jobs/ha



Newdon Industries
597 Glengarry Cres.
GFA: 32,000 sq.ft.
Land Area: 1.5 ha
Density: 5 jobs/ha

Employment Land Characteristics

Wholesale, Transportation and Logistics Buildings

- Comprises 16% of the developed land area and 25% of the GFA.



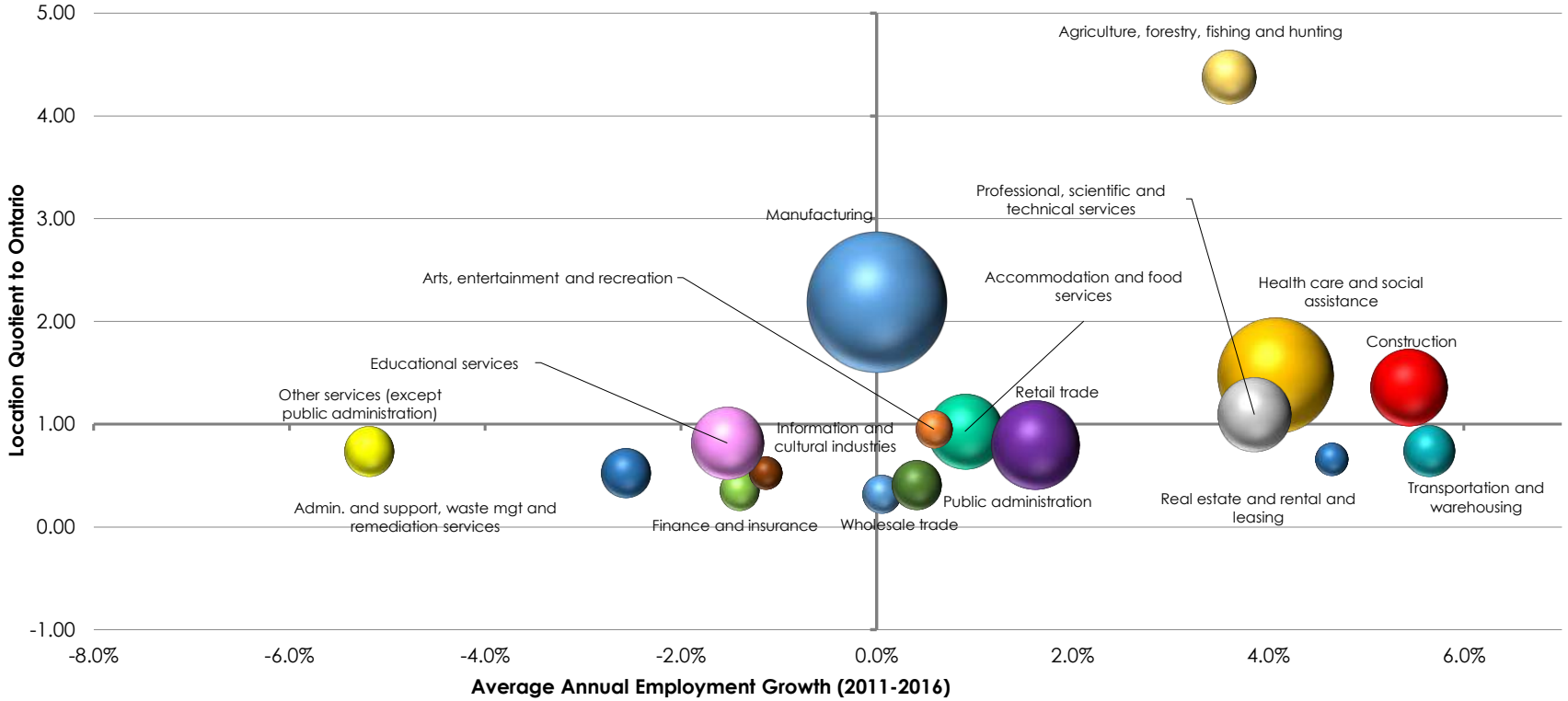
Walinga Inc.
938 Glengarry Cres.
GFA: 15,000 sq.ft.
Land Area: 1.7 ha
Density: 6 jobs/ha



Vandermarel Trucking
655 Dickson Dr.
GFA: 17,000 sq.ft.
Land Area: 3.0 ha

Employment Growth and Land Needs Outlook, 2031

Centre Wellington
Industrial Cluster Size and Growth Matrix

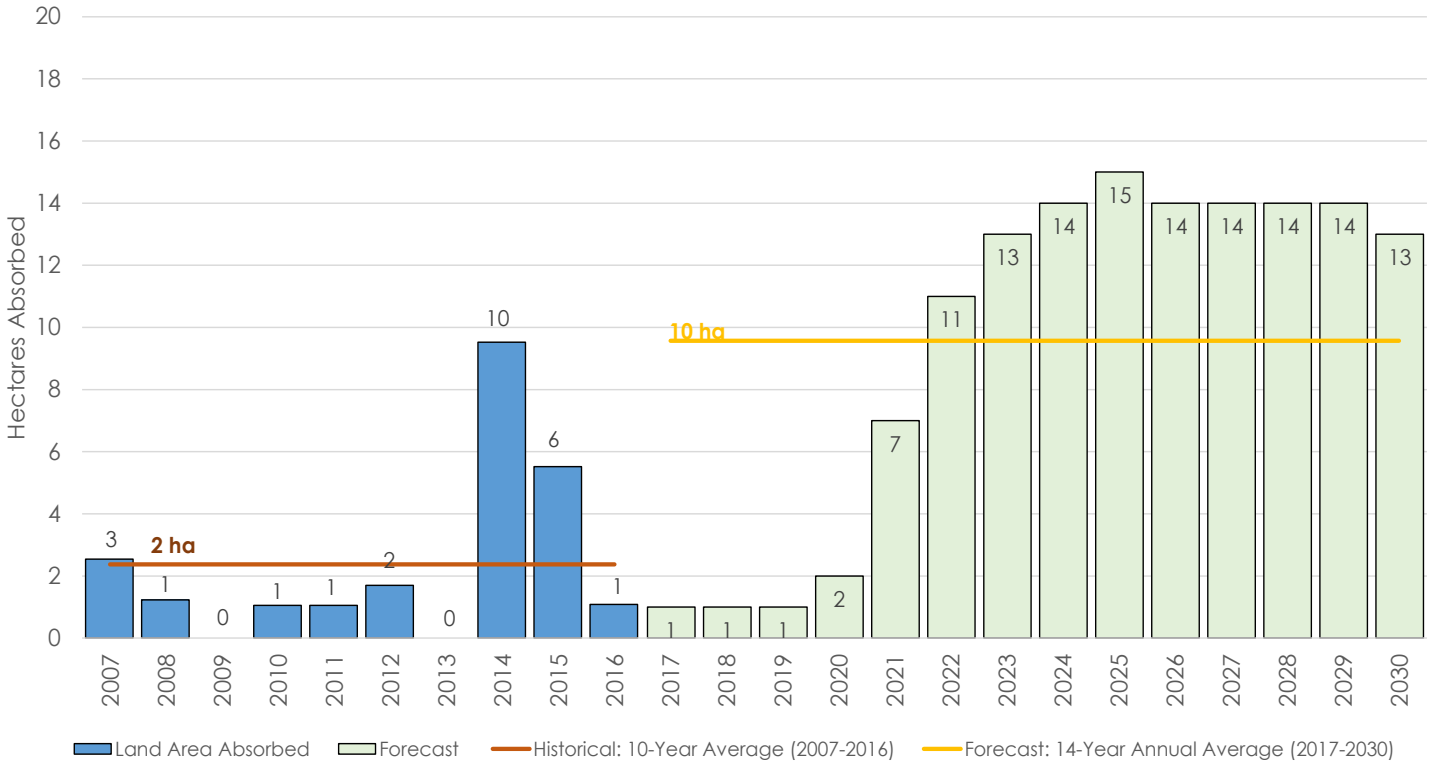


Note: Due to high LQ, Mining, Quarrying, and Oil and Gas Extraction, Management of Companies and Utilities are not displayed as they each have an employment base less than 60.

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Employment Growth and Land Needs Outlook, 2031 (Cont'd)

Centre Wellington
Annual Absorption Forecast, 2017 to 2030



Source: Watson & Associates Economists Ltd., 2017.

Employment Growth and Land Needs Outlook, 2031 (Cont'd)

Centre Wellington
Total Employment Land Needs
(Demand vs. Supply)
2017 to 2031

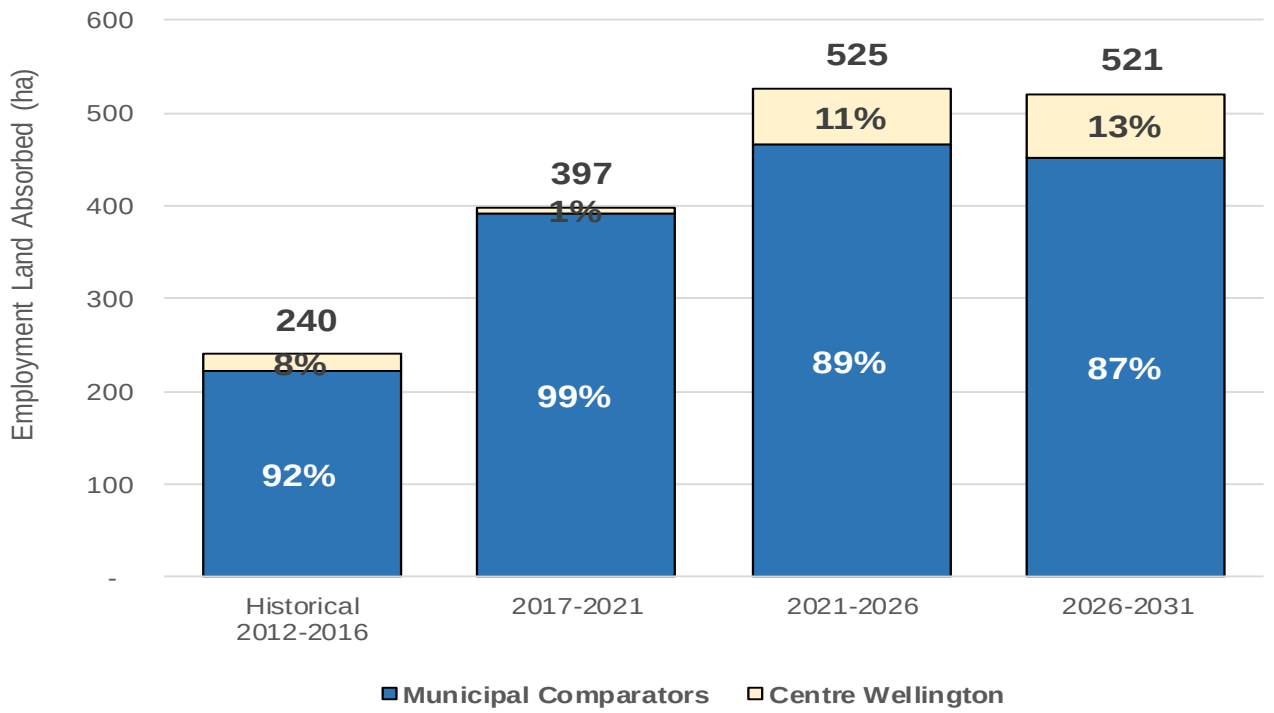
	2017-2031	
	Ha	Acres
Net Employment Land Demand	134	331
Net Employment Land Supply[1]	86	211
Deficit	-48	-120

Source: Watson & Associates Economists Ltd.

1. Based on supply as of 2017. Vacant supply as of March 2018 is 85 ha

Comparators – Employment Land Forecast

Township of Centre Wellington Regional Market Capture



Source: Watson & Associates Economists Ltd.

Conclusions and Recommendations

Conclusions and Recommendations

- The Township's supply of shovel-ready employment land is very limited and insufficient to accommodate the Township's forecast employment land needs to 2031 and beyond
- Given relatively low development feasibility associated with industrial land development in Centre Wellington, there is limited return on investment for the private sector

Conclusions and Recommendations
(Cont'd)

- The capital costs associated with the development of the selected industrial sites in Fergus and Elora are significant
- Funding of these works needs to be considered within the context of the Development Charges Act (DCA), the Township's development charges (DC) background study and the Township's Local Service Policy

Conclusions and Recommendations
(Cont'd)

- It is important to recognize that there are also broader economic benefits associated with the potential growth of the Township's employment land base, including:
  - Direct Jobs
  - Indirect Jobs
  - Temporary Construction Jobs
  - Plus induced economic effects from increased labour income and wealth generated from local employment opportunities

Conclusions and Recommendations
(Cont'd)

- Local employment growth and, more specifically, export-based employment growth are important objectives for the Township related to:
  - Generation of local tax assessment
  - Local live/work employment opportunities
  - Reduced commuting dependency which also generates positive environmental impacts as well as quality of life enhancements
  - Township and County OP vision, as well as the guiding principles of the Provincial Growth Plan

Conclusions and Recommendations
(Cont'd)

- Moving forward, the Township will need to explore and prioritize next steps towards an implementation strategy
- The Township should explore the development of an Economic Development Action Plan. This Action Plan should focus on, but not be limited to, the identification of target industry sectors, investment attraction, marketing, monitoring, reporting, as well as strategic economic development goals and implementation

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Appendix B – Macro-Economic and Demographic Trends

Macro-Economic and Demographic Trends

B.1 Provincial Economic Trends

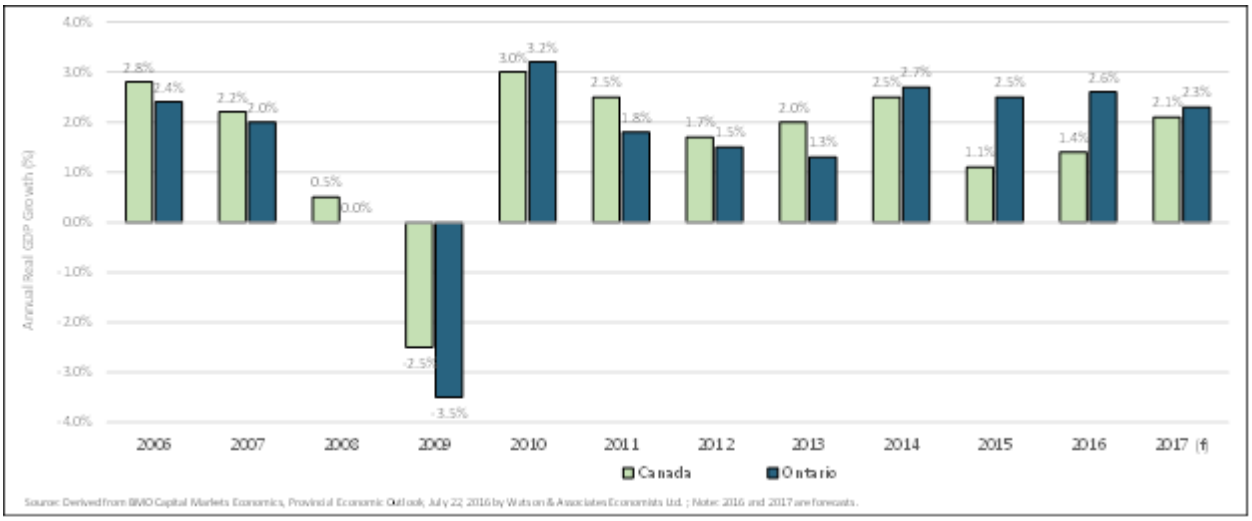
B.1.1 Ontario's Shifting Economic Structure

The Ontario economy is facing significant structural changes. Over the past several decades, the provincial economic base, as measured by GDP (gross domestic product) output, has shifted from the goods-producing sector (i.e. manufacturing and primary resources) to the services-producing sector. Much of this shift has occurred in the past seven to nine years, driven by GDP declines in the manufacturing sector which were most significant immediately following the 2008/2009 global economic downturn. In contrast, services-based sectors such as financial and business services have seen significant increases over the period. Growth in the services-based sectors has been driven by strong growth in domestic demand, particularly in consumer spending.

The economic recession hit Ontario relatively hard with significant declines in manufacturing output, particularly in the auto sector, and in construction. While the Ontario economy has experienced a rebound in economic activity since the 2008/2009 global economic downturn, this recovery has been slow to materialize. That said, provincial GDP levels have sharply rebounded since 2014 and are forecast to remain well above the national average in 2017. Stronger provincial economic growth is attributed, in part, to a modest improvement in the economic outlook in the United States (U.S.) and an improving export market due, in part, to a lower-valued Canadian dollar.[1]

[1] Valued at approximately $0.78 U.S. as of April 2018.

Figure B-1
Annual Real GDP Growth, Ontario and Canada
Historical (2006 to 2016) and Forecast (2017)



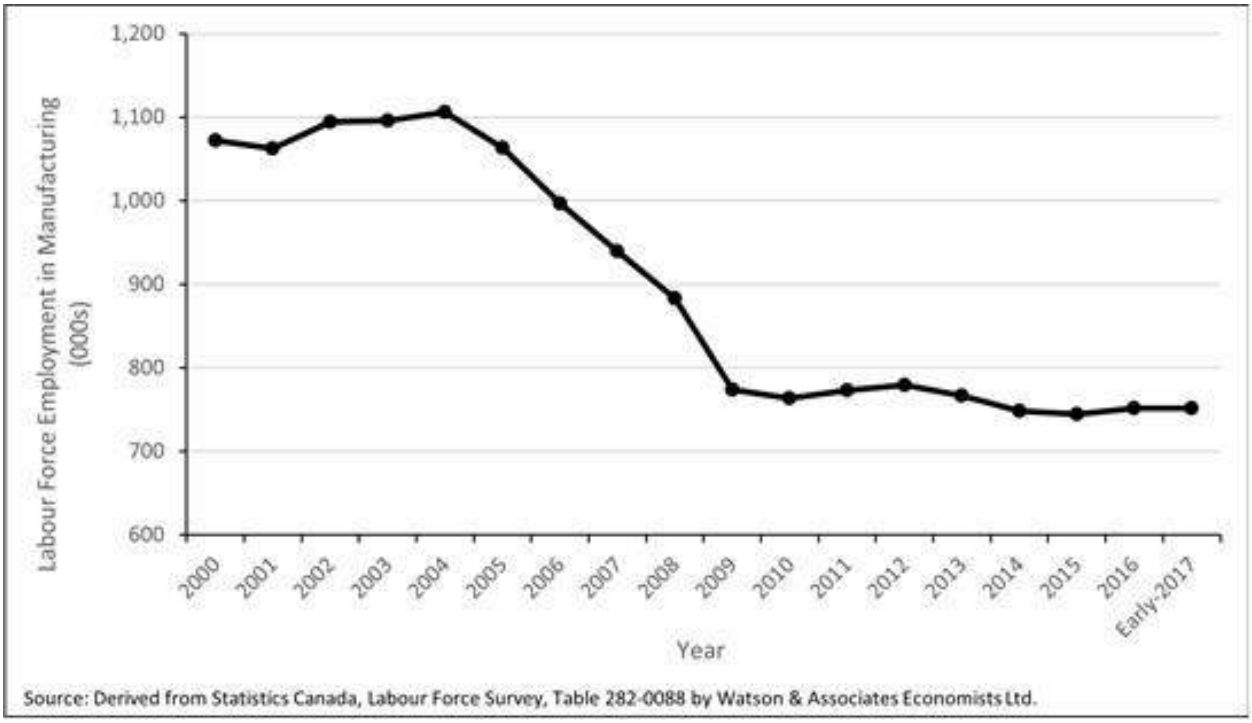
Source: Derived from BMO Capital Markets Economics, Provincial Economic Outlook, July 22, 2016 by Watson & Associates Economists Ltd. ; Note: 2016 and 2017 are forecasts.

B.1.2 Outlook for Ontario's Manufacturing Sector

The provincial economy is expected to continue to shift to an increasingly services-based economy driven by strong growth in "knowledge-based" sectors. While manufacturing remains vitally important to the provincial economy with respect to jobs and economic output, this sector is not anticipated to generate significant labour-force growth across the Province. In general, globalization has led to increased outsourcing of production processes to overseas manufacturers. While there will continue to be a manufacturing focus in Ontario, industrial processes have become more capital/ technology intensive and automated. The highly competitive nature of the manufacturing sector will require production to be increasingly cost effective and value-added oriented, which bodes well for firms that are specialized and capital/technology intensive.

As summarized in Figure B-2, the manufacturing sector in Ontario experienced significant declines between 2004 and 2009. Between 2009 and 2012, provincial labour force levels stabilized, followed by a modest decline post-2012. Looking forward, modest labour force growth is anticipated in this sector across the Province of Ontario, as well as more locally in Wellington County.

Figure B-2
Manufacturing Labour Force Employment in Ontario, 2000 to Mid-Year 2016



B.2 Greater Golden Horseshoe (GGH) Demographic and Economic Trends

B.2.1 Within the GGH, the GTHA Represents the Economic Powerhouse of Ontario

The Greater Toronto and Hamilton Area (GTHA), located within the core of the GGH, is the fourth largest urban region in North America.[1] The GTHA represents the economic powerhouse of Ontario and the centre of a large portion of economic activity in Canada. The GTHA is also economically diverse with most of the top 20 traded industry clusters throughout North America having a strong presence in this region.

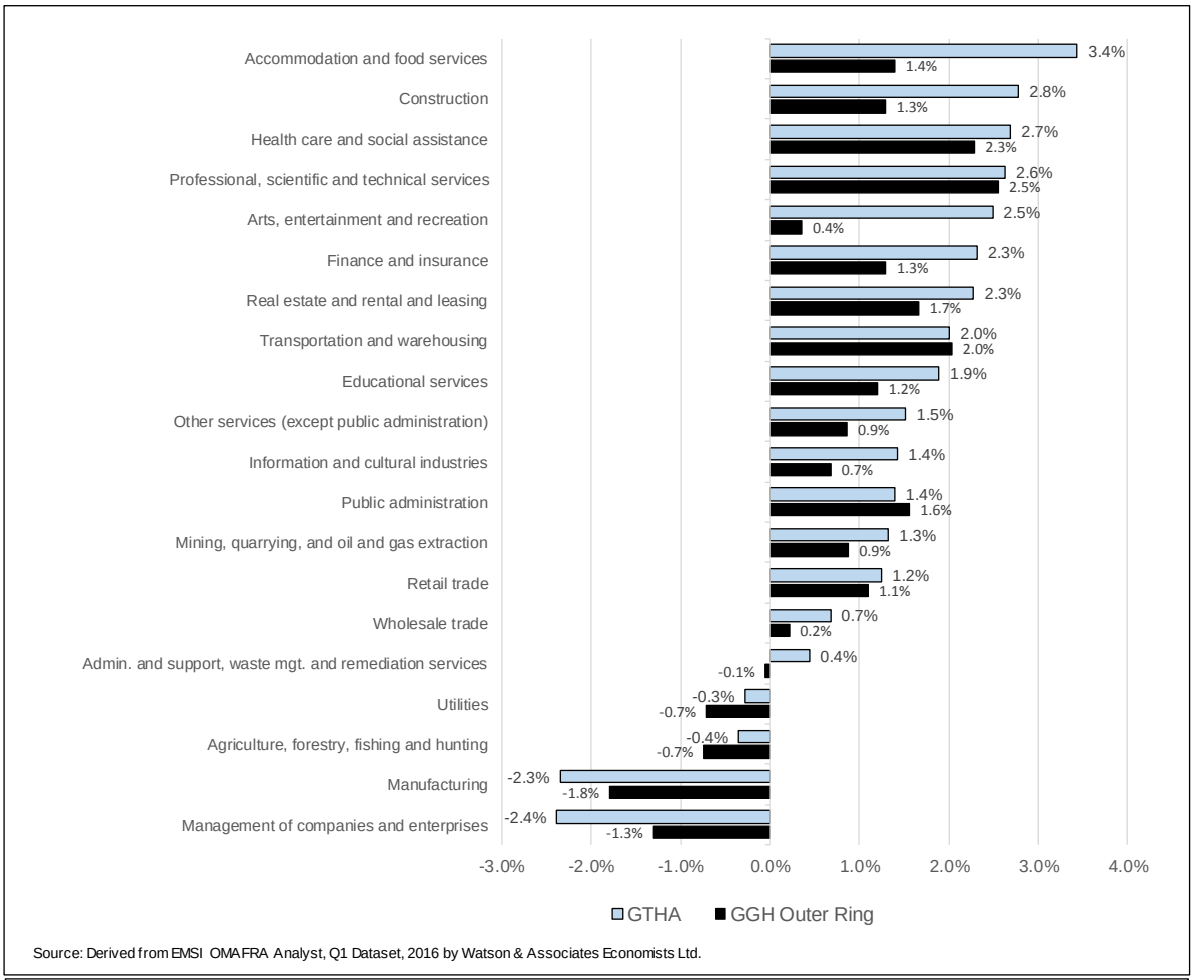
With a robust economy and a diverse mix of export-based employment sectors, the GTHA is highly attractive to new businesses and investors on an international level. The GTHA also has a strong appeal given the area's regional infrastructure, access to the labour force, post-secondary institutions and proximity to the U.S. border. In turn, this continues to support stable population and housing growth within the City of

[1] GTHA population estimates in comparison to U.S. Metropolitan Statistical Areas data 2009.

Toronto and the GTHA "905" municipalities, largely driven by international and inter-provincial net migration to this region.

Figure B-6 summarizes historical employment growth trends within the GTHA and the GGH Outer Ring by sub-sector, between 2006 and 2015. In total, recent employment growth in the GTHA was close to double the rate of annual employment growth experienced within the GGH Outer Ring during the past decade (1.4% vs. 0.8%). As summarized in Figure B-6, the sub-sectors that are declining and growing are similar in both the GTHA and the GGH Outer Ring which includes a mix of industrial, commercial and institutional sectors; however, the rate of growth is highest in the GTHA for most of the sub-sectors. The manufacturing and management of companies and enterprises sub-sectors have experienced declines in employment growth for both the GTHA and GGH Outer Ring; however, the declines are most pronounced in the GTHA. Given the steady rate of residential and non-residential development across the GGH, this region has recently experienced steady-to-strong employment growth in the retail trade and accommodation and food services sectors, as well as the construction sector, most notably within the GTHA.

Figure B-6
Change in Employment Growth by Sub-sector for GGH and GTHA, 2006 to 2015



Source: Derived from EMSI OMAFRA Analyst, Q1 Dataset, 2016 by Watson & Associates Economists Ltd.



Source: Derived from EMSI OMAFRA Analyst, Q1 Dataset, 2016 by Watson & Associates Economists Ltd.

Despite the global economic slowdown experienced in 2008/2009, the GGH employment base has increased in almost all major sectors of the services-sector economy since 2006. Many of these sectors, including professional, scientific and technical services (PSTS), financial services, information and cultural industries, education services, health care and social services, as well as real estate, represent the

knowledge-based and/or creative-class economy.[1] Within the services sector, economic growth has been particularly strong for small to medium-scale businesses which are focused on innovation and entrepreneurship.

The GGH has also experienced significant employment growth over the past decade in the transportation/warehousing and wholesale trade sectors. These sectors are highly concentrated within the Regions of Peel, York and Halton which are located within proximity to the Toronto Pearson International Airport (TPIA). Other regional infrastructure attributes, including access to 400-series highways as well as existing and planned intermodal facilities in Brampton, Vaughan and Milton, have and will continue to play a key role in driving demand within these sectors across the GTHA. Increased outsourcing of manufacturing production to emerging global markets continues to drive the need for new consolidated, land-extensive warehousing facilities to store and manage the distribution of goods produced both locally and imported from abroad. This continues to drive demand for increasingly larger, more land-extensive warehousing facilities, generally in greenfield Employment Areas within both the GTHA and the GGH Outer Ring.

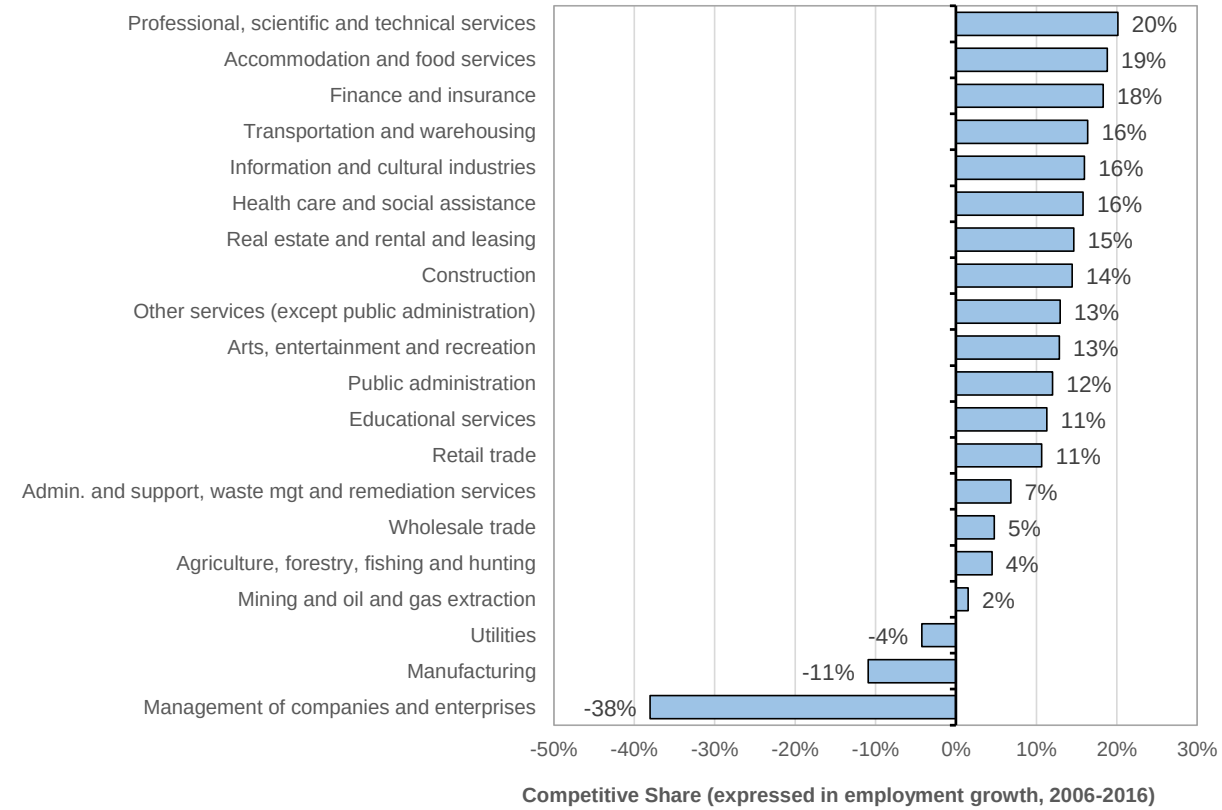
B.2.2 GGH Growth Outlook

Figure B-7 summarizes employment growth by industry sector over the 2006 to 2016 period in the GGH relative to the Province-wide average, to assess the strength of employment growth within the GGH. This comparative share analysis helps identify how much faster or slower employment sectors are growing in the GGH relative to the Province of Ontario as a whole, by sector. Employment sectors that generate a strong positive value suggest areas where the GGH potentially has a competitive advantage relative to the rest of Ontario with respect to business growth. On the other hand, employment sectors that exhibit a negative value suggest areas where the GGH may be at a competitive disadvantage to the rest of the Province.

As illustrated in Figure B-7, a number of employment sectors have exhibited a significantly stronger rate of employment growth relative to the rest of the Province. These include PSTS, accommodation and food services, finance and insurance, transportation and warehousing, information and cultural industries and health care and social services. Over the same period, the GGH has attracted employment at a significantly slower rate within the management of companies and enterprises, manufacturing and utilities sectors when compared to the rest of the Province.

[1] Richard Florida, The Rise of the Creative Class. 2002.

Figure B-7
Greater Golden Horseshoe Region (GGH) Competitive Growth Analysis Relative to the Province of Ontario (excluding the GGH), 2006 to 2016



Source: Statistics Canada, OMAFRA EMSI Analyst, Q1 2016 database.
Notes: Comparison is based on the Golden Horseshoe Region versus the rest of Ontario

With respect to forecast annual growth rates, both the GTHA and the GGH Outer Ring are anticipated to experience steady population and employment growth. From 2011 to 2041, the GTHA population and employment base is forecast to grow at a steady annual rate of 1.3% and 1.1%, respectively. Similarly, the population and employment base within the GGH Outer Ring is also forecast to increase at a similar pace to the GTHA. With respect to the distribution of population and employment growth, it is important to note that the share of population and employment growth within the GGH is forecast to continue to steadily shift from the most populated urban municipalities of the GTHA[1] to the municipalities within the "GTHA countryside"[2] and the GGH Outer Ring over the 2011 to 2041 planning horizon.

[1] Includes the City of Toronto, City of Hamilton, City of Burlington, Town of Oakville, City of Mississauga, City of Brampton, City of Vaughan, Town of Richmond Hill, Town of Markham, City of Pickering, Town of Ajax, Town of Whitby and the City of Oshawa.
[2] Reflects all remaining GTHA municipalities not listed in the above footnote.

B.2.3 GGH Growth Outlook on Employment Lands

While the employment outlook for the GGH is positive, the region as a whole faces a number of economic opportunities and challenges. A key economic challenge for the GGH region relates to the macro-economic trends that the region itself cannot fully control, including overall strength of the global economy and the relative strength and competitiveness of the North American economic base in comparison with other established and emerging global markets.

The impact from the structural economic changes (as previously addressed) on the amount, type, location and timing of employment growth across the GGH needs to be regularly monitored at the provincial and local municipal levels, to better understand how employment growth is tracking to the Provincial Growth Plan (Places to Grow) forecast by broader geographic area and sector.

Figure B-8 summarizes short-term employment growth (i.e. 2011 to 2016) across the GGH by area, including:

- "905" Upper-Tier/Single-Tier Municipalities;
- City of Toronto; and
- GGH Outer Ring.

These short-term employment growth estimates are then compared against the 2011 to 2016 employment growth forecasts prepared through the background technical report to Amendment No. 2 to the Growth Plan.[1] As summarized in Figure B-8, the 2016 employment base for the GGH is estimated to be approximately 99% of the level anticipated in the 2012 Technical Report to the Growth Plan.[2] At the composite GGH level, employment growth rates appear to be in line with provincial estimates. A more detailed investigation, however, reveals observations that are helpful in understanding the broader need for employment lands within the GGH. These include:

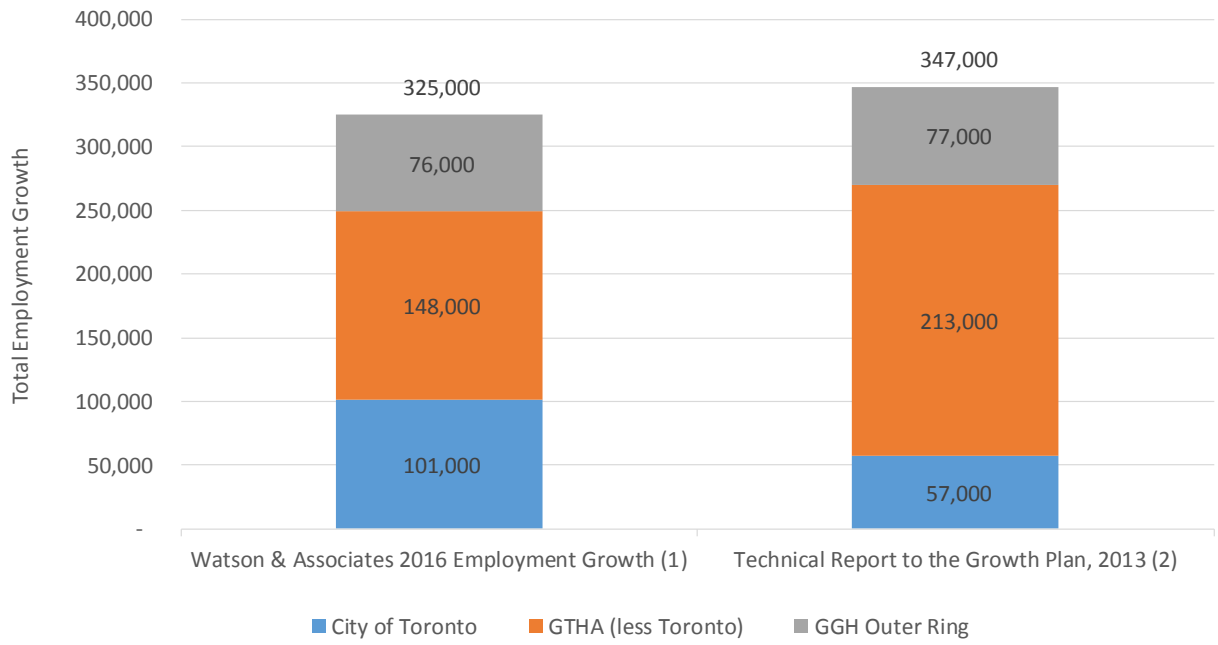
- The City of Toronto is significantly outpacing the Growth Plan with respect to 2011 to 2016 employment growth (+44,000 jobs), largely due to a robust office market and continued growth in the retail and service sector economy;
- In contrast, employment growth in the GTHA (less the City of Toronto) is not keeping pace with the Growth Plan forecast, with an estimated shortfall of

[1] Greater Golden Horseshoe Growth Forecast to 2041. Technical Report November 2012. Hemson Consulting Ltd.
[2] Ibid.

approximately 65,000 employees.[1] This shortfall is largely a result of weaker employment growth in the industrial sector due to the macro-economic challenges previously discussed herein and lower than anticipated employment growth in the "905" office sector; and

- While the GGH Outer Ring is tracking well to the Growth Plan employment forecast, employment growth has also been weaker in the industrial sector, but off-set by higher employment growth levels in population-related sectors (i.e. retail, personal service uses and institutional).

Figure B-8
Comparison of Estimated Employment Growth within the GGH by Geographic Area, 2011 to 2016



1. Derived from Economic Modeling Specialists Intl. employment data, 2011 & 2016
2. Technical Report Addendum to the Growth Plan, June 2013 Ontario Ministry of Infrastructure

For most GGH municipalities, employment growth in the industrial sector has not materialized at the rate anticipated by the Growth Plan in local Official Plans due to a slower than expected macro-economic recovery and an increasing share of land-extensive uses at low employment densities on employment lands driven by strong regional demand in the transportation and warehousing sector. This later trend has been particularly relevant for municipalities within the west GGH that offer an ample supply of designated greenfield lands at competitive land prices. Looking forward,

[1] Greater Golden Horseshoe Growth Forecast to 2041. Technical Report November 2012. Hemson Consulting Ltd.

these trends have direct implications on the amount and timing of future employment land needs across GGH municipalities.

B.3 Observations

The Ontario economy has experienced strong growth (as measured in GDP) in recent years relative to the Country as a whole, largely driven by continued expansion in the service sector. Notwithstanding the gradual economic recovery currently underway across the Province, the Ontario economy is facing significant structural changes. Looking forward, the provincial economy is expected to continue to shift to an increasingly services-based economy driven by strong growth in retail trade and "knowledge-based" sectors, with more modest employment growth anticipated in the manufacturing sector. These structural changes in the macro-economy continue to have a significant influence on the nature of development on employment lands and the policies that guide the future planning of these lands.

A key driver of Centre Wellington's future economic potential is its geographic location within the GGH, which represents one of the fastest growing City/Regions within the northeast region of North America. Historically, economic growth within the GGH has been largely fuelled by development within the largest urban municipalities of the GTHA, including the City of Toronto, the City of Hamilton and the southern municipalities which comprise Halton, Peel, York and Durham Regions. While these municipalities will continue to accommodate steady development, significant outward growth pressure exists across this region as the available greenfield land supply continues to steadily diminish in the GTHA core.

While the employment outlook for the GGH is positive, employment growth has not materialized to-date for most upper-tier and single-tier municipalities, outside of the City of Toronto, at the rate anticipated by the Provincial Growth Plan. Slower employment growth rates have largely been due to a slower than expected macro-economic recovery and a continued shift away from traditional manufacturing sectors, which has resulted in lower industrial employment growth. Looking forward, these trends have direct implications on the amount and timing of future employment land needs across the GGH including the Township of Centre Wellington.

Appendix C – Cost Competitive Analysis for Prototypical Developments

TABLE A-4: ASSESSMENT OF TOTAL DEVELOPMENT COST/ANNUALIZED COST

Distribution/Logistics Centre - 20,000 sq.ft.

Building 20,000 square feet
Land 1.31 Acres (35% FSI)

DEVELOPMENT COSTS

Market Area	Land Cost per Acre[1]	Land Cost per Sq.ft. of Building GFA	Construction Cost per Sq.ft.[2]	Development Charges per Sq.ft.[3]	Building Permit Fees per Sq.ft.	Developer Profit (5%) per Sq.ft.	Total Development Cost per Sq.ft.
	A	B A x 1.31 / 20000	C	D	E	F 5% of (B+C+D+E)	H (B+C+D+E+F)-G
Centre Wellington (Fergus)	$83,000	$5.44	$106.81	$8.52	$0.83	$6.08	$127.68
Woolwich (Elmira)	$180,000	$11.79	$106.81	$9.80	$0.82	$6.46	$135.68
North Perth (Listowel)	$42,000	$2.75	$106.81	$1.78	$0.60	$5.60	$117.54
Stratford	$100,000	$6.55	$115.11	$0.00	$0.95	$6.13	$128.74
Orangeville	$215,000	$14.08	$106.81	$0.61	$0.79	$6.11	$128.41
Guelph	$345,000	$22.60	$106.81	$9.68	$0.89	$7.00	$146.98
Cambridge	$285,000	$18.67	$106.81	$10.20	$0.95	$6.83	$143.46

ANNUALIZED COST

Market Area	Annualized Development Cost per Sq.ft.	Tax Rate[4]	Assessment per Sq.ft.[5]	Taxes per Sq.ft.	Water/ Wastewater Costs per Sq.ft.[6]	Electricity Costs per Sq.ft.[6]	Natural Gas Costs per Sq.ft.[7]	Total Annualized Cost per Sq.ft.	
	I F x 6.5%	J	K	L J x K / 100	M	N	O	P P= I + L + M + N + O	
Centre Wellington (Fergus)	$8.30	3.8181	$56.56	$2.16	$0.36	$1.80	$0.10	$12.72	$60.97
Woolwich (Elmira)	$8.82	2.6864	$60.06	$1.61	$0.51	$1.85	$0.10	$12.89	$64.13
North Perth (Listowel)	$7.64	3.2426	$31.42	$1.02	$0.96	$2.15	$0.10	$11.87	$35.65
Stratford	$8.37	4.5819	$49.19	$2.25	$0.18	$1.80	$0.10	$12.70	$53.52
Orangeville	$8.35	4.2225	$62.27	$2.63	$0.21	$1.75	$0.10	$13.04	$66.96
Guelph	$9.55	3.5018	$83.83	$2.94	$0.51	$1.80	$0.10	$14.90	$89.17
Cambridge	$9.32	3.5309	$104.91	$3.70	$0.50	$2.25	$0.10	$15.88	$111.47

Source: Watson & Associates Economists Ltd.

Report\Appendix C - Cost Competitive Analysis for Prototypical Developments\[Cost of Development Summary.xlsx]Cost of Development Manf

Notes:

1. Land prices based on surveys by Watson & Associates Economists Ltd. of available vacant and serviced industrial and business park greenfield properties for sale within the market areas.
2. Construction costs adapted from 2017 RSMeans Building Construction Guide and other local industry sources by Watson & Associates Economists Ltd.
3. Development charges are based on lower/single tier, upper tier and education (where applicable) development charges.
4. Tax rates are based on 2016 posted rates. 2017 tax rates have not been posted by all municipalities as of June 2017.
5. Assessment per sq.ft. is based on samples of taxed properties. Samples available for all municipalities.
6. Costs for water/wastewater, natural gas and electricity are based on assumptions of consumption usage.
7. Based on assumptions of consumption usage. Rates include IESO Wholesale Market rate of $0.166 per KwH in Ontario and applicable local delivery and network charges of suppliers which vary.

TABLE A-3: ASSESSMENT OF TOTAL DEVELOPMENT COST/ANNUALIZED COST

Small Shop/Warehouse & Yard - 12,000 sq.ft.

Building 12,000 square feet
Land 1.84 Acres (15% FSI)

DEVELOPMENT COSTS

Market Area	Land Cost per Acre[1]	Land Cost per Sq.ft. of Building GFA	Construction Cost per Sq.ft.[2]	Development Charges per Sq.ft.[3]	Building Permit Fees per Sq.ft.	Developer Profit (5%) per Sq.ft.	Total Development Cost per Sq.ft.
	A	B A x 1.84 / 12000	C	D	E	F 5% of (B+C+D+E)	H (B+C+D+E+F)-G
Centre Wellington (Fergus)	$83,000	$12.73	$119.38	$8.52	$0.83	$7.07	$148.53
Woolwich (Elmira)	$180,000	$27.60	$119.38	$9.80	$0.82	$7.88	$165.48
North Perth (Listowel)	$42,000	$6.44	$119.38	$1.78	$0.60	$6.41	$134.61
Stratford	$100,000	$15.33	$119.38	$0.00	$0.95	$6.78	$142.44
Orangeville	$215,000	$32.97	$128.65	$0.61	$0.79	$8.15	$171.16
Guelph	$345,000	$52.90	$119.38	$9.68	$0.89	$9.14	$191.99
Cambridge	$285,000	$43.70	$119.38	$10.20	$0.95	$8.71	$182.94

ANNUALIZED COST

Market Area	Annualized Development Cost per Sq.ft.	Tax Rate[4]	Assessment per Sq.ft.[5]	Taxes per Sq.ft.	Water/ Wastewater Costs per Sq.ft.[6]	Electricity Costs per Sq.ft.[6]	Natural Gas Costs per Sq.ft.[7]	Total Annualized Cost per Sq.ft.	
	I F x 6.5%	J	K	L J x K / 100	M	N	O	P P= I + L + M + N + O	
Centre Wellington (Fergus)	$9.65	3.8181	$63.39	$2.42	$0.60	$3.33	$0.25	$16.26	$69.99
Woolwich (Elmira)	$10.76	2.4860	$64.14	$1.59	$0.85	$3.42	$0.25	$16.87	$70.26
North Perth (Listowel)	$8.75	3.2426	$52.14	$1.69	$1.60	$3.67	$0.25	$15.95	$59.35
Stratford	$9.26	4.5819	$53.11	$2.43	$0.30	$3.17	$0.25	$15.40	$59.25
Orangeville	$11.13	4.2225	$74.38	$3.14	$0.36	$3.42	$0.25	$18.29	$81.55
Guelph	$12.48	3.5018	$86.26	$3.02	$0.86	$3.67	$0.25	$20.27	$94.06
Cambridge	$11.89	3.5309	$100.25	$3.54	$0.84	$4.25	$0.25	$20.77	$109.13

Source: Watson & Associates Economists Ltd.

Report\Appendix C - Cost Competitive Analysis for Prototypical Developments\[Cost of Development Summary.xlsx]Cost of Development Manf

Notes:

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7. Based on assumptions of consumption usage. Rates include IESO Wholesale Market rate of $0.166 per KwH in Ontario and applicable local delivery and network charges of suppliers which vary.

TABLE A-2: ASSESSMENT OF TOTAL DEVELOPMENT COST/ANNUALIZED COST

Multi Tenant Industrial Condominium Building - 30,000 sq.ft.

Building 30,000 square feet
Land 1.97 Acres (35% FSI)

DEVELOPMENT COSTS

Market Area	Land Cost per Acre[2]	Land Cost per Sq.ft. of Building GFA	Construction Cost per Sq.ft.[2]	Development Charges Sq.ft.[3]	Building Permit Fees per Sq.ft.	Developer Profit (5%) per Sq.ft.	Total Development Cost per Sq.ft.	
	A	B A x 1.97 / 30000	C	D	E	F 5% of (B+C+D+E)	H (B+C+D+E+F)-G	
Centre Wellington (Fergus)	$83,000	$5.45	$74.23	$8.52	$0.69	$4.44	$93.34	$93.34
Woolwich (Elmira)	$180,000	$11.82	$74.23	$9.80	$0.82	$4.83	$101.51	$101.51
North Perth (Listowel)	$42,000	$2.76	$74.23	$1.78	$0.60	$3.97	$83.34	$83.34
Stratford	$100,000	$6.57	$74.23	$0.00	$1.54	$4.12	$86.46	$86.46
Orangeville	$215,000	$14.12	$86.45	$0.61	$0.79	$5.10	$107.06	$107.06
Guelph	$345,000	$22.66	$74.23	$9.68	$1.66	$5.41	$113.65	$113.65
Cambridge	$285,000	$18.72	$74.23	$10.20	$2.15	$5.26	$110.56	$110.56

ANNUALIZED COST

Market Area	Annualized Development Cost per Sq.ft.	Tax Rate[4]	Assessment per Sq.ft.[5]	Taxes per Sq.ft.	Water/ Wastewater Costs per Sq.ft.[6]	Electricity Costs per Sq.ft.[6]	Natural Gas Costs per Sq.ft.[7]	Total Annualized Cost per Sq.ft.	
	I F x 6.5%	J	K	L J x K / 100	M	N	O	P P= I + L + M + N + O	
Centre Wellington (Fergus)	$6.07	3.8181	$74.85	$2.86	$0.48	$3.17	$0.23	$12.80	$81.59
Woolwich (Elmira)	$6.60	2.6864	$84.30	$2.26	$0.55	$3.13	$0.23	$12.78	$90.48
North Perth (Listowel)	$5.42	3.2426	$33.65	$1.09	$0.72	$3.27	$0.23	$10.73	$38.96
Stratford	$5.62	4.5819	$48.18	$2.21	$0.25	$3.17	$0.23	$11.48	$54.04
Orangeville	$6.96	4.2225	$104.56	$4.41	$0.35	$3.13	$0.23	$15.09	$112.69
Guelph	$7.39	3.5018	$111.39	$3.90	$0.52	$3.23	$0.23	$15.27	$119.28
Cambridge	$7.19	3.5309	$121.76	$4.30	$0.55	$3.47	$0.23	$15.74	$130.32

Source: Watson & Associates Economists Ltd. \Report\Appendix C - Cost Competitive Analysis for Prototypical Developments\[Cost of Development Summary.xlsx]Cost of Development Manf

Notes:

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6. Costs for water/wastewater, natural gas and electricity are based on assumptions of consumption usage.
7. Based on assumptions of consumption usage. Rates include IESO Wholesale Market rate of $0.166 per KwH in Ontario and applicable local delivery and network charges of suppliers which vary.

TABLE A-1: ASSESSMENT OF TOTAL DEVELOPMENT COST/ANNUALIZED COST

Manufacturing Industrial Building - 60,000 sq.ft.

Building 60,000 square feet
Land 4.59 Acres (30% FSI)

DEVELOPMENT COSTS

Market Area	Land Cost per Acre[1]	Land Cost per Sq.ft. of Building GFA	Construction Cost per Sq.ft.[2]	Development Charges per Sq.ft.[3]	Building Permit Fees per Sq.ft.	Developer Profit (5%) per Sq.ft.	Total Development Cost per Sq.ft.
	A	B 4.59136822773186 / 60000	C	D	E	F 5% of (B+C+D+E)	H (B+C+D+E+F)-G
Centre Wellington (Fergus)	$83,000	$6.35	$123.45	$8.52	$0.83	$6.96	$146.10
Woolwich (Elmira)	$180,000	$13.77	$123.45	$9.80	$0.82	$7.39	$155.23
North Perth (Listowel)	$42,000	$3.21	$123.45	$1.78	$0.60	$6.45	$135.49
Stratford	$100,000	$7.65	$123.45	$0.00	$0.95	$6.60	$138.65
Orangeville	$215,000	$16.45	$133.03	$0.61	$0.79	$7.54	$158.43
Guelph	$345,000	$26.40	$123.45	$9.68	$0.89	$8.02	$168.44
Cambridge	$285,000	$21.81	$123.45	$10.20	$0.95	$7.82	$164.22

ANNUALIZED COST

Market Area	Annualized Development Cost per Sq.ft.	Tax Rate[4]	Assessment per Sq.ft.[5]	Taxes per Sq.ft.	Water/ Wastewater Costs per Sq.ft.[6]	Electricity Costs per Sq.ft.[6]	Natural Gas Costs per Sq.ft.[7]	Total Annualized Cost per Sq.ft.	
	I F x 6.5%	J	K	L J x K / 100	M	N	O	P P= I + L + M + N + O	
Centre Wellington (Fergus)	$9.50	3.8181	$40.08	$1.53	$0.83	$6.98	$1.17	$20.01	$50.59
Woolwich (Elmira)	$10.09	2.6864	$71.84	$1.93	$0.79	$6.98	$1.17	$20.96	$82.71
North Perth (Listowel)	$8.81	3.2426	$40.12	$1.30	$0.55	$7.08	$1.17	$18.91	$50.22
Stratford	$9.01	4.5819	$60.52	$2.77	$0.46	$6.97	$1.17	$20.38	$71.89
Orangeville	$10.30	4.2225	$41.80	$1.77	$0.69	$6.97	$1.17	$20.88	$52.39
Guelph	$10.95	3.5018	$77.36	$2.71	$0.70	$6.98	$1.17	$22.50	$88.92
Cambridge	$10.67	3.5309	$112.16	$3.96	$0.82	$7.12	$1.17	$23.73	$125.22

Source: Watson & Associates Economists Ltd. oort\Appendix C - Cost Competitive Analysis for Prototypical Developments\[Cost of Development Summary.xlsx]Cost of Development Manf

Notes:

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7. Based on assumptions of consumption usage. Rates include IESO Wholesale Market rate of $0.166 per KwH in Ontario and applicable local delivery and network charges of suppliers which vary.

Section 3

Business Park Strategy



Centre Wellington

Centre Wellington Business Park Strategy

May 2021

McSWEENEY
inspiring economic sustainability®

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1. Target Sector/Industry Analysis Overview

To develop an understanding of the industrial land market, the best practices in design, infrastructure, planning, and servicing a business park, as well as key industries for attraction, McSweeney and Associates completed a Target Sector/Industry Analysis Report in 2021. The report documents local and regional economic trends, as well as provincial and national industry trends and concludes on target industries for investment attraction into the Township of Centre Wellington.

Centre Wellington has a growing population, primarily driven by migration from within the province. However, businesses locating here have access to a labour force that expands beyond the Township and the County. The Situational Analysis (2018) showed the Township attracts workers from across the Kitchener-Cambridge-Waterloo CMA, as well as from Wellington County. The CMA is a central mid-sized economy with employment concentrations in high-tech manufacturing. On the other hand, Wellington County is made up of small rural economies, with employment concentration in agriculture and agri-business, as well as manufacturing industries. Lastly, this region of Ontario is recognized as a centre for agro-innovation and high-tech manufacturing driven by institutions like the Universities of Guelph and Waterloo. As a result of these institutions, employers locating in the Township have access to over 320,000 graduates with notable skills concentrations (larger percent share) relative to the province, within the following major fields of study:

- Mechanic and repair technologies/technicians
- Engineering technologies and engineering-related fields
- Biological and biomedical sciences
- Agriculture, agriculture operations and related sciences
- Precision production

In terms of the highest income generators, the following local industries have the highest wages in the Township of Centre Wellington:

- Merchant Wholesalers (i.e. new motor vehicle parts)
- Manufacturers (i.e. animal food, glass, machinery and metalworking)
- Architectural, engineering and related services
- Agencies, brokerages and other insurance-related activities
- Computer systems design and related services

Over the past five years, the largest employment generators in the Township of Centre Wellington were:

- Nursing and residential care facilities
- Transportation equipment manufacturing
- Educational services
- Food manufacturing
- Specialty trade contractors

Meanwhile, in terms of businesses (with employees), the largest growth industries are related to construction, food services, professional services, and machine manufacturing. On the other hand, self-employed entrepreneurs have had the highest impact in the number of farms, real estate agents, financial activities and management consulting.

Independent of the surrounding region, health care, agriculture, tourism, manufacturing and professional services represent the five key sectoral strengths of the community. Furthermore, construction and retail support these 5 sectors as the population grows. Within the regional economy, building equipment contractors, software publishers, financial services, specialized design services, and other amusement and recreation industries are the fastest-growing employment industries (by % change in jobs) for the key occupations identified as employment drivers in the labourshed. These industries are illustrative of where the regional economy is flourishing while creating jobs.

The data analyzed suggests that the Township has been more successful than its regional competitors[1] in accelerating job growth within several manufacturing industries, as well as in medical and personal services. Of particular interest for this study, was the growth in local employment concentrations in food product manufacturing and architectural, engineering and related services, both of which outpaced the regional competitors.

Throughout the report, the strengths and competitive advantages of the community, as related to the labour force, economy, and regional assets were identified and juxtaposed with the surrounding economy and its strengths. The result was the identification of keys sectors/clusters, plus strategic niche industries within each of these.

Target Industries for Light Industrial/Business Park

Food and Beverage Manufacturing

Niche Opportunities

- Frozen food production
- Cannabis-infused beverages and food ("edibles")
- Dairy product manufacturing

[1] Includes Cambridge, Kitchener, Waterloo, Woolwich, Guelph, Orangeville, North Perth, and Stratford.

Equipment, Metalworking and Machinery Manufacturing

Niche Opportunities

- Agricultural and construction machinery manufacturing
- Electrical equipment manufacturing
- Metal fabrication and metalworking machinery manufacturing

Organic and Medical-Chemical Manufacturing

Niche Opportunities

- Soap, cleaning compound and toilet preparation manufacturing
- Pharmaceutical and medicine manufacturing
- Biomass resources for fuel and electricity

Professional Services

Niche Opportunities

- Computer systems and design
- Specialized design services (includes graphic, industrial, interior and other design services)
- Architectural, engineering and related services

Information and Cultural Industries

Niche Opportunities

- Motion picture and video industries
- Software industries

2. Market and Location Analysis

2.1 Market Analysis

Following is a summary market analysis with respect to employment/industrial lands in the area. The analysis was based on discussions with local real estate experts and local economic development staff, as well as online research.

- COVID has negatively impacted retail and office-type businesses, and particularly their related real estate sub-markets.
- The pandemic has had a limited impact on the industrial market, and growth in this sector accelerated in the latter half of 2020, with strong growth predicted in 2021.
- There is a scarcity of serviced vacant employment lands suitable for industrial development in the Midwest/Southwest Ontario, especially for lots that are 1 to 5 acres in size.
- Industrial building vacancy and availability rates are very low as the construction of new products slowed in 2020 while absorption continued. Market intelligence suggests there is a pent-up demand for 10,000 to 50,000 sq ft buildings.
- Institutional investment traditionally focussed on the office and retail real estate markets is now more focussed on the bright spot in the non-residential market – industrial development. Financial institutions (BDC, banks, credit unions) are actively encouraging their clients to expand their industrial business at this time of very low interest rates.
- Due to tight vacancy rates, increased money supply at low rates, and rising industrial capacity utilization rates, industrial land sales have been very strong and have (and continue to) accelerate.
- A limited land supply is driving up land prices, both in urban areas and in secondary/peripheral markets as businesses seek lower-cost location solutions.
- Construction costs generally, and forestry-related construction products specifically, are rising rapidly.
- There is a growing interest from larger developers/investors from the GTA and other urban areas to invest in secondary/peripheral markets, although this interest is more specifically focussed on the multi-tenant lease product and build to lease segments of the market.
- To date, land sale prices have not supported private sector development of industrial parks in the area, therefore leaving this market to municipalities to serve. Not all municipalities in the Wellington County area are currently engaged in industrial land development, and all have a very limited supply remaining.
- It has been reported that several local businesses would grow if suitable land was available.

2.2 Current Supply of Industrial Land

Following is a summary of competing industrial employment lands in the regional market.

Primary Market Area - Region of Waterloo and City of Guelph

City of Waterloo – northwest area of the City

- City-owned lands to be released in 2021.
- Strict design guidelines will impose significant development costs on end-users.
- Development of this area is geared more towards office than traditional industrial (i.e. manufacturing, food processing, etc.).
- Every building will be required to be 'net zero energy'.
- Lands are now being appraised and may be on the market in the next 2 to 6 months.

City of Kitchener

- Privately owned by BC Insurance Plan and Broccolini. Highway 401 & Homer Watson lands was acquired at $436,000/acre, is approximately 5 years out before it will be on the market.

Cambridge

- Municipally owned. Allandale Road - 50-acre block just north of Cambridge, is zoned industrial but still needs servicing. Will sell for $650,000 to $700,000/acre.
- Privately owned. Part of the 425-acre IP Industrial Park, north of Cambridge Business Park, has been purchased by HOOP (Healthcare of Ontario Pension Plan). Their plan to develop the 300 acres is to build and lease large-scale industrial, advanced manufacturing, office and data centre space.

City of Guelph

- Hanlon Business Park
    - City-owned.
    - Selling at $350,000 to $450,000/acre fully serviced.
    - 3 properties available (4.4 acres, 6.3 acres and 12.5 acres).
    - Zoned Corporate Business.

Township of Wilmot (on Highway 7 & 8, between New Hamburg and Baden)

- Wilmot Employment Lands (council endorsed recommendations for approval on February 22, 2021)
    - 2 industrial plans of subdivision with a total of 94 acres of industrial and light industrial zoned lands.

Secondary Market

Minto

- Land prices for current serviced land ($35,000/acre), originally priced at $65,000/acre.
- Palmerston Industrial Park
    - Municipally owned.
    - 25 total acres on Minto Road with two lots remaining for sale (3.83 acres and 3.92 acres) rough graded and serviced to the lot line.
    - 14-acre irregular-shaped parcel available (currently their Provincially certified land site) which will be subdivided into smaller lots.
- Harriston Industrial Park
    - Municipally owned.
    - 30 acres available, not currently serviced, but costs of servicing this area are now being investigated.
    - Requires rezoning (currently zoned agriculture).

Mapleton

- Drayton Industrial Park
    - Municipally owned. Phase 2 has 5 acres remaining.

North Dumfries (Ayr)

- $700,000/acre asking price, dry industrial with well and septic only.
- Outside storage allowed.

Woolwich

- Elmira
    - The Town of Elmira does not have any Town-owned lands available. One privately owned property at 100 Oriole Parkway East is for sale: 5.13 acres; M2 zoning; asking $513,100. Services to the lot line.
    - The last property sold for $600,000 for one acre with full services to the lot line.

Amaranth

- Privately owned: 10.126 acres, currently for sale on paved road west of Orangeville. Asking $3.7 million. Zoned M1.

Wellington North

- Arthur
    - Privately owned: 62.1 acres; zoned M1H; services available to the lot line. Hold is subject to sewage and water servicing capacity being available. New water tower is needed. Lots can be severed to a minimum of 2 acres.

City of London

- Fully serviced city-owned industrial land in London sells at $70,000/acre and up.

Current Supply of Vacant Industrial Land in Centre Wellington

Current Supply of Vacant Dry Industrial Lands in CW			
Location	Acres	Owner	Notes
7451 Speers Road, Elora	15.66	Privately owned	Development will require an alternate exit from Speers Road
7444-7446 Wellington Road 18, Elora	6-8	Privately owned	Lands at front of properties being severed and sold as additional dry industrial
7448 Wellington Road 18, Elora	7.52	Privately owned	Vacant

Current Supply of Vacant Serviced Industrial Land in CW			
Location	Acres	Owner	Notes
Glengarry Crescent	2.77	Privately owned	Serviced to the property line. Asking $1.25million.

2.3 Historic Demand

The following is an overview of industrial land consumption for the past 5-10 years in Centre Wellington.

- With respect to the small/medium-sized municipalities surveyed, the Township of Centre Wellington has experienced the highest level of land absorption on employment lands over the past decade (to 2018), totalling 59 acres per year[2]. Land absorption has since declined due to the lack of available supply.

Actual current market demand is difficult to articulate as there is a pent-up demand for Industrial land throughout the area. Examples of local future expansion opportunities based on recent inquiries include:

- Kooiman Industries – currently in Guelph in a rented space but wants to own property again and return home to Fergus.
- Wellington Perforated – expanding on their Gregson Court site but will be limited on further expansion as the lot is becoming built out.

Rising land prices are also driving some businesses in the primary market to seek lower cost locations, albeit choices are limited. Stirling Marathon Appliances is an example of a company that moved out of Guelph to ten acres of land in Centre Wellington.

2.4 Projected Demand Analysis

Several market forces are combining to create a strong regional demand for employment land that Centre Wellington could at least partially fulfill.

- Low industrial vacancy rates and minimal industrial building product for sale in both the primary and secondary markets around Centre Wellington.
- Continued growth within many industries including manufacturing.
- Institutional investment is now more focused on the industrial market, at a time of very low-cost money.
- Rapidly rising land costs, particularly in the primary markets, combined with very scarce land availability.
- Potential clients from Guelph are already approaching the Township, and there is built-in demand from growing Centre Wellington companies.

[2] Watson & Associates, Centre Wellington Municipal Development of Elora/Fergus Employment Areas – Business Case

- The above market forces are stronger drivers of demand than the forces that existed when absorption rates in Centre Wellington averaged 59 acres/year. It is safe to say that if a sufficient supply of appropriately sized, competitively priced, and strategically located serviced industrial land (lease and ownership tenure available) was currently and continuously available in Centre Wellington, absorption would exceed 60 acres/year.
- Allowing for market lag and awareness building, it is projected that the available lands in the Centre Wellington Business Park would sell out in less than 24 months.

2.5 Location Analysis of the Centre Wellington Business Park

Location Analysis

- The subject lands, owned by the Township of Centre Wellington, are located immediately east of the terminus of Dickson Drive within the existing Fergus Industrial Area and within the Official Plan Urban Boundary.
- The developable area is currently estimated at approximately 17 hectares or 42 acres.
- The lands have been used for agriculture and are currently undeveloped.
- The lands are relatively flat topographically.
- Environmentally, there is a provincially significant wetland in the northern section of the lands which will impact the developable area and the manner in which development occurs.
- Fergus is served by community wells and water flows are steady and not decreasing. Water service can easily be extended from the current 300 mm water service on Dickson Drive to serve the area. Industrial uses requiring large quantities of water will not be permitted.
- Similarly, wastewater can be connected from the area to an existing Dickson Drive 300 mm sanitary sewer with sufficient flow capacity available. It has not been determined if a force main and sewage pumping will be required.
- It is understood that adequate power and gas are available and can be extended along Dickson Drive to serve the area.

Site Linkages

- Unfortunately, connections to major roads such as Highway 6 are not direct. The Centre Wellington Business Park should have the Dickson Drive extension connect through to 1st Line Road.
- By road, the site is:
    - Approximately 1 km to Highway 6
    - Approximately 45 km along Highway 6 to the Highway 401 exit ramp

- Approximately 80 km along Highway 9 across the top of the GTA to Highway 400
- Approximately 30 km to Guelph
- Approximately 40 km to the Region of Waterloo International Airport

Overall Comparative Site Location Advantages/Disadvantages

In terms of comparative advantages:

- The location of Fergus and the site relative to Guelph is advantageous in comparison to most competing properties, with excellent future connections to Highway 6.
- The subject lands are well-positioned and shaped to provide industrial lots in the 1 to 5-acre size – the lot sizes which are in high demand.
- The subject lands can be easily and efficiently serviced.
- The township has a large, established and concentrated manufacturing base.
- The employment base is forecast to grow by an additional 11,000 jobs, with 35% of these jobs to be accommodated in employment lands[3].

In terms of comparative disadvantages:

- The site is not directly on a major highway, and is distant from Highway 401, therefore limiting the desirability for high traffic-generating uses.
- Water consumptive uses cannot be accommodated.
- The subject site is best suited for small end users and is not therefore suited to meeting large acreage requirements.

Recommendations for the Highest and Best Use of the Land

- A "business park" – somewhat upscale from other industrial parks and developments in the area is recommended. The business park objective would be achieved through a combination of permitted uses, zoning controls and site plan controls, building and landscape design guidelines, as well as the quality of municipal infrastructure.
- The target user of the Centre Wellington Business Park would be businesses (typically manufacturers) requiring owner-occupied buildings in the 10,000 to 50,000 square foot size range and would not include retail and/or other public-serving type uses.
- A new custom zoning should be developed to support the development of the business park to achieve municipal employment objectives while discouraging inappropriate uses.

[3] Watson & Associates, Centre Wellington Municipal Development of Elora/Fergus Employment Areas – Business Case

- A minimum density/lot coverage requirement should be required of each purchaser.
- Building exterior design guidelines and landscape guidelines are recommended.

Estimated Land Sale Values

- Based on the values and recent sales of land in the area, the Centre Wellington Business Park could conservatively have a market value of $200,000/acre up to $250,000/acre for serviced land (assuming reasonable restrictions and requirements).

Conclusions

In the Centre Wellington/Guelph/Kitchener-Waterloo area, there is a strong and growing demand being driven by businesses/industries requiring owner-occupied buildings of 10-50,000 square feet on 1 to 5-acre sites. The supply of suitable lands continues to be very tight, and land prices are escalating rapidly.

The Centre Wellington Business Park is positioned to capture a significant portion of this large, growing, and pent-up demand by supplying appropriately sized and competitively priced serviced business park land, which will result in the completion of sales of available lands within two years of availability.

3. Planning, Design, Infrastructure, Servicing

3.1 Planning

County and Township Planning Documents

McSweeney & Associates reviewed planning documents from both Wellington County and the Township of Centre Wellington, specifically the Official Plans and found that there were no issues or concerns with these documents and that there are no changes required or recommended.

Planning Objective

The creation of a new Business Park zone is intended to establish a mixed office/light industrial area that will result in a high-quality business park environment. The zoning would also be supported by building and landscape design guidelines.

New Business Park Zone

Permitted Land Uses

The types of uses listed below should be permitted in the Business Park zone, provided that all uses are subject to a limitation of drawing no more than 50,000 litres of water per day. Further, end uses and users that would generate substantial traffic are to be discouraged. Screened outside storage is permitted as an ancillary use to the main permitted use contained within the building. It is expected that all developments would be categorized as Category 1 in Ontario's land use planning guide for appropriate distances between industrial areas and sensitive land uses (https://www.ontario.ca/page/d-6-1-industrial-categorization-criteria).

Following are the recommended permitted uses in this zone.

1. Artist studio
2. Broadcasting or production station or studio
3. Computer, electronic, and data processing
4. Contractors and trades (residential and non-residential)
5. Emergency services
6. Government service, municipal service centre
7. Laboratory
8. Industrial and agricultural equipment assembly, rental, sales, service if contained wholly within the building, and not serving the general public

9. Light, wholly enclosed industrial uses including assembly, fabricating, manufacturing, stamping, processing and packaging of goods or raw materials.
10. Office uses, call centres
11. Printing and publishing
12. Research and development facility
13. Service and repair of assembled or fabricated goods or products, business and consumer-related goods or products that are wholly enclosed within a building
14. Small batch brewery or distillery, including on-site sales*
15. Technology establishment
16. Training centre (for trades, technologies or industrial)
17. Wholesale businesses (not dealing in retail goods, and not selling to the general public) that are wholly enclosed within a building

Land Uses not Permitted

To provide further definition of the nature of the Centre Wellington Business Park, the following are examples of uses that would not be permitted in this zone.

- Abattoir
- Auction centre
- Automobile gas bar
- Large-scale beverage manufacturing
- Building material suppliers
- Bulk storage tank or bulk materials storage
- Heavy equipment (agricultural, industrial) assembly, rental, sales, and service unless wholly contained within the building and not requiring outside storage
- Concrete, asphalt plants
- Courier services, trucking, transfer
- Display and sales area for retail and wholesale items not manufactured onsite (should be in a commercial zone)
- Drive-through
- Factory outlet (should be in a commercial zone)
- Garden centre (could locate in rural areas)
- Landscape material suppliers
- Medical clinics (permit in commercial zones)

- Mini-warehouse and public storage (permit in rural area and Industrial Park – unserviced)
- Municipal or utility services (requires too much outside storage)
- Parking lot
- Personal service businesses, entertainment
- Refreshment vehicle
- Restaurants of any kind
- Retail store of any kind
- Towing service
- Transportation depot or terminal
- Truck rental, sales, and service
- Vehicle sales and rentals, service and repair
- Warehouse or distribution centre
- Waste processing, recycling, composting, and/or transfer facility (permit in Industrial Park – unserviced)
- Wrecking yard or used auto parts yard

Yards and Setbacks

Generally, the yards and setbacks should follow industrial zone provisions of the zoning bylaw for M1 Service Industrial with a few exceptions as noted below.

a) Minimum lot frontage - 30 m (98.4 ft)

b) Minimum front yard- 7.5 m (24.6 ft) (exception)

c) Minimum Rear Yard - 6 m (19.7 ft) (exception), but if the rear lot is abutting a Residential, Institutional Zone, Future Development or Open Space Zone the minimum rear yard shall be 15 m (49.2 ft)

d) Minimum Interior Side Yard - 3 m (9.8 ft), but if the interior is abutting a Residential or Institutional Zone, the minimum interior side yard shall be 6 m (19.7 ft)

e) Minimum Exterior Side yard- 6 m (19.7 ft)

f) Minimum Landscaped Area (exception)

   i. Front yard: 100% of area in front of front wall of building, except areas provided for paved access/egress and visitor and handicap parking.

   ii. 100% of the required minimum side and rear yard requirements, or to any fence line or opaque screening provided, whichever is greater.

g) Outdoor display areas (exception) – not permitted

h) Outdoor Storage (exception) - Outdoor storage shall be permitted to the rear of the building only and shall be opaquely screened from view from the public realm per the 2015 public realm guidelines for industrial areas.

i) Setback from Adjacent Uses Where land zoned Industrial Business Park abuts any land zoned for residential, institutional, future development or open space purposes, no buildings shall be allowed within 15 metres of said zone.

Urban Design

Centre Wellington has a very comprehensive set of guidelines in place for the Industrial areas. It is recommended that Centre Wellington adheres to the public realm guidelines in the 2015 Centre Wellington Place Matters Urban Design Guidelines for Industrial Areas. Further that the private realm guidelines be adhered to during the development approvals processes for each lot.

The following refinements are recommended to the private realm guidelines.

- That visitor parking, handicap parking and quick drop off/pick up area may be permitted in the front yard. Employee parking may be located on an interior side yard or rear yard.
- That the above permitted front yard parking area and access/egress roadways be paved and curbed from the roadway to at least the front façade of the building.
- All other vehicular areas be hard-surfaced with a minimum specified depth of appropriate porous granular material.
- That fencing not be permitted in front of the front façade of the building.
- That mirrored windows and curtain walls be permitted.
- That flow controls be utilized on building rooftops to aid stormwater flow management.
- Industrial buildings that include offices should have offices facing the street.
- That any utility boxes that can only be located in the front yard be screened as much as possible with one or more landscaping, berming, and ground signage features.
- Fully landscaped lots with hard and soft landscaping are encouraged. Hard and soft landscaping of front yards is required.

The following refinement is recommended to the public realm guidelines:

- That a multi-use pathway may be considered in lieu of the required sidewalks.

3.2 Infrastructure Planning

This subdivision is subject to a municipal class environmental assessment which could impact planned infrastructure. It is recommended that this work proceed immediately. While a traffic impact study is also required, and should also be conducted as soon as possible, it is noted that high traffic generating uses are not recommended as permitted uses.

The location of the lands facilitates an easy extension of existing services into the subdivision. The existing 300 mm water main and 300 mm sewer, as well as road and underground hydro, can all be extended from the existing Dickson Drive into the subdivision through to 1st Line.

The current subdivision design will be examined by Centre Wellington engineers to determine if a sewage forcemain and pump lift will or will not be required. The cost of this has not yet been estimated or included in the financial analysis.

The roadway should be an industrial cross-section with curbs to define the roadway and channel stormwater. A multi-use pathway may be considered in lieu of a sidewalk along the north side of the Dickson Drive extension. A multi-use pathway is also planned for connection:

- From the dog park near the northwest corner of the property;
- Travel south between proposed lots 3 and 4;
- Continue south on either side of lot 11 (if no Dickson Court) or along Dickson Court and between proposed lots 15 and 16 (if Dickson Court is required) to the southern boundary of the property.

A landscaped entrance feature and ground signage are recommended at the east and west entrances to the business park.

With the approval of directions contained within this report, Centre Wellington should proceed with the required studies and final subdivision design in preparation for approval and construction tenders.

3.3 Service Phasing

It is recommended that the extension of Dickson Drive from its current end through to 1st Line Road and all other related services be constructed in one phase.

Should the market demand not be present for the planned 2 or 3 larger lots in the 6-12 acre size within the first year, this “large lot” area can be further serviced with “Dickson Court” in a second phase to achieve a larger number of small lots.

4. Property Administration, Management and Marketing of the Business Park

4.1 Municipal Engagement in Employment Lands Development vs Private Sector Development

Following is some background information related to the direct involvement of municipalities in employment land development.

- Employment land development is a key contributor to the economic development, employment base, economic sustainability and prosperity of the municipality as well as the prosperity of the private sector.
- Serviced employment land development requires a large investment, has a comparatively long hold/sales period, only a marginal rate of return on investment, and fluctuations in the economy can result in slow periods of few or no sales. For these reasons, the private sector (across Canada) will only purchase and develop industrial land if it can realize a significant return on investment through the eventual sale of these lands to offset the risks and long sales cycles.
- In most Canadian markets, with few exceptions, unless the municipality engages in employment land development, there will typically be an insufficient supply of shovel-ready land.
- Municipalities typically view the "return on (employment land development) investment" more broadly than the private sector, which is generally focused on financial return on investment. The public sector considers community benefits like employment created, job retention and attraction, municipal/corporate tax revenues, economic spin-off, and better balance in the residential/non-residential assessment ratios, in addition to the financial return on its investment.
- To compete aggressively and effectively for employment, those municipalities that take a progressive and proactive approach to economic development, often acquire, service and market employment lands to meet the needs of the local market.
- In markets with very marginal rates of return and long sales cycles, the municipality is often the only employment/industrial land developer. In "hot" markets with rising or high land prices, municipal engagement in the market often serves to temper rapidly escalating land prices, helping the municipality to remain competitive.
- Municipalities can be the longer-term patient investors that ride out slow market conditions while ensuring a constant land supply is available, thereby ensuring that the municipality can compete for investment at all times.
- While municipalities frequently consider other potential investments, which compete for municipal capital, very few other municipal investments will result in a complete

return of the original investment amount, let alone a return on that investment amount (financial return greater than total invested amount).

Municipal Examples:

- A Southwestern Ontario municipality made a total land and infrastructure investment in an industrial park totalling $1M quite a number of years ago. With sales to date of $3M (20 acres remaining), developed properties are generating annual taxes of $1.6M, and have created 686 jobs to date.
- The experience of another Southwestern Ontario municipality that actively engaged in industrial land development over a long period of time follows:
    - Over 11 years, an average of 351,000 square feet of industrial building space was constructed annually, consuming an average of 54 acres annually;
    - Businesses located (over a period of 16 years) on municipally developed lands now generate in excess of $12 M in taxes per annum, retaining 1,836 jobs and creating 3,659 new jobs.

It is our observation and conclusion (having worked with hundreds of municipalities across Canada) that natural market forces are typically inadequate to ensure there is a sufficient supply of appropriately sized, competitively priced, and strategically located serviced employment/industrial land to meet business needs or community economic development objectives.

Why Private Sector Land Development may not Meet Municipal Objectives

Following is a brief description of why private sector development of industrial land frequently does not meet municipal objectives for industrial land development.

- The private sector naturally seeks to maximize profitability – and this often results in attempts to convert industrial lands into higher economic return land uses such as commercial and residential.
- The following issues (that are incongruent with municipal objectives) can occur with privately-held industrial land:
    - Private owners without significant investment in the land (servicing costs not paid by the owner for example), or owners with a very long investment return horizon, may effectively hold land off the market by over-pricing it;
    - Many private owners may not wish to sell land at all. Owners may wish to avoid paying capital gains tax, which would be triggered by a land disposition;
    - Private owners may not have the required knowledge or experience to skillfully and successfully develop industrial land;

- Private owners may make land available only on a build-to-suit/lease basis to derive greater profits. Build to lease avoids the property disposition and therefore avoids triggering a capital gain. This means that a business wanting to own its property cannot be accommodated;
- Private owners, despite promises to the contrary, often hold out for a conversion of the land to other more profitable uses, later arguing they could not sell or develop the land profitably;
- The sales of private sector land are likely to be less discriminate than sales of publicly-owned land (such as selling fully serviced properties to land extensive – low employment uses, or to higher-paying retail uses).

It should be noted, however, that industrial lands that are owned and developed by experienced industrial land/building development firms in a competitive market are usually sufficiently (financially) motivated to ensure that the land is priced appropriately, and that build to suit/lease development costs are reasonable.

4.2 Centre Wellington Municipal Policy Context

The following policies provide the policy context for the development and sales of land in the Centre Wellington Business Park:

- Wellington County Official Plan;
- Centre Wellington Official Plan.

The Centre Wellington Official Plan, in particular, provides strong policy statements with respect to the need for employment diversification and employment land development. Pertinent excerpts from the Official Plan follow.

From Major Goals Section

> *Encourage sustainable economic growth to provide employment opportunities and tax revenues for the Township.*

From the Economic Development Section

> *The Township will ensure that sufficient land is designated and available to accommodate an appropriate range and mix of employment opportunities (including industrial, commercial and institutional uses) to meet projected needs for the growth forecast.*
>
> *The Township will encourage and support decisions, which ensure that an adequate supply of employment lands is available at all times.*

From the Strategic Action Plan Section

> *Provide the necessary infrastructure and related environment to provide for the needs of growth and investment…*
>
> *Focus on the retention and expansion of the existing base of industry, identifying and meeting the needs of existing businesses and exemplifying a pro-active and anticipatory attitude towards business investment and development.*

From the Industrial Section:

> *In recent years, industrial growth in the Township has not kept pace with residential growth. The Township must ensure that adequate supplies of serviced industrial lots are readily available to prospective businesses. The development of an industrial base is essential to the future prosperity and vitality of the Township.*
>
> *The objectives for industrial development are as follows:*
>
> 1. *To diversify the local tax base by increasing industrial assessment;*
> 2. *To provide adequate industrial lands in appropriate locations to meet long term land use requirements;*
> 3. *To protect existing and planned industrial development from incompatible or sensitive land uses;*
> 4. *To ensure that fully serviced industrial lots are available;*
> 5. *To ensure that users of the industrial land are "clean" industries which do not have a detrimental effect on the urban centres and that any potential adverse impacts of industrial development on the natural environment and surrounding land uses are minimized;*
> 6. *To encourage attractive industrial areas through appropriate design standards.*

The private sector has not sufficiently engaged in the provision of an adequate supply of employment lands, and therefore the municipality must be proactive to ensure the policy statements are achieved. Centre Wellington already has a successful track record in employment land development.

The following policies are recommended to support and guide both the current and future Councils and administrations in decision-making related to Township engagement in employment land development.

4.3 Centre Wellington Employment Land Development Policies

Following are the suggested policy statements for consideration by the Township of Centre Wellington, which may be stand-alone as a Centre Wellington Employment Land Development Policy, or policy statements which may be included in future amendments to the Official Plan, or other corporate policies as appropriate:

Policy Purpose:

The Township seeks to increase local employment by ensuring sufficient locations for businesses to operate, and thereby improving the economic health and sustainability of Centre Wellington while creating greater balance in the tax base.

Policy Objectives:

1. That the Township ensure a sufficient supply of appropriately sized, competitively priced, and strategically located serviced employment land is available on the market at all times for businesses that wish to own and build or lease their business premise.
2. Ensure that available land meets the needs of the businesses/industries the municipality is specifically targeting for attraction and retention.
3. Collaborate with the private sector wherever possible to help ensure achievement of Policy Objectives 1 and 2 above.

Policy Statements:

1. To the extent that the private sector (or collaboration with the private sector) does not yield a sufficient supply of appropriately sized, competitively priced, and strategically located serviced employment land (lease and ownership tenure available) to market, the Township may engage directly (or in collaboration with the private sector) in the acquisition, planning, development/servicing, marketing and sales through an Employment Land Development Program to ensure that Policy Objectives 1 and 2 above are met.
2. That the above Employment Land Development Program operates on a self-sustaining basis such that in the medium to long term, financial support from local taxation is not required. Expenditures related to land acquisition, planning, engineering, development, marketing and sales of employment lands are to be recovered from sales revenues of such lands.
3. That a land sale pricing schedule for Township-owned employment lands be established from time to time, with the objective of achieving fair market value for lands sold.

The above-recommended policies will assist Council decision-making and in communicating Centre Wellington's approach to employment land development to the public.

4.4 Centre Wellington Economic Development Reserve Fund

The following recommendations are presented for consideration with respect to the Economic Development Reserve Fund.

1. That the purposes of the Economic Development Reserve Fund include:
    a. Self-funding of employment lands acquisition and development.
    b. Support for other economic development related capital investments that may be required in the future.
2. The sources of funds for the Economic Development Reserve Fund would include but not necessarily be limited to:
    a. All proceeds from the sale of any municipally owned employment lands.
    b. Funding from OLG that is allocated by Council to economic development.
    c. Funds that may be provisioned by Council from time to time.
3. The object of expenditures for the Economic Development Reserve Fund be established in the following general order of priority:
    a. Repayment of debts associated with borrowing for employment lands acquisition, development, servicing and marketing costs.
    b. Funding for current and future employment lands acquisition, development, servicing and marketing costs, sufficient to meet all of the Township's policy objectives.
    c. An annual allocation to the CIP Reserve.
    d. Funding for the Manager of Economic Development position, on a declining basis as described in OLG Funding Allocation Policy report dated Dec. 1, 2020.
    e. When excess funds exist in the reserve fund after meeting the above needs, other such capital expenditures as are required to support the economic growth of the Township and the balancing of the tax base as described in the Official Plan.

4.5 Objectives for Centre Wellington Business Park

Following are the suggested Township objectives for the Centre Wellington Business Park:

1. The Centre Wellington Business Park seeks to increase local employment by providing locations for businesses to operate, and thereby improving the economic health and sustainability of Centre Wellington while creating greater balance in the tax base.

2. That the development of the Centre Wellington Business Park is carried out in a manner that meets all approved Township policies and objectives.

That municipal policy objectives related to the Centre Wellington Business Park (and the Employment Land Development Program) be made public, visible and transparent.

4.6 Centre Wellington Business Park Sales Pricing Policy

It is recommended that a lot by lot sales pricing schedule (policy) be approved by Council. The pricing schedule should reflect the current market value of the lands. The following policies are recommended:

1. That business park lands be sold at a price that represents fair market value[4] considering location, services, and the terms and conditions of sale.
2. That a per acre/hectare sales pricing schedule for each proposed lot may recognize the following:
    a. Higher visibility lots and small lots command a higher price;
    b. Lots that are of irregular shape or irregular frontage/depth ratio, or are not fully developable for any reason, generally require a discount from nearby asking prices;
    c. Initial sales may be "discounted" slightly to achieve market attention and momentum. Lot prices tend to rise as the area becomes more recognized, sales are secured, and again after servicing and road construction have been completed, and finally as building construction starts.
3. That Council annually review and approve the pricing schedule, and revise if required, any standard terms and conditions related to employment property sales, as well as the parameters and limitations of negotiation.
    a. Annual pricing schedule recommendations should be supported with a market analysis of competing properties. Should the Centre Wellington Business Park be subject to an exclusive listing agreement (not recommended), this requirement[5] could be added to the broker's requirements.
    b. During times of rapidly escalating land prices, the Chief Administrative Officer[6] is authorized to adjust prices upwards to reflect current trends in land prices.

[4] Moderately priced land at fair market value allows the municipality to effectively and successfully compete for development, while providing an open, fair and transparent business environment.

[5] Ideally, a summary of vacant industrial land sales in the Calgary area is provided monthly by the broker as part of the listing agreement requirements.

[6] Chief Administrative Officer or CAO in this report includes Acting CAO in all cases.

4.7 Employment Land Sales Policies

1. That Council approve these sales policies and the internal sales procedures to be followed by the Administration with respect to employment land sales.
2. All offers to purchase employment lands will follow the approved policies and procedures (and not be sent directly to Mayor or Council for example).
3. That the authority to accept Offers to Purchase and bind the Corporation to the sale of employment lands be delegated to the Chief Administrative Officer (CAO), conditional upon each being compliant with all Council approved policies and procedures. Council retains the authority to accept any Offer to Purchase that is not compliant with Council-approved policies and procedures.
4. The Township may choose from time to time to limit the number of sales to developers (for speculative development, build to suit, or multi-tenant developments) reserving a number or percentage of lots for purchase by end-users.
5. Purchasers/businesses that will generate higher economic impact may from time to time be given precedence over low impact/employment-generating businesses.
6. Land extensive businesses shall be actively directed elsewhere (building materials yards, contractor storage and assembly areas, outside storage yards, etc.).
7. That a summary of closed sales and the related status of development be provided to Council on a regular basis.

Offer to Purchase, Agreement of Purchase & Sale

1. Upon completion of review and Council approval of the recommended policies and procedures, that the Township engage a lawyer specialized in municipal and commercial real estate to be instructed to prepare a standard form Offer to Purchase and an Agreement of Purchase and Sale which incorporates all relevant requirements of approved policies and procedures.
2. The Offer to Purchase and the Standard Form of Agreement of Purchase and Sale shall subsequently be approved by Council. Purchasers requiring substantive changes from the approved Standard Form of Agreement shall have the proposed revised agreement approved by Council before execution.

4.8 Marketing the Centre Wellington Business Park

Key Industry Audiences

Three key audiences have been identified as targets for opportunities associated with the development of the Centre Wellington Business Park lands.

1. Businesses that have recently been in contact with the Centre Wellington Economic Development Office requiring land: Businesses that have recently expressed interest in purchasing land in Centre Wellington and have already approached the Centre Wellington Economic Development Office.

2. Centre Wellington industries requiring expansion/relocation: Following priority marketing to currently interested businesses, the second business attraction priority of the Township of Centre Wellington should be existing Centre Wellington businesses wishing to grow or relocate.

3. Attraction of businesses and identified target industries from outside of Centre Wellington: The third priority chronologically would be the attraction of businesses and the target industries that are looking to expand/relocate, and that are not currently located in Centre Wellington.

Marketing Strategies to Reach Key Industry Audiences

PRIORITY 1: Businesses that have recently been in contact with the Centre Wellington Economic Development Office requiring land

A number of businesses have recently expressed interest in purchasing land in Centre Wellington and have already approached the Centre Wellington Economic Development Office. Those businesses that are compatible with the proposed zoning should be contacted to determine if they are interested.

PRIORITY 2: Centre Wellington Industries Requiring Expansion/Relocation

Centre Wellington's regular business visits should be infused with information on the Centre Wellington Business Park opportunities available. Additionally, the Business Park opportunity should be communicated to the business community generally. Businesses that reveal a potential for a relocation or expansion during a business visit or through other means, may benefit from a follow-up focused solely on the details of the Centre Wellington Business Park project. As the land supply in Centre Wellington has been tight, there has been a pent-up demand for expansion within Centre Wellington companies. A large portion of the total new business investment in any community can be attributed to re-investment by existing companies.

PRIORITY 3: Attraction of Businesses & Target Industries from Outside of Centre Wellington

After Centre Wellington businesses have been made aware of the opportunity, a more public marketing of the Centre Wellington Business Park lands can begin.

There are two main target audiences to reach:

- Real estate brokers and agents, with a focus on those active in the Kitchener/Waterloo/Guelph/Wellington County region.
- Businesses located in the Kitchener/Waterloo/Guelph/Wellington County region seeking to relocate or expand.

Real Estate Brokers and Agents

The Township can accept and negotiate offers to purchase directly from companies or from agents/brokers. It is recommended that the Township pay brokers a 5% commission on represented sales. Alternately, but not recommended in this case, a listing broker may be used on an exclusive basis.

Some options for marketing to real estate brokers include:

- Develop a list of contacts for local real estate brokers.
- Presenting the Centre Wellington Business Park opportunity to ICI (Industrial Commercial Investment) agent meetings at key Kitchener/Waterloo/Guelph/Wellington County Industrial, Commercial, Investment (ICI) brokers' offices.
- Connecting with key ICI agents on an individual basis through email, or phone to present the Centre Wellington Business Park opportunity.
- Hosting an on-site "event" when the lands are serviced – perhaps at a "road (Park) opening" ceremony.
- Providing marketing materials to more distant Ontario ICI brokers, with consideration given to meeting with key Southern Ontario and GTA ICI brokers.
- Regularly informing ICI brokers and agents, perhaps with a Centre Wellington e-newsletter, of recent approvals, developments, sales, or other items of interest that indicate the building of Centre Wellington Business Park market momentum.

The objectives of the broker/agent meetings are to:

- Provide a briefing on the current status of the Centre Wellington Business Park development;

- Provide a summary of the sales and lot information;
- Articulate the Centre Wellington and Business Park value proposition;
- Explain permitted uses and related regulatory details; including any fast-track permitting process;
- Provide Township of Centre Wellington contact information.

Attracting Business/Target Industries from Outside Centre Wellington

Finally, it will be important to establish a general market awareness of the Centre Wellington Business Park opportunity in the Kitchener/Waterloo/Guelph/Wellington County and the "west of GTA" area.

Marketing studies indicate that responses increase when an integrated, coordinated, multi-channel marketing communications campaign is undertaken. This campaign must be supported, however, with an ability to provide an instantaneous response, whether via an online/auto-response or by personal touch with further details.

The extent of the awareness campaign will likely be limited by the available budget. Centre Wellington could consider some initial marketing efforts to create market awareness, but then fall back to a more limited campaign that would include:

- Keeping real estate agents and brokers as well as marketing partners informed of changes and developments through electronic communication;
- Keeping marketing partners informed;
- Keeping the website up to date; and
- Maintaining a regular e-newsletter.

Use of Regional Marketing Partners

Wellington County: It is recommended that Centre Wellington participates in Wellington County's site selection and investment attraction programs. Collaborative marketing programs not only provide a broader product offering to potential investors but also provide an opportunity to participate at a fraction of the cost of "going alone".

City of Guelph: It is also recommended that Centre Wellington connect with the City of Guelph and work with them to provide any information on businesses that may want to expand but can not be accommodated in Guelph.

Marketing Support Collateral

A cross-media marketing campaign should include, but not be limited to:

- Creation of a Centre Wellington Business Park identity and brand that can be utilized in any marketing materials and provides a unifying identity.
- Addition of a Centre Wellington Business Park web page on the Municipality of Centre Wellington economic development website. Information on the evolving planning and development status should be kept up to date.
- Branded signage could include one or all of the following:
    - Permanent gateway signage to be installed at the two entrances (1st Line and Dickson Road and Dickson Road and Gregson Court) that utilize the Centre Wellington Business Park identity/branding.
    - Locational signage at the entryways to the Centre Wellington Business Park displaying a map of the lots, along with the Centre Wellington Business Park website, and a dedicated phone number and email address and other relevant information.
    - Signage on the individual lots, including relevant information about the property along with contact information and current information on the property (i.e. it's availability).
    - Temporary marketing signage located in opportune locations in and around the municipality and highly visible to potential investors.
- A Centre Wellington Business Park kit folder and a sell sheet, outlining the value proposition and key facts. PDF versions to be available for emailing and download.
- An enquiry response template that is Centre Wellington Business Park branded and contains or appends supporting information for serious enquiries. This enquiry response template would be useful for all enquiry responses, not just the Centre Wellington Business Park.
- A Centre Wellington Business Park e-newsletter or regular email updates.
- Maps, including simplified maps indicating the location of the Centre Wellington Business Park within Centre Wellington, and Centre Wellington in relation to other centres west of the GTA, showing major highway connections. Include labour force commuter shed maps and one or more Centre Wellington Business Park maps, including lotting and lot sizes, prices, and any sales to date.
- Creation of media attention, perhaps bolstered by a media (and broker/agent) event, such as a ground-breaking ceremony. Support coverage through online media. Selective advertising could be considered in support of other "editorial" coverage.

Value Proposition Points

The key value proposition points for the Municipality of Centre Wellington:

- Financial Advantage
  - Reasonable Development Charges
  - Options for "dry" industrial lands
  - CIP incentives
  - Lower taxes and less expensive lands than in the Kitchener/Waterloo/Guelph and the western Greater Toronto Area.
- Municipal Land Advantage
  - Municipally owned employment lands.
  - Lot sizes can be customized to meet individual business needs.
- People Advantage
  - Quality, skilled local workforce
  - Immediate access to a skilled workforce: close to 60% of the resident workforce currently commutes outside of Centre Wellington to work.
- Energy Advantage
  - Centre Wellington Hydro
  - Centre Wellington Energy Initiatives
- Infrastructure Advantage
  - full urban fibre
  - High-quality lands municipal services (including available water and wastewater)
  - Multi-use pathways
- Location Advantage
  - Access to Highway 401
  - Access to U.S. border points (Detroit & Windsor)
  - Proximity to major markets including the Greater Toronto Area, Guelph, Kitchener/Waterloo, Hamilton
  - Home to well established small and large manufacturing facilities.
- Learning and Research Advantage
  - Proximity to two regional innovation centres – Communitech (Kitchener Waterloo) and Innovation Guelph

- Proximity to University of Waterloo, University of Guelph and Wilfred Laurier
- Home to five high tech agricultural research stations

- Community Advantage
  - Low Crime Rate
  - Growth Potential
  - New hospital (2020)
  - Supportive Municipal Government
  - Historic small town centres of Elora and Fergus
  - Full urban fibre

Section 4

Cultural Heritage Evaluation

CULTURAL HERITAGE EVALUATION REPORT

6518 FIRST LINE
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

Prepared for:

Township of Centre Wellington
1 Macdonald Square
Elora, ON N0B1S0

ASI File: 20CH-035

June 2021 (Revised January 2023)

ASI Providing Archaeological & Cultural Heritage Services
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CULTURAL HERITAGE EVALUATION REPORT

6518 FIRST LINE
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

EXECUTIVE SUMMARY

ASI was contracted by the Township of Centre Wellington to prepare a Cultural Heritage Evaluation Report (CHER) for the property at 6518 First Line in the Township of Centre Wellington. This CHER is part of the Dickson Drive Extension Municipal Class Environmental Assessment (EA). The project involves the proposed extension of Dickson Drive, the existing municipal services, and establish a Storm Water Management Strategy.

The property consists of a farmhouse and agricultural property that is listed on the Township of Centre Wellington's Heritage Register. The intent of this CHER is to determine the cultural heritage value or interest of the property under the criteria in Ontario Regulation 9/06 under the *Ontario Heritage Act* and the Township of Centre Wellington's *Official Plan* (2013).

The results of the evaluation of the property's cultural heritage value or interest determined that the property contains cultural heritage value or interest due to the farmhouse's design and architectural value. Based on this evaluation of the property, the following recommendation is proposed for consideration by Township of Centre Wellington staff:

1. The property at 6518 First Line contains cultural heritage value or interest and should be considered for designation under Part IV of the *Ontario Heritage Act*.

2. As part of any future proposed development of the property, a Heritage Impact Assessment and Conservation Plan should be undertaken to evaluate the impacts of the proposed development on the cultural heritage value or interest of the property and provide a long-term strategy for the conservation of elements of the property that will be retained. Mitigation measures should be included for any elements identified within the proposed statement of significance that cannot be retained (for example, the property's driveway).

3. The report should be submitted for review and comment to heritage staff at the Township of Centre Wellington, the Ministry of Citizenship and Multiculturalism, and any other relevant heritage stakeholder that has an interest in this project. Any feedback will be reviewed and incorporated into the final report. The report could also be submitted to the Wellington County Museum and Archives for their records.

PROJECT PERSONNEL

Senior Project Manager:	Annie Veilleux, MA, CAHP Manager, Cultural Heritage Division
Cultural Heritage Specialist:	James Neilson, MES (Planning), CAHP Cultural Heritage Specialist, Cultural Heritage Division
Project Administrator:	Alex Sweeny, BSc (Hon) Clerical Administrator, Operations Division
Historical Research:	Michael Wilcox, PhD Cultural Heritage Technician, Cultural Heritage Division
	James Neilson
Field Review:	James Neilson
Report Preparation:	James Neilson
	Michael Wilcox
Graphics Preparation:	Carolyn Nettleton Geomatics Specialist, Operations Division
Report Reviewers:	Laura Wickett, BA (Hon), Dipl. Heritage Conservation Cultural Heritage Analyst, Cultural Heritage Division
	Annie Veilleux

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1.0 INTRODUCTION

ASI was contracted by the Township of Centre Wellington to prepare a Cultural Heritage Evaluation Report (CHER) for the property at 6518 First Line in the Township of Centre Wellington. The property is located in Lot 9, Concession 1 in the former Township of West Garafraxa, County of Wellington. This CHER is part of the Dickson Drive Extension Municipal Class Environmental Assessment (EA). The project involves the proposed extension of Dickson Drive, the existing municipal services, and establishment of a Storm Water Management Strategy, as part of the proposed development of a new subdivision of a business park covering the footprint of the property at 6518 First Line.

The subject property at 6518 First Line is located on the west side of First Line, north of Garafaxa Street East (Figure 1). The property at 6518 First Line consists of a farmhouse and agricultural property that is listed on the Township of Centre Wellington's Heritage Register. The intent of this CHER is to determine the cultural heritage value or interest of the property based on the evaluation criteria set under Ontario Regulation 9/06 of the *Ontario Heritage Act* and the Township of Centre Wellington's *Official Plan* (2013).

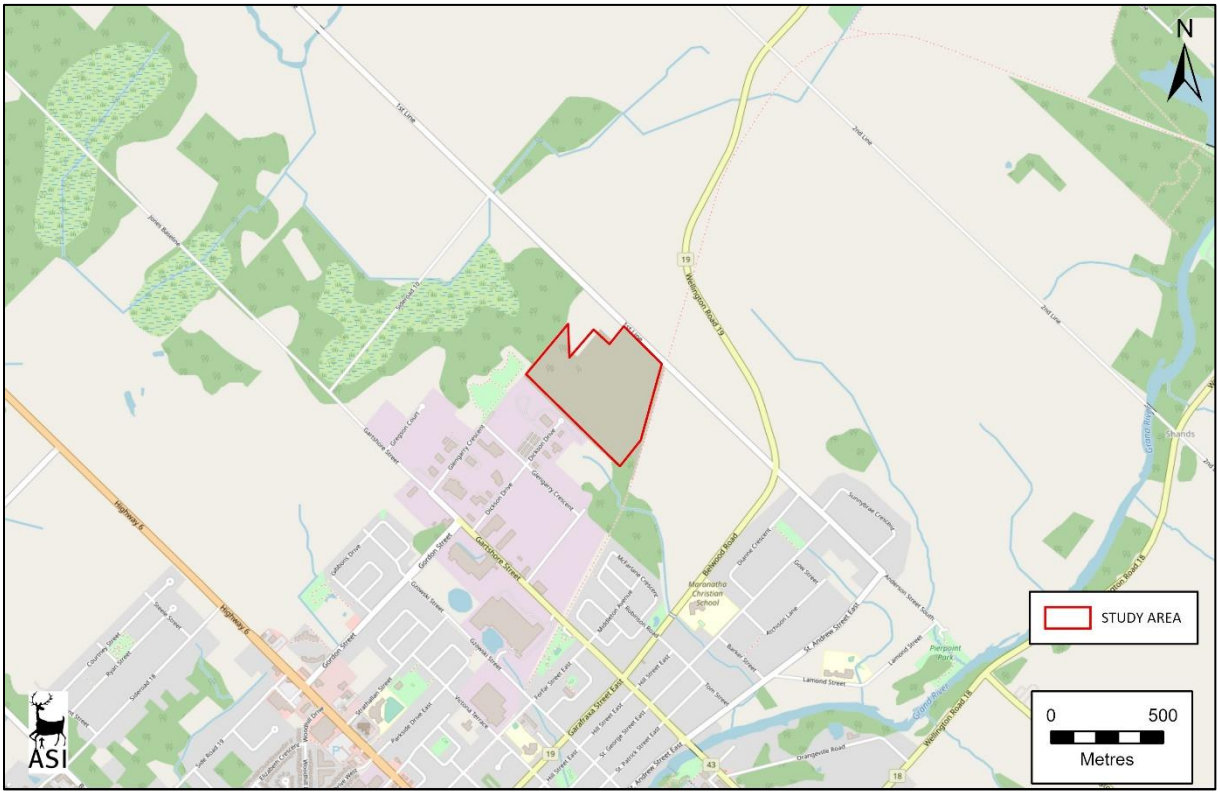


Figure 1: Location map (Base Map: Open Street Maps)

The research and analysis for this report were conducted by Michael Wilcox, Cultural Heritage Technician and James Neilson, Cultural Heritage Specialist, under the project direction of Annie Veilleux, Manager of the Cultural Heritage Division, ASI. This CHER follows the Ministry of Tourism, Culture and Sports' (now administered by the Ministry of Citizenship and Multiculturalism) *Ontario Heritage Tool Kit*

(2006) and the Township of Centre Wellington's *Official Plan* (2013). Research was completed to investigate, document, and evaluate the cultural heritage value or interest of the property. This document will provide:

- a historical overview and analysis of the property;
- a description of the existing conditions of the property;
- an evaluation of the property under Ontario Regulation 9/06;
- a proposed Statement of Significance (if necessary).

1.1 Location and Study Area Description

The subject property is located at 6518 First Line in the Township of Centre Wellington (Figure 2). The property consists of 58 acres of agricultural lands with a c.1900[1] residential building (Figure 3) and outbuilding accessed by a long driveway from First Line. The property has an irregular boundary formed by First Line to the northeast, the former Credit Valley Railway/Canadian Pacific Railway (which has been converted to trail use as the Elora Cataract Trailway) to the southeast, industrial properties to the southwest and subdivided residential properties to the northwest. The rural property is on the northern edge of the community of Fergus with commercial and industrial uses immediately to the southwest and agricultural farms to the northeast and northwest. Residential subdivisions are found 600 metres to the southeast.

[1] The Township of Centre Wellington notes the c.1900 date of construction on their Heritage Register. This information could not be confirmed through research for this CHER, though 1901 is the earliest known date that the existing farmhouse was present on the property. Though "c.1900" is used throughout this report, it is likely that the building may have been constructed sometime in the late-nineteenth century.



Figure 2: Satellite image of the subject property (Google 2020)



Figure 3: 6518 First Line (ASI 2021)

1.2 Ownership Information

Township of Centre Wellington
1 Macdonald Square
Elora, ON N0B1S0

1.3 Policy Framework

The authority to request this CHER arises from the *Ontario Heritage Act* (1990), Section 2(d) of the *Planning Act* (1990), the *Environmental Assessment Act* (1990), the *Provincial Policy Statement* (2020) and the Township of Centre Wellington *Official Plan* (2013).

The following resources were among those reviewed in the preparation of this CHER:

- *Ontario Heritage Act* and Ontario Regulation 9/06 (1990);
- *Planning Act* (1990);
- *Environmental Assessment Act* (1990); and,
- *Provincial Policy Statement* (2020).

1.3 Cultural Heritage Evaluation Process

The purpose of the CHER is to examine a property as whole, its relationship to surrounding landscapes, and its individual elements. Conducting archival research and site visits inform such an examination. Where appropriate, background information is gathered from heritage stakeholders, local archives, land registry offices, local history collections at public libraries, and the Ministry of Citizenship and Multiculturalism. Once background data collection is complete, a site visit is carried out to conduct photographic documentation and site analysis. These components provide a means to soundly establish the resource's cultural heritage value or interest.

The scope of a CHER is guided by the Ministry of Tourism, Culture and Sport's (now administered by the Ministry of Citizenship and Multiculturalism) *Ontario Heritage Tool Kit* (2006). Generally, CHERs include the following components:

- A general description of the history of a study area as well as a detailed historical summary of property ownership and building(s) development (Section 2.0);
- A description of the cultural heritage landscape and built heritage resources (Section 3.0);
- Representative photographs of the structure, and character-defining details (Section 3.2);
- A cultural heritage evaluation guided by the *Ontario Heritage Act* criteria (Section 4.2);
- A summary of heritage attributes, if applicable (Section 4.4);
- Historical mapping and photographs (Section 2.4); and
- A location plan (Section 3.0).

Using background information and data collected during the site visit, the property is evaluated using criteria contained within Ontario Regulation 9/06 of the *Ontario Heritage Act*. The criteria are grouped

into the following categories which determine the cultural heritage value or interest of a potential heritage resource in a municipality:

i) Design/Physical Value;
ii) Historical/Associative Value; and
iii) Contextual Value.

Should the structure meet one or more of the above-mentioned criteria, and the property is expected to be subject to direct or indirect adverse impacts, a Heritage Impact Assessment (HIA) is required.
The term "significant" in the context of cultural heritage and archaeology resources refers to those that have been determined to have cultural heritage value or interest for the important contribution they make to our understanding of the history of a place, an event, or a people (Ministry of Municipal Affairs and Housing 2020). Processes and criteria for determining cultural heritage value or interest are established by the Province under the authority of the *Ontario Heritage Act*.

1.4 Project Consultation

The following municipal staff, organizations, websites, online heritage documents, and online heritage mapping tools were consulted to evaluate the level of significance of the subject property and to request additional information generally:

- Township of Centre Wellington's Heritage Register
  - The property at 6518 First Line is on the Heritage Register.
- Parks Canada's *Canada's Historic Places* website[2]
  - The subject property is not in Parks Canada's *Canada's Historic Places* database.
- Parks Canada's *Directory of Federal Heritage Designation*[3]
  - The subject property is not in Parks Canada's *Directory of Federal Heritage Designations*.
- Ontario Heritage Trust's *Ontario Heritage Act Register*[4]
  - The subject property is not included on the Ontario Heritage Trust's *Ontario Heritage Act Register*.
- Ontario Heritage Trust's *Ontario Heritage Plaque Guide*[5]
  - There are no plaques on the subject property.
- Ontario Heritage Trust's Places of Worship Inventory[6]
  - There are no places of worship on the subject property.
- *Ontario's Historical Plaques*[7]

[2] Available at http://www.historicplaces.ca/en/pages/about-apropos.aspx [accessed 10 May 2021]
[3] Available at http://www.pc.gc.ca/apps/dfhd/default_eng.aspx [accessed 10 May 2021]
[4] Available at https://www.heritagetrust.on.ca/en/pages/tools/ontario-heritage-act-register [accessed 10 May 2021]
[5] Available at http://www.heritagetrust.on.ca/Resources-and-Learning/Online-Plaque-Guide.aspx [accessed 10 May 2021]
[6] Available at https://www.heritagetrust.on.ca/en/places-of-worship/places-of-worship-database [accessed 10 May 2021)
[7] Available at http://www.ontarioplaques.com/ [accessed 10 May 2021]

- There are no plaques on the subject property.

The following stakeholders were contacted with inquiries regarding the heritage status and for information concerning the subject property and any additional adjacent built heritage resources or cultural heritage landscapes (Table 1).

Table 1: Results of Stakeholder Communications

Contact	Organization	Date(s) of Communications	Description of Information Received
Mariana Iglesias, Senior Planner	Township of Centre Wellington	May and June 2021	Staff provided information on the current heritage status of the property. Staff also reviewed the draft CHER (June 2021) and provided comments on the report findings.
Josephy Harvey, Heritage Planner	Ministry of Citizenship and Multiculturalism	26 April and 22 October 2022	Staff provided initial comments and feedback on the draft CHER (June 2021) in April 2022. Staff provided subsequent feedback and comments in October 2022 on the Project File Report for the Dickson Drive Extension MCEA.

1.5 Existing Heritage Recognitions

The subject property is listed on the Township of Centre Wellington's Heritage Register (Township of Centre Wellington 2018). The register notes that the property includes a two-storey dwelling built c. 1900 with stretcher brick, medium hip roof, yellow quoins and voussoirs, and restored front door/porch and windows.

1.6 Report Limitations

Due to the ongoing Covid-19 pandemic and "Stay-at-Home" restriction implemented by the Ontario Government[8], this report was completed with limitations due to access to the property.

ASI did not enter the residence due to health and safety concerns for staff and the tenant of the residence. Typically an interior investigation of the residence would have been conducted and may have revealed elements that would contribute to a greater understanding of the building. In lieu of interior access, photos of the interior have been provided by the tenant to provide ASI with a better understanding of the building.

[8] See https://bit.ly/3hWXESc

2.0 HISTORICAL RESEARCH

The following section provides a historical overview of the Indigenous land use and Euro-Canadian settlement and land-use of the property at 6518 First Line.

2.1 Indigenous Land Use Overview

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years ago, or 11,000 Before the Common Era (B.C.E.) (Ferris 2013).[9] During the Paleo period (c. 11,000 B.C.E. to 9,000 B.C.E.), groups tended to be small, nomadic, and non-stratified. The population relied on hunting, fishing, and gathering for sustenance, though their lives went far beyond subsistence strategies to include cultural practices including but not limited to art and astronomy. Fluted points, beaked scrapers, and gravers are among the most important artifacts to have been found at various sites throughout southern Ontario, and particularly along the shorelines of former glacial lakes. Given the low regional population levels at this time, evidence concerning Paleo-Indian period groups is very limited (Ellis and Deller 1990).

Moving into the Archaic period (c. 9,000 B.C.E. to 1,000 B.C.E.), many of the same roles and responsibilities continued as they had for millennia, with groups generally remaining small, nomadic, and non-hierarchical. The seasons dictated the size of groups (with a general tendency to congregate in the spring/summer and disperse in the fall/winter), as well as their various sustenance activities, including fishing, foraging, trapping, and food storage and preparation. There were extensive trade networks which involved the exchange of both raw materials and finished objects such as polished or ground stone tools, beads, and notched or stemmed projectile points. Furthermore, mortuary ceremonialism was evident, meaning that there were burial practices and traditions associated with a group member's death (Ellis and Deller 1990; Ellis et al. 2009).

The Woodland period (c. 1,000 B.C.E. to 1650 C.E.) saw several trends and aspects of life remain consistent with previous generations. Among the more notable changes, however, was the introduction of pottery, the establishment of larger occupations and territorial settlements, incipient horticulture, more stratified societies, and more elaborate burials. Later in this period, settlement patterns, foods, and the socio-political system continued to change. A major shift to agriculture occurred in some regions, and the ability to grow vegetables and legumes such as corn, beans, and squash ensured long-term settlement occupation and less dependence upon hunting and fishing. This development contributed to population growth as well as the emergence of permanent villages and special purpose sites supporting those villages. Furthermore, the socio-political system shifted from one which was strongly kinship based to one that involved tribal differentiation as well as political alliances across and between regions (Ellis and Deller 1990; Williamson 1990; Dodd et al. 1990; Birch and Williamson 2013).

The arrival of European trade goods in the sixteenth century, Europeans themselves in the seventeenth century, and increasing settlement efforts in the eighteenth century all significantly impacted traditional

[9] While many types of information can inform the precontact settlement of Ontario, such as oral traditions and histories, this summary provides information drawn from archaeological research conducted in southern Ontario over the last century.

ways of life in Southern Ontario. Over time, war and disease contributed to death, dispersion, and displacement of many Indigenous peoples across the region. The Euro-Canadian population grew in both numbers and power through the eighteenth and nineteenth centuries and treaties between colonial administrators and First Nations representatives began to be negotiated.

The property at 6518 First Line is within Treaty 19, the Ajetance Purchase. The Ajetance purchase, or Treaty 19, included 648,000 acres of land occupying portions of present-day Halton and Peel Regions as well as Dufferin and Wellington Counties. The treaty is surrounded by Treaty 3 (1784/1792) to the west, Treaty 14 (1806) to the south, Treaty 13 (1788/1805) to the east, and Treaty 18 (1818) to the north (Government of Canada 2016). This area was the last large tract of land ceded by the Mississaugas of the Credit First Nation, following the settlement of the Head of the Lake purchase (Treaty 14) in 1806. By 1818, the Mississaugas were experiencing a rapid decline in population due to increased encroachment by settlers and declining resources, and the area to the north had just been ceded by Chippewa nations (Mississaugas of the Credit First Nation 2017).

On October 23, 1818, Deputy Superintendent William Claus met with Chief Ajetance and other delegates of the Mississaugas of the Credit First Nation to negotiate the sale of the land. The payment ofered for this land consisted of “the yearly sum of [522] pounds ten shillings in goods annually". By 1820, the Mississaugas of the Credit negotiated the sale of the remainder of their lands except for a 200-acre parcel near the mouth of the Credit River (Surtees 1984; Mississaugas of the Credit First Nation 2017; Crown-Indigenous Relations and Northern Affairs 2016).

2.2 Township History

The subject property is located in Lot 9, Concession 1 in the historical Township of West Garafraxa, in present day Township of Centre Wellington.

2.2.1 Township of West Garafraxa

The Township of West Garafraxa was first surveyed in 1821 by Samuel Ryckman and Joseph Griffin, though the earliest known settlement was Pierpoint, which was first settled in 1819 in West Garafraxa on the eastern edge of present-day Fergus. This settlement was established by Africans who were previously enslaved and brought to the United States by their captors. Fleeing slavery, they enlisted themselves in Butler’s Rangers to fight for the British during the American Revolution. They regained their freedom through their allegiance to Britain and came to Upper Canada, first being granted land in the Niagara area and then coming to West Garafraxa starting in 1819. The settlement became known as Pierpoint after Richard Pierpoint who arrived in 1822 and was a leader of the community. By 1826, Pierpoint had six or seven log cabins and at least 35 acres of cleared land. One of the Pierpoint settlers, a Mr. Scott, built the first house in Fergus, on the site of the present-day Fergus Library at 190 St. Andrew Street West, and he built the first bridge across the Grand River on Tower Street with the help of other Pierpoint residents (Hutchinson 1998). The area later became known as Glen Lamond (Hutchinson 1998). Settlement in the rest of West Garafraxa followed quickly, using the Grand River as the major transportation route until the construction of the Garafraxa Road. The Township separated into East and West in 1869 (Mika and Mika 1983:627-628). West Garafraxa had one village, Belwood, and a number of

small hamlets, including Carmel, Glen Lamond, Living Springs/Green Settlement, Metz, Craigsholme, and Dracon (Byerly 1932; Hutchinson 1998). West Garafraxa was one of the communities that came to form the Township of Centre Wellington when it was amalgamated in 1999.

2.2.2 Village of Fergus

Fergus was founded in 1833-34 by Scotsmans Adam Fergusson and James Webster. It was originally known as "Little Falls" after the small waterfalls along the Grand River before being renamed after Fergusson. The river at Fergus includes a cascade of small waterfalls and a small gorge feature which forms an area known as the "Whirlpool" or "Mirror Basin". The early street layout consisted of St. Andrew, St. David, St. Patrick, St. George, Tower and Provost Streets. Tower Street was planned with a site for a future church (St. Andrews Presbyterian Church, first built in 1835, present church built 1862) and to connect south to a future bridge (first Tower Street bridge built 1834). South of the church site was a square named James Square after James Webster, which was intended for a future marketplace (Templin 1933). It has since been bisected by Tower Street. A square called Union Square was also planned south of the river at Tower Street and Union Street (today known as Norman Craig Square). Fergusson did not reside in Fergus aside from spending one summer there while Webster was the active developer of the settlement, erecting mills, selling lots and directing the clearing of land in consultation with Fergusson (Byerly 1932). By 1835 Webster had erected a dam and a gristmill at the "Little Falls" (Templin 1933).

St. Andrew Street between Tower Street and St. David Street began to emerge as a main street starting in the 1830s. In 1839, the principle buildings along this stretch included Black's Tavern, several houses including James Webster's dwelling, Webster's store and two others, a mill, saw mill and distillery (Mestern 1995). The 1850s and 1860s brought an influx of new residents to Fergus which spurred activity and the construction of sturdy stone buildings on the main business block. Fergus began to take on the appearance of a prosperous village (Mestern 1995). New industries were opening, including Grindley's foundry, McMahon's Stave factory and Wilson's oatmeal mill. By the 1870s, a lively business district was emerging in Fergus on St. Andrew Street West, from around Tower Street east to St. David Street South (Koop 2004). Residential areas developed primarily north of the river to the east of St. David Street and in the area around St. Andrew's Church. The lots backing onto the north side of the river between Tower Street and St. David Street were historically a site of industrial enterprises. The Fergus Market (105 Queen Street West) is one of the few remaining industrial buildings along the river. The earliest part of the Fergus Market was Grindley's foundry built in 1850. It was bought by Beatty Brothers Ltd. in 1874 and expanded to house their farm equipment foundry powered by the Grand River. The company's success helped to lift Fergus out of an industrial decline in the latter half of the nineteenth century. Its first factory was located in the Old Temperance Hall on St. Andrew's Street on the north side of the river (Byerly 1932).

The downtown area is composed primarily of two to three-storey cut stone mixed-use buildings and commercial blocks, many erected between the late 1850s and the 1880s. Architectural styles represented include Georgian, Second Empire and Italianate. The concentration of skilled Scottish masons and abundance of limestone in Fergus led to a proliferation of sturdy and handsome limestone buildings. Use of stone masonry in Wellington County declined rapidly after 1890 when railways brought

pressed brick into the area at affordable prices. Some stone houses were still built in Fergus as late as the 1930s (Couling 2002). Vehicular bridge crossings are located at Tower Street and St. David Street, with the Milligan footbridge located between these two streets.

The core of Fergus today retains a high number of nineteenth and early-twentieth-century commercial, industrial, civic, institutional and residential buildings, many of them stone. The grid of the original street layout north of the river has expanded with the village's growth. The village of Fergus was incorporated as a town in 1953.

2.3 Credit Valley Railway/Canadian Pacific Railway

The Credit Valley Railway was introduced as a competitor to the Wellington, Grey and Bruce Railway. It ran from Toronto to Orangeville, with branches from Cataract to Elora and Streetsville to St. Thomas. The Cataract-Elora branch opened in 1880. It became a major exporter of agricultural produce from Wellington County. Grain elevators appeared at Elora and Hillsburgh, while Erin, Hillsburgh, Orton, and Belwood became important shipping points for cattle, grain and eventually turnips (Thorning 1991). The railway age reached its peak in Wellington County between 1910 and the First World War (Thorning 1991:26). The First World War brought a decline in service, with shortages of materials and fuel. Passenger service was reduced through the 1960s and all service on both lines had ended by 1989 (Thorning 1991). Today, the railways is known as the Elora Cataract Trailway, which is a recreational trail that runs in a generally east-west direction between Elora and Belwood, through Fergus, following the railbed of the former Credit Valley/Canadian Pacific Railway and continues beyond the Township to the Forks of the Credit Provincial Park at Cataract. The trailway was identified as a significant cultural heritage landscape in the Centre Wellington Cultural Heritage Landscape study by ASI (draft 2020) and is primarily valued for its historical associations with the Credit Valley Railway and later the Canadian Pacific Railway which supported the growth and development of major industries and agriculture in the area and for its conversion to recreational use (ASI 2021b)[10].

2.4 6518 First Line

The following land use history is based on a combination of land registry records, historical mapping, census records, and local history resources where available. The subject property is located in Lot 9, Concession 1 in the historical Township of West Garafraxa, and present day Township of Centre Wellington.

2.3.1 Mary Wintermute (c. 1823-1833)

The crown patent for the 200 acres on Lot 9, Concession 1 went to Mary Wintermute (1798-1884) in 1823 (OLRA n.d.). It is known that she was the daughter of Peter Wintermute (1751-1838), a corporal with the British military (Mckinnon's Company, Butler's Rangers) during the American Revolution and

[10] The November 2020 report is a Draft Final report and has not yet been approved by council. More information about the study can be found here: https://www.connectcw.ca/CHL

thereafter a United Empire Loyalist who settled in Bertie Township (Reid 2015; Wintermute 1900). Mary was also the sister of William Wintermute (1795-1871), who received a crown patent in 1823 for the southwest half of Lot 7, and Philip Wintermute (1789-1849), who received the crown patent in 1823 for the northeast half of Lot 7, both on Concession 1 (Ancestry.ca n.d.; OLRA n.d.).[11] William Wintermute was a veteran of the War of 1812, having served with the Niagara Light Dragoons (Reid 2015). The three Wintermutes may have already been living on their properties before the crown patents, with Mary beginning in 1819 and William and Philip in 1822 (Mestern 1983; Hutchinson 1998). To receive a patent, one needed to fulfill several obligations, including clearing at least five acres of land, building a dwelling, and maintaining a roadway (Mestern 1983).

2.3.2 Thomas Clark and Samuel Street (1833-1856)

Wintermute sold her 200 acres to Thomas Clark (1770-1837) and Samuel Street (1775-1844) in 1833 (OLRA n.d.). Clark and Street were famous business partners based in Niagara with interests in gristmills, sawmills, and land speculation. They became wealthy landowners and merchants and held various political positions. Their landholdings were extensive "in virtually every district of the province" and probably numbered in the tens of thousands of acres. Notably, Street employed a land agent in the Grand River valley to help secure lots (Parker 1988; Parker and Wilson 1987). This is perhaps how he and Clark came to own the subject property, though it remains unknown if anyone lived on the property after Wintermute's departure.

Clark died in 1837 and, thereafter, Street and a man named Robert Grant acted as executors for him. They sold the 100 acres on the southwest half in 1838, and from then on, that part of the original 200-acre lot was no longer part of the subject property's history (OLRA n.d.). Samuel Street died in 1844 and his son, Thomas Street, inherited title to the land. The Streets were one of the wealthiest families in the province, and it is unlikely that Samuel or Thomas would have lived on the subject property at any time. It is plausible that someone was renting the property as early as 1851, as the 1851 census notes that a single storey log house was on the property (Library and Archives Canada 1851).

2.3.3 Dunlop Family (1858-1918)

Thomas Street sold 72 ¼ acres to James Cavanaugh in May 1856 (OLRA n.d.). Cavanaugh quickly sold his parcel to William Scott later that month. William Scott and his wife sold the property to Walter Scott, perhaps his son or brother, in 1857, with James Dunlop holding the mortgage. Dunlop himself took ownership of the 72 ¼ acres in 1858 (OLRA n.d.).

[11] Some historians of Fergus and Wellington County have erroneously suggested that the Wintermutes, namely William and Philip, were among the first black settlers in a small black settlement on Lots 6 and 7, Concession 1, during the 1820s and early 1830s. The Wintermutes, though, were not black Loyalists. This was possibly a mis-identification given their proximity to the Pierpoint Settlement. Rather, they were white and of Palatine-German heritage who initially settled in New Jersey before arriving in the Welland area after the American Revolution. More details on the history of the family is available in the Wintermute Family History (Wintermute 1900).

James Dunlop likely moved onto the property in the late 1850s, and it is his name which appears on the map from 1861, below (Figure 4). The map shows the subject property in a rural setting, northeast of Fergus. The area is largely in a gridded pattern, though one road appears along a northeastern-southwestern axis south and east of the subject property.

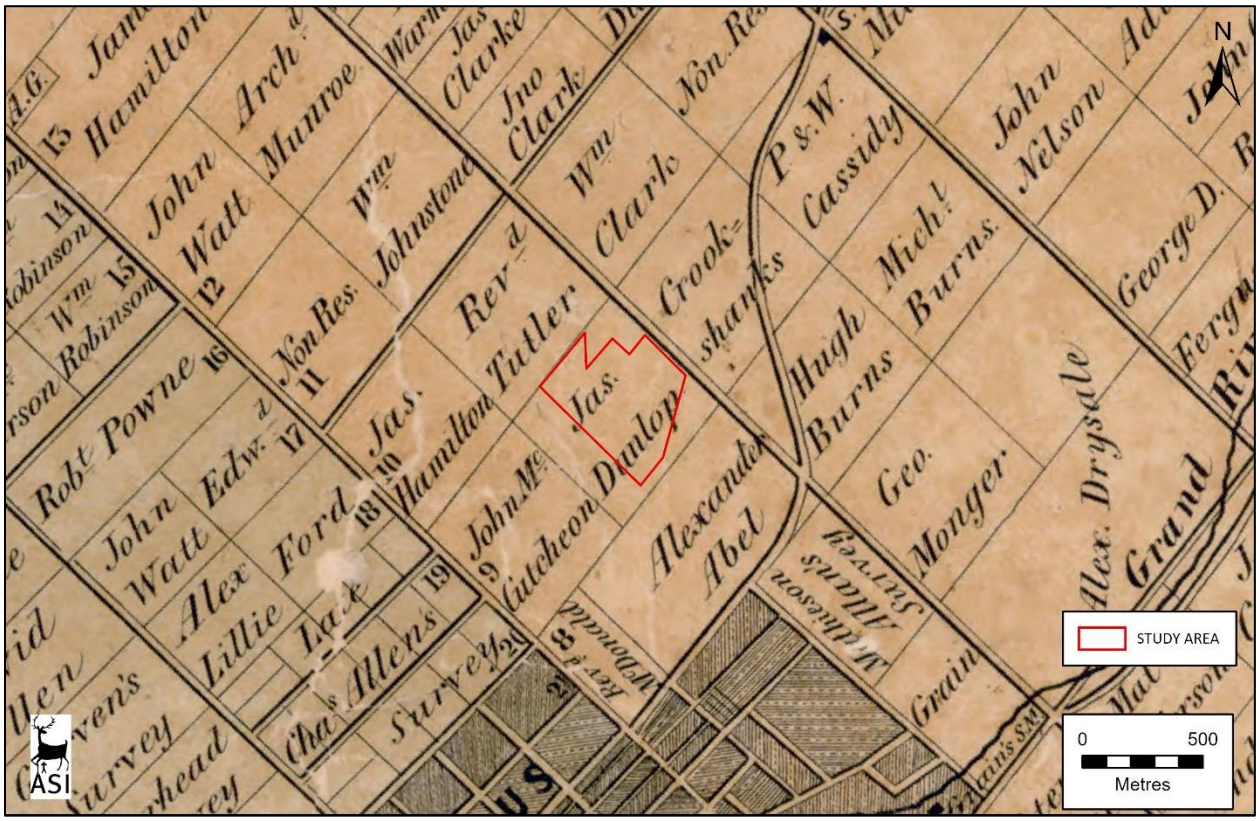


Figure 4: The study area overlaid on the 1861 Tremaine's Map of Wellington County (Leslie et al. 1861)

Dunlop was born in 1818 and married Jane Monteith in 1858 (Ancestry.com). The 1861 census notes that he was a farmer, and that he and his wife were born in Scotland. They had a two-year old child named Jane (1860-1920) and they lived in the single storey log house built in 1851 (Library and Archives Canada 1861). The associated Agricultural Census notes that Dunlop's property on Lot 9 included 35 acres under cultivation, 24 acres under crops, and 11 acres under pasture. Crops included wheat, barley, peas, oats, potatoes, turnips, and hay. The farm also had two steers or heifers, five milch cows, two horses over three years of age, eight sheep, and two pigs (Library and Archives Canada 1861).
The Dunlop family continued to grow, and two more children were born in the 1860s: James Jr. (1865-1901) and George (1867-1917). The family continued to own and reside upon the subject property in 1867 (Irwin and Burnham 1867). By 1871, the Census indicates that James Dunlop Sr. was now a 50-year-old farmer, married to 36-year-old Jane, with three children (Library and Archives Canada 1871). Schedule 3 of the Census notes that Dunlop owned 72 acres, one house, and that there were three barns and/or stables. The family also had two "cars, waggons, and sleds" and two "ploughs and cultivators." Schedule 4 notes that they are listed as the owners of Lot 9, with 52 acres improved and 20 under pasture. Just as they did a decade before, the family grew wheat, oats, peas, potatoes, turnips,

and hay. Schedule 5 notes that they owned two horses over the age of three, two colts and fillies, four milch cows and eight other horned cattle, 17 sheep, and six pigs (Library and Archives Canada 1871). In 1873, Dunlop granted the Credit Valley Railway 2 ½ acres on his property (OLRA n.d.). Dunlop's name continued to be found on the 1877 Historical Atlas, pictured below (Figure 5). The map shows a farmhouse toward the rear of the property (outside of the extant property's boundary) and the Credit Valley Railway traversing along the southern property border. The town of Fergus is identified to the southwest.

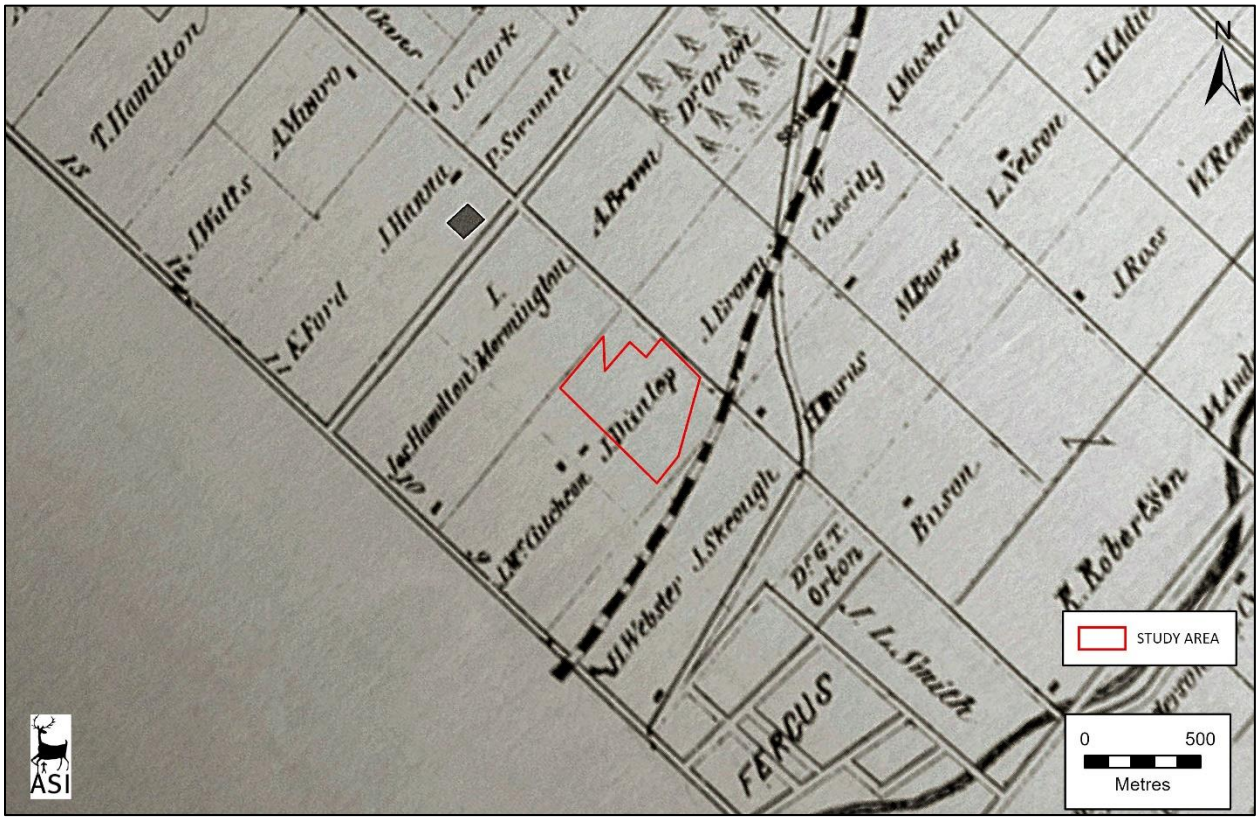


Figure 5: The study area overlaid on the 1877 Illustrated Historical Atlas (Walker and Miles 1877)

Jane Monteith Dunlop died in 1877 (Find A Grave 2010) and the 1881 census notes that James was now a widower, living with his three children, aged 19, 17, and 15 (Library and Archives Canada 1881). James Dunlop Sr died of heart failure in 1891 (Wellington County 1891). Title then transferred to his son, James Dunlop Jr, a bachelor, in 1892 (OLRA n.d.). The size of the property was now 70 acres.

No exact date of construction could be found for the residence on the subject property. However, given the architectural style, polychrome brick and the scale of the building in general, it was likely erected between the 1870s and 1900 when under the ownership of James Dunlop Sr or Jr.

When James Dunlop Jr. died in 1901, the property came into the ownership of his sister Jane Clark and brother George Dunlop (OLRA n.d.). While they may have owned the house and property, it seems likely that they rented them out. Schedule 2 from the 1901 census shows the house was occupied by David Philips, a 40-year-old farmer of Irish background, and his wife and three children. The house they lived in

was made of brick (most likely the extant farmhouse) and had 8 rooms, and there were two barns on the property (Library and Archives Canada 1901). It is not known if one of the two barns was in the location of the existing outbuilding.

It seems that Jane and George Dunlop, as well as Jane's husband Robert Clark, moved back to the subject residence in the early twentieth century. George sold his share in 1904, leaving the property in the ownership of Robert Clark (OLRA n.d.). It is Robert Clark's name that appears on the following 1906 map (Figure 6). The map shows a farmhouse at the end of a long driveway. The property is noted as being 70 acres, and the railway line is visible to the south. The community of Glen Lammond is identified on Lots 6 and 7 of the first concession, just east of Fergus. George continued to live with his sister and brother-in-law, as well as Robert's mother Elizabeth (Library and Archives Canada 1911).

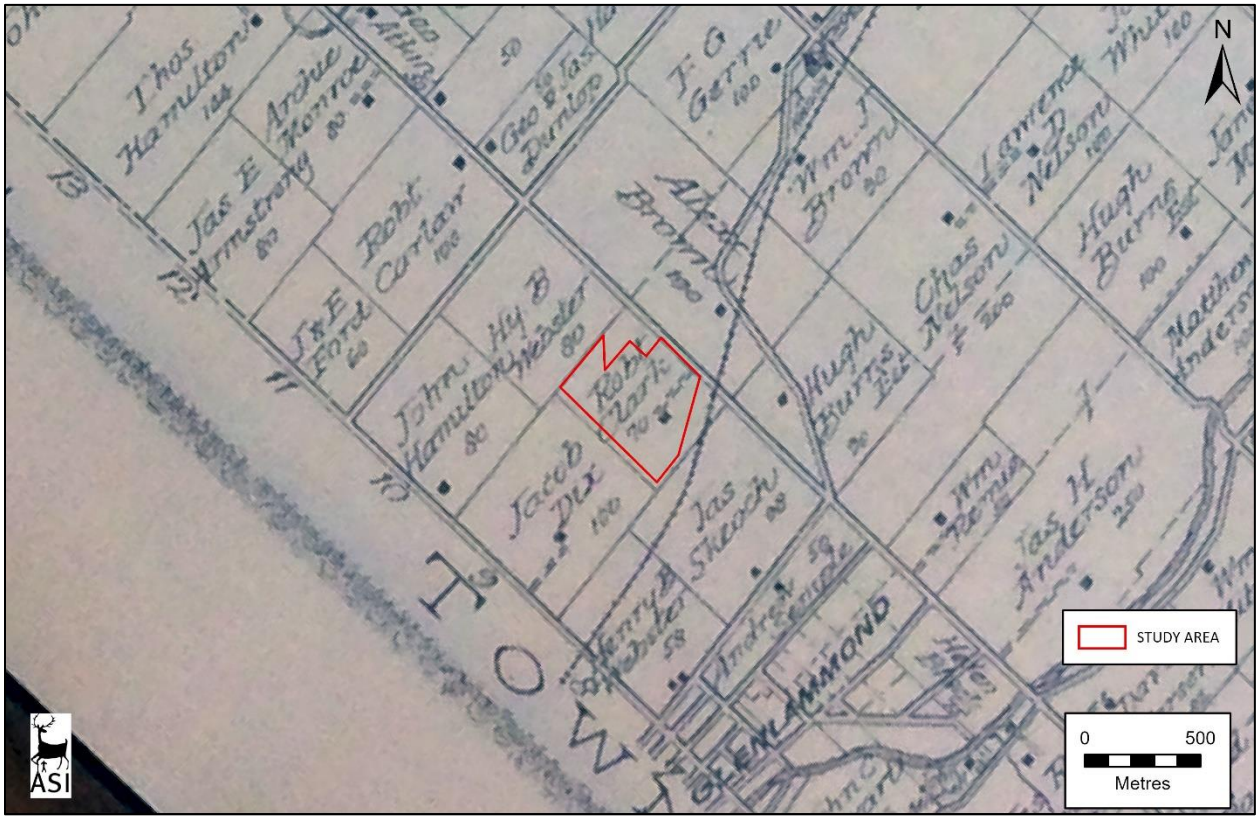


Figure 6: The study area overlaid on the 1906 Wellington Atlas (Historical Atlas Publishing Co. 1906)

2.3.4 Various Owners (1918-present)

The Clarks continued to own the property until 1918, when they sold to Hugh Skeoch (a bachelor) for $4500 (OLRA n.d.). Skeoch was already farming in the area in 1911, as his name is listed next to the Clarks in the 1911 Census (Library and Archives Canada 1911). Skeoch then immediately sold the property for the same amount to [illegible] and Herbert R. Skeoch, likely relatives of some kind. They then sold the property to Albert McLelland for $5300 in 1920. McLelland and his wife and two daughters

are found occupying a brick house on the 1921 census (Ancestry 1921). In 1922, the property was sold again to Charles A. Byers for $5800. He sold to Walter H. Scott in 1923, this time for $7000 (OLRA n.d.).

After this series of sales, Scott seems to have settled down with more permanent roots, residing on the property with his wife until 1942, when they sold the 70 acres to Robert A. Douglas. The 1935 map (Figure 7) continues to show the subject property in a rural-agricultural context. A farmhouse and barn are visible at the end of a long straight driveway. The Canadian Pacific Railway – which had overtaken the Credit Valley Railway in 1884 – is a prominent feature on the landscape just south of the property boundary.

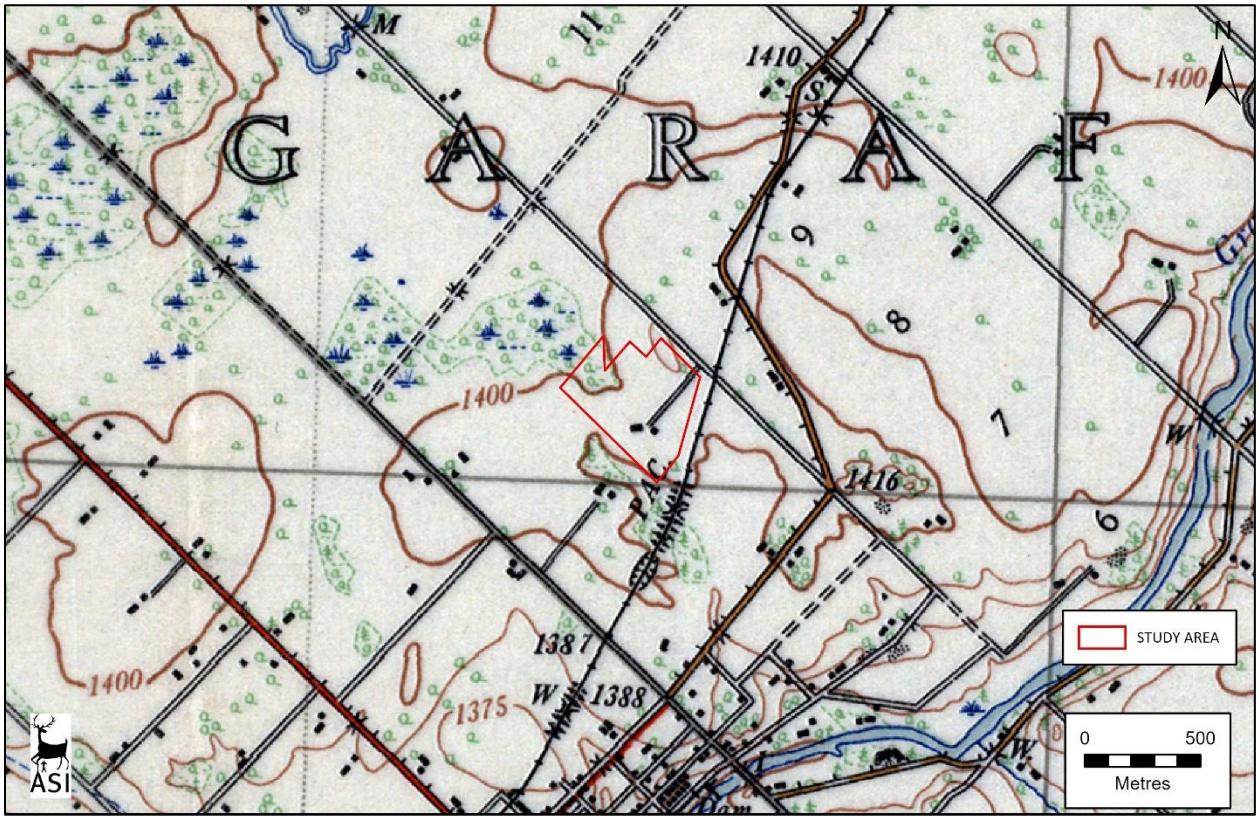


Figure 7: The study area overlaid on a 1935 topographic map, Guelph Sheet

Douglas and his wife sold to brothers Gordon and William Alex Douglas in 1944. The 1954 aerial image pictured below (Figure 8) shows the study area remaining in a rural context, with agricultural fields clearly visible. The existing farmhouse and outbuilding are visible, along with a large structure to the west of the house that has since been removed from the property (Figure 9). A small patch of trees is found west of the subject house, separating it from the residence on the west side of Lot 1. A larger wooded area is found north of the subject property, which remains extant today. The railway (Canadian Pacific) is visible along the southern border of the property line.



Figure 8: The study area boundary overlaid on a 1954 aerial photograph (Hunting Survey Corporation Limited 1954)

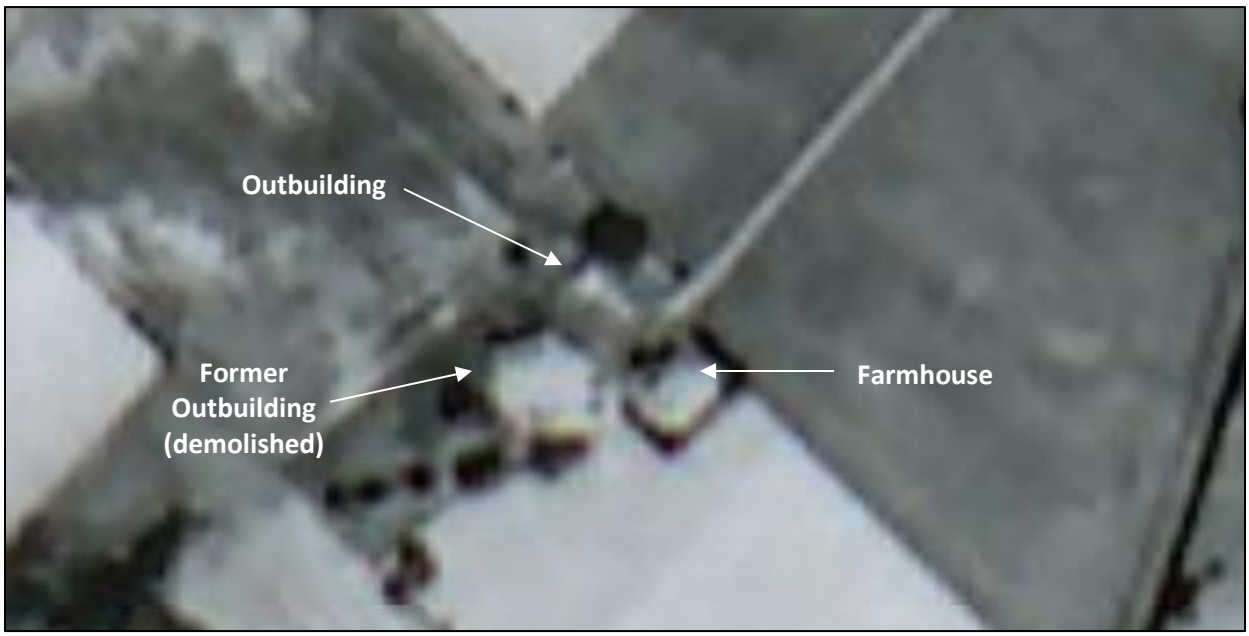


Figure 9: Zoomed in image of the property from the 1954 aerial photograph (Hunting Survey Corporation Limited 1954)

William A. Douglas and his wife ceded their share to Gordon Douglas' sole possession in 1959 (OLRA n.d.). Gordon Douglas and his wife sold the 70 acres to Chesley Craig and wife Francis Craig in 1962. The Craigs sold just under four acres to Joseph Leunissen in 1971. In 1973, the Craigs sold the remaining 66 acres to Harry Harrocks and his wife Beatrice. The property then was granted to Harry Harrocks alone in 1977 before he sold it to Herman and Doetje (Dorothy) Van Veen. Topographic mapping from 1980 shows that Fergus' town limits have now extended to the rear (southwestern) edge of the subject property. The area on the southwest side of Lot 9, Concession 1 has been industrialized, with several large buildings. A forested area remains to the northwest, and agricultural lands are illustrated to the northeast and southeast. A trio of residences are now extant on First Line immediately adjacent to the study area on the south side. The Van Veens lived on the subject property until at least the late 1990s (OLRA n.d.).

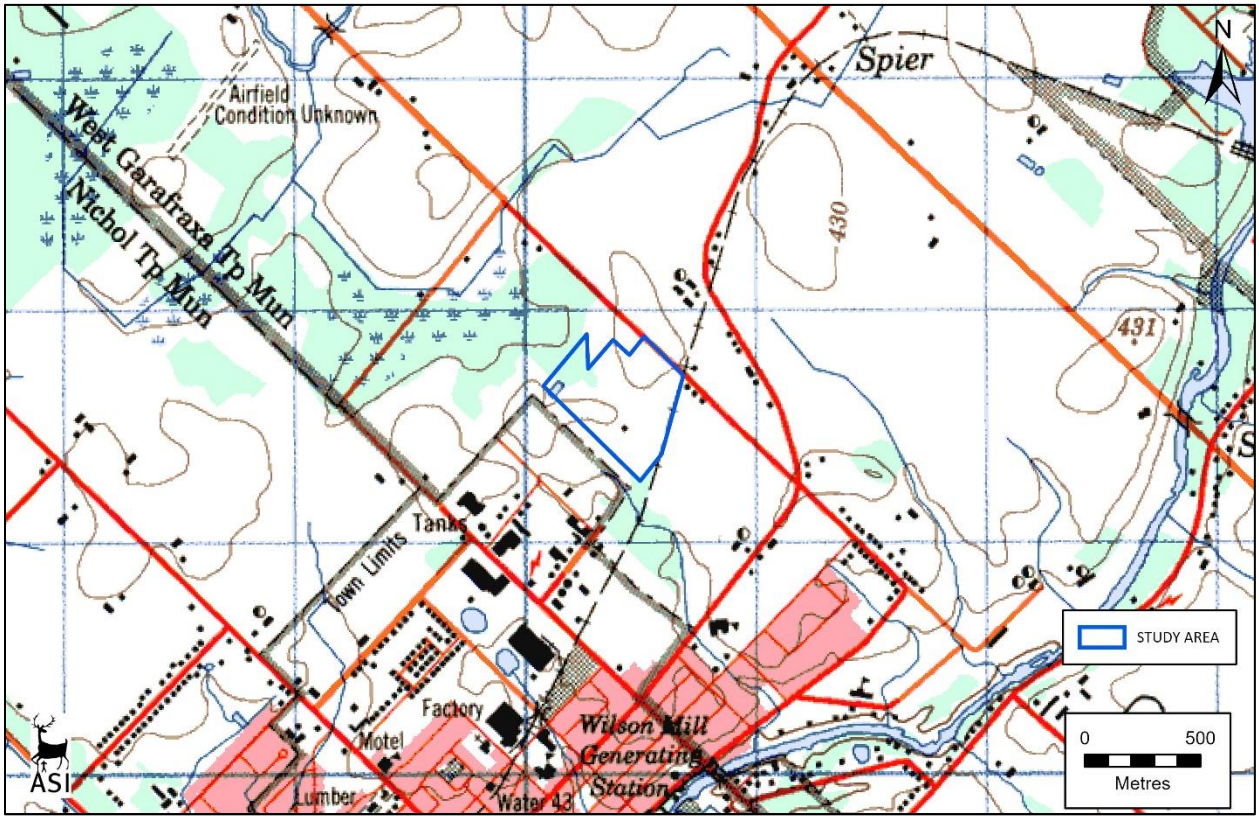


Figure 10: The study area overlaid on a 1980 N.T.S. Map (Department of Energy, Mines, and Resources 1980)

3.0 EXISTING CONDITIONS

A field review to survey and document the property was conducted by James Neilson, Cultural Heritage Specialist on May 20, 2021. Due to the ongoing Covid-19 Pandemic, ASI did not enter the farmhouse out of precaution for staff and the tenant. Photographs of the interior have been provided by the tenant for inclusion within this report.

3.1 Landscape

The subject property at 6518 First Line consists of a 58-acre property with agricultural lands that are not in active use, a c.1900 residential building and outbuilding accessed by a long driveway from First Line. The rural property is on the northern edge of the community of Fergus with commercial and industrial uses immediately to the southwest and agricultural farms to the northwest and northeast. The Elora Cataract Trailway forms part of the southeastern boundary.

The property is accessed via an approximately 300m long gravel driveway through the centre of the property, which leads to the farmhouse and outbuilding (Figure 11). A small pond is located north of the farmhouse and outbuilding alongside the driveway (Figure 12). Trees and vegetation are primarily located immediately around the front and back of the farmhouse, around the property boundary and as part of a woodlot found in the northwest corner of the property (Figure 13 to Figure 15). The yard immediately surrounding the residence is fenced in and has large coniferous and deciduous trees (Figure 16).



Figure 11: Driveway leading to the residence and outbuilding (ASI 2021)



Figure 12: Pond (ASI 2021)



Figure 13: Vegetation along the southeastern border of the property and Elora Cataract Trailway (ASI 2021)



Figure 14: Vegetation marking the property boundary (ASI 2021)



Figure 15: Woodlot to the northwest and neighbouring commercial property (ASI 2021)



Figure 16: Fenced in yard and vegetation behind the residence (ASI 2021)

3.2 Farmhouse

3.2.1 Exterior

The farmhouse at 6518 First Line consists of a two-storey red and buff brick farmhouse with a square plan and a one-storey rear addition that is not original to the house (Figure 17). The red and buff brick uses a stretcher bond pattern with the buff bricked reserved for the quoins, voussoirs and as part of bands on the first and second storey (Figure 18). The farmhouse has a hipped metal roof with paired eaves brackets (Figure 19) and a hipped roof over the one-storey rear addition. The front of the house has a wooden front porch which extends across the front elevation with the wooden deck extending around the side of the residence (Figure 20). The windows throughout the residence are comprised of vinyl, with segmental arches with brick hoodmoulds and stone sills with elongated hexagonal sparrow pecked designs (Figure 21 and Figure 23). The residence sits on a fieldstone foundation (Figure 22).



Figure 17: 6518 First Line (ASI 2021)



Figure 18: Red and buff brick (ASI 2021)



Figure 19: Paired eaves brackets (ASI 2021)



Figure 20: Wooden porch ASI 2021)



Figure 21: Example of a typical window (ASI 2021)



Figure 22: Fieldstone foundation (ASI 2021)



Figure 23: Stone sill with elongated hexagonal sparrow pecked design (ASI 2021)

The front elevation has a central entrance with a transom, flanked by windows (Figure 24). Three windows are found above the porch on the second storey. The windows on the front elevation consist of a large single pane of glass. The northwest elevation has one segmentally arched window with a stone sill on the first floor and two windows with a fixed pane above a slider on the second floor (Figure 25). The rear window on this elevation consists of a set of three casement windows located underneath the overhand of the rear addition that has been created to provide a secondary entrance to the rear addition. The southeast elevation has similar fenestration, except in lieu of the casement windows, a bay window is found at the rear (Figure 26). No fenestration is found on the rear elevation though the

rear addition connects to the house here (Figure 27). The brick at the back of the residence uses a common bond pattern and the outline of a former rear addition is visible in the brickwork.



Figure 24: Front (northeast) and southeast elevations (ASI 2021)



Figure 25: Northwest elevation (ASI 2021)



Figure 26: Southeast elevation (ASI 2021)


Figure 27: Southwest elevation (ASI 2021)

The one-storey rear addition has board-and-batten siding, a mix of slider and double hung windows, wooden sills and an asphalt shingle roof (Figure 28 to Figure 31). Secondary entrances are found on the

northeast and southwest elevations and there is a sliding door to a wooden deck on the southeast elevation.



Figure 28: Rear addition, northeast elevation (ASI 2021)



Figure 29: Rear addition, northwest elevation (ASI 2021)



Figure 30: Rear addition, southwest addition (ASI 2021)



Figure 31: Rear addition, southeast addition (ASI 2021)

3.2.2 Interior

Due to Covid-19 restrictions and the health and safety of ASI staff and the tenant, ASI did not enter the residence. Instead, the tenant provided ASI with 43 photographs of interior spaces. Select photographs that were determined to be representative of interior spaces and details are included here. The remainder of the photographs are on file with ASI and can be provided upon request.

The residence at 6518 First Line is entered via a central entrance, which leads to the living room and a staircase to the second floor (Figure 32). Wooden panels are used on the lower third of the walls. The

staircase has a simple railing with no ornamentation. Much of the residence has wooden baseboards (Figure 33) and wooden floors (Figure 34). At least four types of wooden trim with rosettes in the corner are found in the residence: a dark (or potentially stained) wood trim is found around the entrance doorways and around windows; a lighter wood trim is found around the doorways to some room (seen in Figure 32); a lighter wood trim with scrolls above the rosettes (Figure 35); and a painted wood with rosettes and narrower profiles (Figure 36). The wooden trim and flooring is also present on the second floor (Figure 37). The kitchen has been renovated with new cabinets and a kitchen island (Figure 38). In the unfinished basement, the fieldstone foundation is visible and there is a cement floor (Figure 39. A portion of the foundation has been removed to accommodate the stairway (Figure 40). Hewn floor joists are exposed, and the first floor is supported by both unhewn wooden support posts and beams and metal posts (Figure 41).

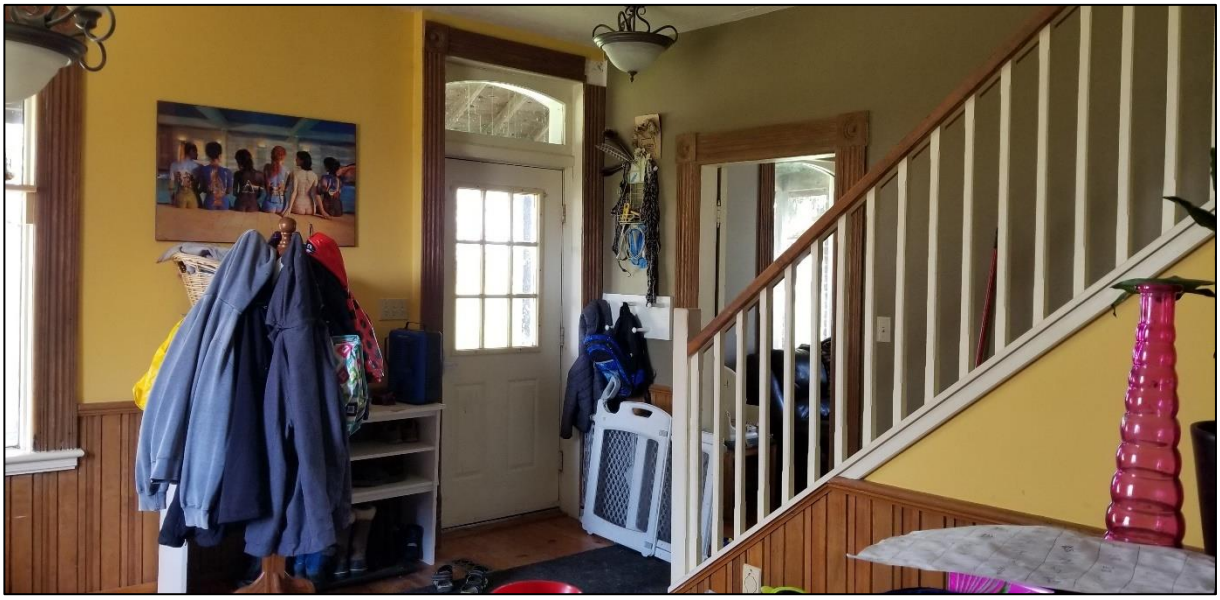


Figure 32: Front entrance and staircase (Tenant - 6518 First Line)



Figure 33: Example of the wooden baseboards and sills (Tenant - 6518 First Line)

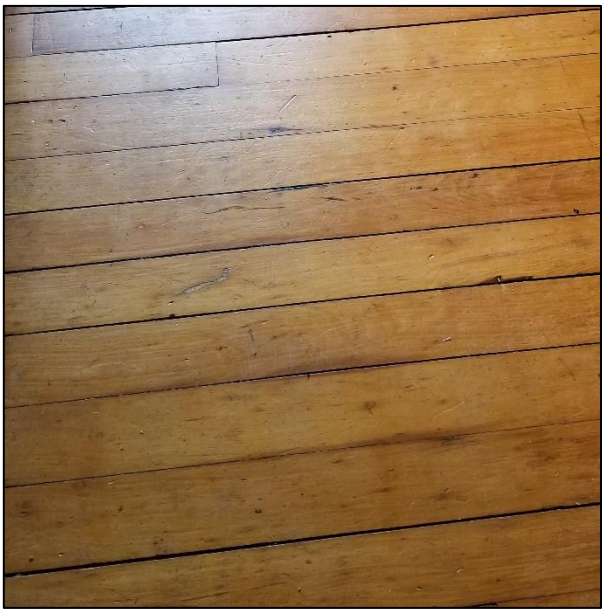


Figure 34: Example of the wooden flooring (Tenant - 6518 First Line)



Figure 35: Trim around a bedroom doorway (Tenant - 6518 First Line)



Figure 36: Trim around a bedroom doorway (Tenant - 6518 First Line)

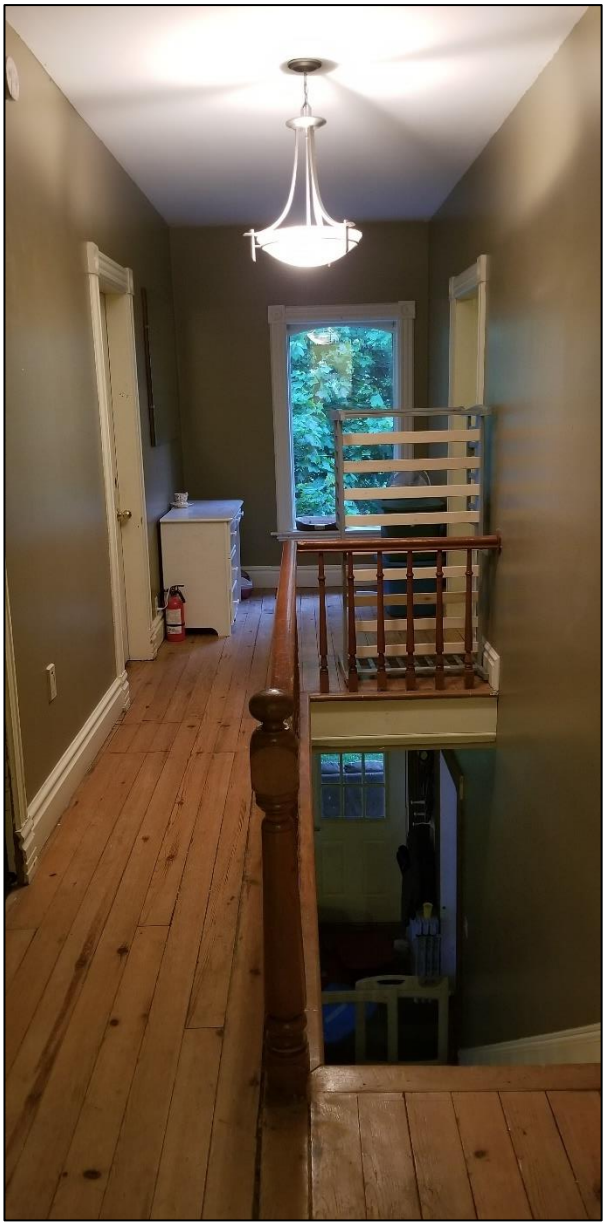


Figure 37: Upstairs landing (Tenant - 6518 First Line)



Figure 38: Renovated kitchen (Tenant - 6518 First Line)



Figure 39: Fieldstone foundation in the basement (Tenant - 6518 First Line)



Figure 40: Alterations to the foundation to accommodate access to the basement (Tenant - 6518 First Line)



Figure 41: Unhewn wooden supports in the basement (Tenant - 6518 First Line)

3.3 Outbuilding

The outbuilding is located to the northwest of the residence, separated by the gravel driveway. The outbuilding is a one-storey garage and workspace with board-and-batten siding (similar to the rear addition), asphalt shingled gable roof, two garage doors and an entrance on the southeast elevation (Figure 42 to Figure 45). Fenestration through was covered up boards or plastic sheeting. A shed addition with French doors is located on the southwest elevation. The building sits on a concrete floor, though a portion of the foundation on the exterior appeared to be comprised of stone (Figure 46). The interior has been entirely clad in metal sheeting (Figure 47.



Figure 42: Outbuilding, southeast elevation (ASI 2021)



Figure 43: Outbuilding, southwest elevation (ASI 2021)



Figure 44: Outbuilding, northwest elevation (ASI 2021)



Figure 45: Outbuilding, northeast elevation (ASI 2021)



Figure 46: Stone found underneath a portion of the outbuilding (ASI 2021)



Figure 47: Outbuilding, interior (ASI 2021)

3.3 Archaeological Potential

The subject property at 6518 First Line was evaluated and determined to have archaeological potential in the Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Wellington Centre (ASI 2021a). Subsequent Stage 2 survey of the property was completed and found that, while there were findspots and sites located, given their ephemeral nature and low artifact density, the components did not exhibit cultural heritage value or interest in accordance with the *Standards and Guidelines for Consultant Archaeologists* (Ministry of Tourism and Culture 2011); therefore, the property was considered free of any further archaeological concern and no further archaeological assessment is required (ASI 2022).

4.0 CULTURAL HERITAGE VALUE OR INTEREST

4.1 Comparative Analysis

The residence at 6518 First Line is an example of the Italianate style. The Italianate style was popular in Ontario during the late nineteenth century and was influenced by Italian Renaissance architecture. The style was adopted in England in the early part of the century, making its way to Canada in the 1860s through the influential book, *The Architecture of Country Homes* by American Andrew Jackson Downing. The style used or reworked elements of Tuscan architecture rather than copying period buildings exactly, and there were no major style identifiers or rigid proportions to follow. The style allowed for highly decorated buildings that coincided with a growing affluent society. Popular elements

incorporated into Italianate style residences included paired eaves brackets, tall and narrow segmentally arched windows, paired windows, moulded window surrounds or heads, quoins, wide overhanging eaves and cupolas or belvederes and bay windows.

Italianate style buildings are common in Fergus, with many featuring similar elements as the residence at 6518 First Line, including paired eaves brackets the dichromatic brick, segmentally arched windows with brick hood moulds and quoins (Figure 48 to Figure 52). However, the property at 6518 First Line was the only Italianate-style residence to have a square plan and hipped roof, with many of the examples in Fergus featuring L or T-shaped plans and gable roofs. The other examples of brick Italianate style buildings in Fergus have been recognized by the Municipality for containing cultural heritage value or interest:

- 698 St. George Street West - Listed
- 169 Garafraxa Street East - Listed
- 141 George Street East - Listed
- 200 Tower Street South – Designated (Part IV)
- 8077 Garafraxa Street East – Listed



Figure 48: 698 St. George Street West (Google Streetview 2015)



Figure 49: 169 Garafraxa Street East (Wellington County Museum and Archives)

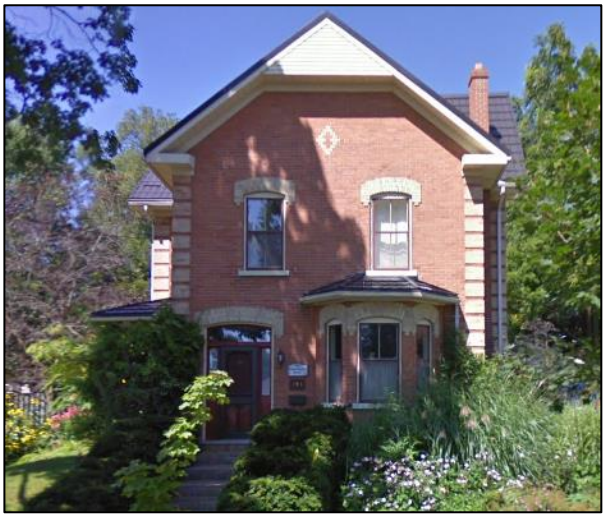


Figure 50: 141 St. George Street East (Google Streetview 2009)



Figure 51: 200 Tower Street South (Google Streetview 2020)



Figure 52: 8077 Garafraxa Street East (Google Streetview 2020)

4.2 Ontario Regulation 9/06 Evaluation

The following table contains the evaluation of the subject property against the criteria set out in Ontario Regulation 9/06.

Table 2: Evaluation of 6518 First Line using Ontario Regulation 9/06

1. The property has design value or physical value because it:

Ontario Heritage Act Criteria	Yes/No	Analysis
i. is a rare, unique, representative or early example of a style, type, expression, material or construction method;	Yes	The property at 6518 First Line meets this criterion. The property is a representative example of an Italianate-style farmhouse. Common Italianate style elements incorporated into the residence include: paired eaves brackets; tall and narrow segmentally arched windows with brick hood moulds; buff brick used to embellish architectural elements such as the quoins, segmental arches and in bands across the façade. The style is common in Fergus, though other examples of Italianate style-residences with square plans and hipped roofs could not be found amongst the Fergus properties on the Heritage Register in Fergus, making it a rare and unique example in the area. The residence was built towards the end of Italianate's period of popularity and as such, it is not an early example of the style. Additionally, though much of the property's agricultural integrity has eroded over time and the property is not currently used for agricultural purposes, the property displays vestiges of its agricultural history through its driveway and the vegetation around the residence and along the property boundary, which are representative features of a nineteenth and early-twentieth century agricultural property.
ii. displays a high degree of craftsmanship or artistic merit, or;	No	The property at 6518 First Line does not meet this criterion. Though the farmhouse utilizes buff brick in the quoins, segmental arches and in bands across the facade to create an attractive pattern, this does not reflect a high degree of craftsmanship or artistic merit.

Table 2: Evaluation of 6518 First Line using Ontario Regulation 9/06

iii. demonstrates a high degree of technical or scientific achievement.	No	The property at 6518 First Line is not known to meet this criterion. The farmhouse appears to be constructed in a traditional manner that would not have required a high degree of technical or scientific achievement.

2. The property has historical value or associative value because it:

Ontario Heritage Act Criteria	Yes/No	Analysis
i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community;	No	The property at 6518 First Line is not known to meet this criterion. Though the property was initially owned by early settler Mary Wintermute and later owned by the provincially significant Thomas Clark and Samuel Street, none of these people have direct associations with any elements of the property that are present today.
ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or;	No	The property at 6518 First Line is not known to meet this criterion. The subject property was determined to have archaeological potential in a Stage 1 Archaeological Assessment of the property (ASI 2021a). Subsequent Stage 2 survey found that while findspots and sites were located, they did not exhibit cultural heritage value. It was therefore determined that the property is considered free of any further archaeological concern and no further archaeological assessment is required (ASI 2022). Thus, the subject property does not yield, or have the potential to yield, information that contributes to an understanding of a community or culture.
iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.	No	The property at 6518 First Line is not known to meet this criterion. The builder is not known.

3. The property has contextual value because it:

Ontario Heritage Act Criteria	Yes/No	Analysis
i. is important in defining, maintaining or supporting the character of an area;	No	The property at 6518 First Line is not known to meet this criterion. The rural property is on the edge of the developed area of Fergus, and as such this area does not have a cohesive character that this property would be an important contributor towards. Furthermore, the property is not important in defining, maintaining or supporting the rural character of the broader area.
ii. is physically, functionally, visually or historically linked to its surroundings, or;	No	The property at 6518 First Line is not known to meet this criterion. The rural property is on the edge of the developed area of Fergus and does not appear to be physically, functionally, visually or historically linked to its surroundings. In addition, though the property's boundary was partially created by the former Credit Valley Railway/Canadian Pacific Railway, there is no significant

Table 2: Evaluation of 6518 First Line using Ontario Regulation 9/06

		physical, functional, visual or historical link, with the existing vegetation that visibly demarcates this boundary today, not being historically present.
iii. is a landmark.	No	The property at 6518 First Line is not known to be a landmark.

Based on available information, it has been determined that the property at 6518 First Line has physical/design value and therefore meets the criteria contained in Ontario Regulation 9/06.

4.3 Township of Centre Wellington Official Plan Criteria

The following table contains the evaluation of the subject property against the criteria set out in The Township of Centre Wellington's Official Plan (Township of Centre Wellington 2013)

Table 3: Evaluation of 6518 First Line using Township of Centre Wellington Official Plan Criteria

Criteria	Yes/No	Analysis
1. Represents a unique or rare example, or the only (or one of the few) remaining examples of its architectural style or period;	Yes	Though the residence at 6518 First Line is one of many Italianate style residences in Fergus, other examples of Italianate style-residences with square plans and hipped roofs could not be found amongst the Fergus properties on the Heritage Register in Fergus, making it a rare and unique example in the area.
2. Constitutes a work of outstanding quality as a result of its plan, proportions, design, construction, materials or details;	No	The property at 6518 First Line does not meet this criterion. Though the farmhouse utilizes buff brick in the quoins, segmental arches and in bands across the facade to create an attractive pattern, this does not reflect a high degree of craftsmanship or artistic merit.
3. Represents an early or otherwise noteworthy example of the work of a renowned architect, designer or builder;	No	The property at 6518 First Line is not known to meet this criterion. The builder is not known.
4. Is representative of the early history of the development of the Township;	No	The property at 6518 First Line is not known to meet this criterion. The property contains a c.1900 residence, which is not reflective of the early history of the Township given that Fergus had been settled more than half a century earlier.
5. Is associated with some historically significant aspect or event in the history of development of the Township, the province or the county	No	The property at 6518 First Line is not known to meet this criterion.
6. Is associated with a person or group of persons who achieved local, provincial or international prominence.	No	The property at 6518 First Line is not known to meet this criterion. Though the property was initially owned by early settler Mary Wintermute, and later owned by the provincially significant Thomas Clark and Samuel Street, none of these people have direct associations with any elements of the property that are present today.

4.4 Proposed Statement of Cultural Heritage Value or Interest

Description of Property
The property at 6518 First Line is located on the west side of First Line, north of Garafaxa Street East in the Township of Centre Wellington. The property consists of 58 acres of agricultural lands with a c. 1900 farmhouse and an outbuilding, accessed by a long driveway from First Line. The property has an irregular boundary formed by First Line to the northeast, and the former Credit Valley Railway/Canadian Pacific Railway (which has been converted to trail use as the Elora Cataract Trailway) to the southeast. The rural property is on the northern edge of the community of Fergus with commercial and industrial uses immediately to the southwest and agricultural farms to the northeast and northwest. Residential subdivisions are found 600 metres to the southeast.

Cultural Heritage Value or Interest
The property at 6518 First Line features a two-storey red and buff brick farmhouse with a square plan and a one-storey rear addition that is not original to the house. The residence, constructed c. 1900, is a representative example of an Italianate-style farmhouse in the Township of Centre Wellington. Common Italianate style elements incorporated into the residence include: the use of paired eaves brackets; tall and narrow segmentally arched windows with brick hood moulds; buff brick used to embellish architectural elements such as the quoins, segmental arches and in bands across the façade of the residence. The style is common in Fergus, though the use of a square plan and hipped roofs combined with the Italianate style is unique and rare in the community. Additionally, the property displays vestiges of its agricultural history through its driveway and the vegetation around the residence and along the property boundary, which are representative features of a nineteenth and early-twentieth century agricultural property.

Heritage Attributes
- The scale, form and massing of the original residence;
- The symmetrical façade;
- The building's materials including the dichromatic brick and stone foundation;
- The use of buff brick to highlight the quoins and segmental arches and the decorative bands across the façade;
- The hipped roof with paired eaves brackets;
- The segmentally arched windows with brick hood moulds and stone sills with elongated hexagonal sparrow pecked designs;
- The long driveway through the centre of the property leading from First Line to the residence;
- The vegetation surrounding the house and along the property boundary.

Note: The rear addition is not considered a heritage attribute

5.0 CONCLUSION

The property at 6518 First Line was evaluated using Ontario Regulation 9/06 under the *Ontario Heritage Act* and the Township of Centre Wellington's *Official Plan* (2013). The results of both evaluations

determined that the property contains cultural heritage value or interest due to the residence's design and architectural value.

5.1 Recommendations

Based on the evaluation of the property under Ontario Regulation 9/06 under the *Ontario Heritage Act* and the Township of Centre Wellington's *Official Plan* (2013), the following recommendations are proposed for consideration by Township of Centre Wellington staff:

1. The property at 6518 First Line contains cultural heritage value or interest and should be considered for designation under Part IV of the *Ontario Heritage Act*.

2. As part of any future proposed development of the property, a Heritage Impact Assessment and Conservation Plan should be undertaken to evaluate the impacts of the proposed development on the cultural heritage value or interest of the property and provide a long-term strategy for the conservation of elements of the property that will be retained. Mitigation measures should be included for any elements identified within the proposed statement of significance that cannot be retained (for example, the property's driveway).

3. The report should be submitted for review and comment to heritage staff at the Township of Centre Wellington, the Ministry of Citizenship and Multiculturalism, and any other relevant heritage stakeholder that has an interest in this project. Any feedback will be reviewed and incorporated into the final report. This report could also be submitted to the Wellington County Museum and Archives for their records.

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Section 5

Heritage Impact Assessment

HERITAGE IMPACT ASSESSMENT

6518 FIRST LINE
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

FINAL REPORT

Prepared for:

Township of Centre Wellington
1 Macdonald Square
Elora, ON N0B1S0

ASI File: 20CH-035

August 2021
(Updated September 2021 and Revised January 2023)

ASI Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
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HERITAGE IMPACT ASSESSMENT

6518 FIRST LINE
TOWNSHIP OF CENTRE WELLINGTON, ONTARIO

EXECUTIVE SUMMARY

ASI was contracted by the Township of Centre Wellington to prepare a Heritage Impact Assessment (HIA) for the property at 6518 First Line in the Township of Centre Wellington. This HIA is part of the Dickson Drive Extension Municipal Class Environmental Assessment (EA). The project involves the proposed extension of Dickson Drive, the existing municipal services, and establishment of a Storm Water Management Strategy, as part of the proposed development of a new subdivision of a business park covering the footprint of the property at 6518 First Line. The property consists of a farmhouse and agricultural property that is listed on the Township of Centre Wellington's Heritage Register. The proposed development consists of a new subdivision for an industrial park covering the footprint of the property at 6518 First Line. The farmhouse at 6518 First Line will be retained in situ.

This HIA is a continuation of the work completed as part of the Cultural Heritage Evaluation Report (CHER) for the subject property (ASI 2022a) and should be read in conjunction with that report. This report finds that overall, based on the range of possible impacts included in the *Ontario Heritage Toolkit*, the policies outlined in the Township of Centre Wellington's *Official Plan*, and the standards set in the *Standards and Guidelines for the Conservation of Historic Places in Canada*, the proposed development will have an impact on the property. However, the property's cultural heritage value or interest is not anticipated to be lost or significantly compromised. With implementation of the recommended conservation and mitigation strategies, the property will continue to be able to sufficiently express its design and architectural values.

The following recommendations have been made for the property at 6518 First Line:

1. The Township of Centre Wellington should prepare a Conservation Plan for the subject property at 6518 First Line in the Township of Centre Wellington. The Conservation Plan should identify strategies to ensure the long-term viability of the resource as a residence or recommend appropriate strategies for potential adaptive re-use of the structure that would ensure the conservation of heritage attributes. The Conservation Plan should detail how the property's heritage attributes will be conserved, including such drawings and other specifications as required by the Township. The Conservation Plan should provide guidance in the event that alterations to the house are required, in particular the removal of the rear addition. The Conservation Plan should also identify areas where maintenance and/or repair is required to ensure the long-term conservation and maintenance of the building. Mitigation measures should be included for any elements identified within the proposed statement of significance that cannot be retained (for example, the property's driveway). The Conservation Plan should be prepared by a qualified heritage specialist in consultation with the Township of Centre Wellington heritage planning staff, the Heritage committee, and follow established guidelines in the *Standards and Conservation of Provincial Heritage Properties* (Ministry of Citizenship and Multiculturalism 2010).



2. Where possible, the trees and vegetation immediately surrounding the house and along the property boundary should be conserved.

3. Any buildings proposed to be built in proximity to the farmhouse should be designed to minimize any shadow impacts on the vegetation surrounding the house.

4. Depending on the excavation and construction methods required to accommodate the construction of the proposed development, vibration monitoring should be considered to ensure that negative impacts to the house are avoided.

5. Staging during construction should be carefully planned to ensure that negative impacts to the built heritage resource are avoided. All efforts should be made to eliminate potential impacts during construction. Construction and staging plans should be provided to the Township of Centre Wellington in advance of construction.

PROJECT PERSONNEL

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1.0 INTRODUCTION

ASI was contracted by the Township of Centre Wellington to prepare a Heritage Impact Assessment (HIA) for the property at 6518 First Line in the Township of Centre Wellington. This HIA is part of the Dickson Drive Extension Municipal Class Environmental Assessment (EA). The project involves the proposed extension of Dickson Drive, the existing municipal services, and establishment of a Storm Water Management Strategy, as part of the proposed development of a new subdivision of a business park covering the footprint of the property at 6518 First Line. This HIA is a continuation of the work completed as part of the Cultural Heritage Evaluation Report (CHER) for the subject property (ASI 2022a) and should be read in conjunction with that report.

The subject property at 6518 First Line consists of a farmhouse and agricultural property that is listed on the Township of Centre Wellington's Heritage Register. This HIA presents the results of historical research and evaluation from the CHER that was previously conducted and provides an assessment of the proposed impacts to any identified cultural heritage value or interest within the subject property in accordance with the *Ontario Heritage Act* and the Township of Centre Wellington's *Official Plan* (2013).

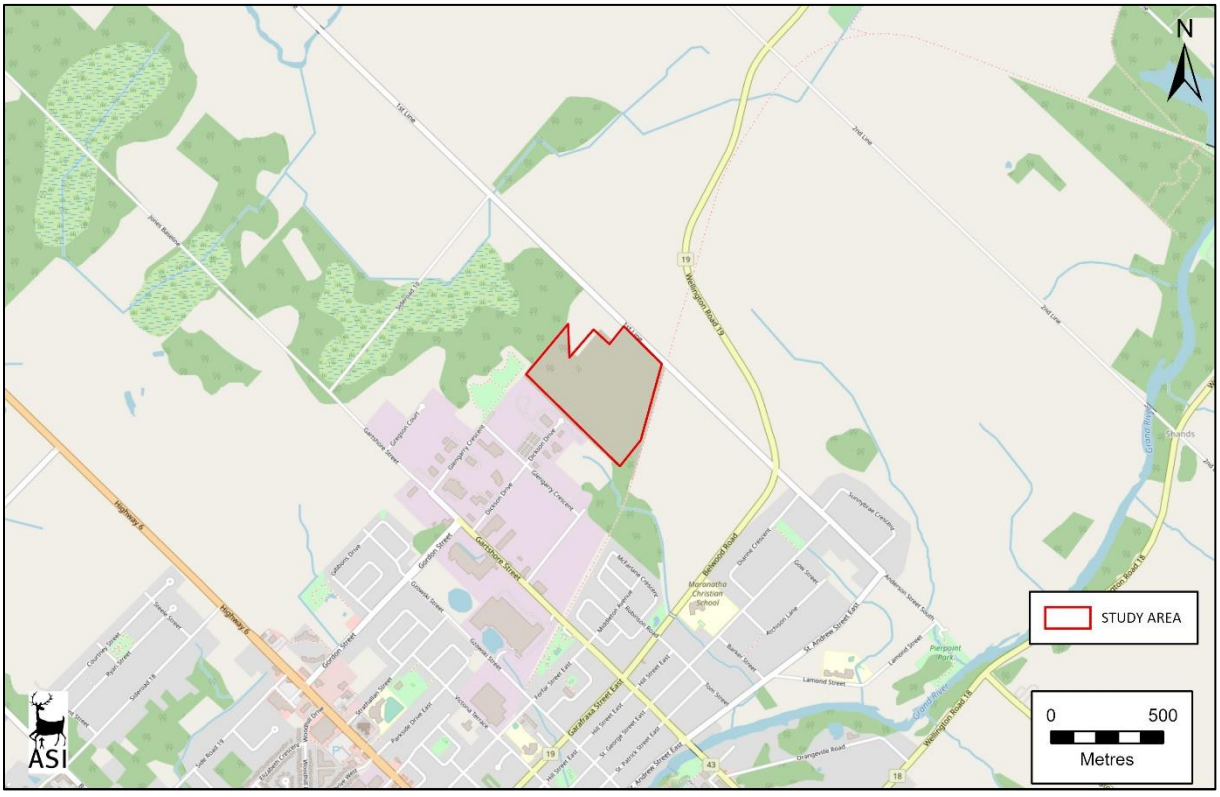


Figure 1: Location map (Base Map: Open Street Maps)

The proposed development consists of a new subdivision for an industrial park covering the footprint of the property at 6518 First Line. The farmhouse at 6518 First Line will be retained in situ.

The research and analysis for this report were conducted by Michael Wilcox, Cultural Heritage Technician, James Neilson, Cultural Heritage Specialist, and Laura Wickett, Cultural Heritage Analyst, under the project direction of Annie Veilleux, Manager of the Cultural Heritage Division, ASI. This HIA follows the Ministry of Tourism, Culture and Sports' (now administered by the Ministry of Citizenship and Multiculturalism) *Ontario Heritage Tool Kit* (Ministry of Culture 2006), the Township of Centre Wellington's Official Plan (Township of Centre Wellington 2013), and the *Standards and Guidelines for the Conservation of Historic Places in Canada* (Parks Canada 2010). Research was completed to investigate, document, and evaluate the cultural heritage resources within and adjacent to the study area.

This document will provide:

- A description of the subject property and photographic documentation (Section 3.0);
- A summary of the subject property's proposed cultural heritage value or interest based on archival research and site analysis, and contribution to the surrounding area as established in the CHER for the property (Section 2.0);
- An assessment of impacts of the proposed undertaking (Section 4.0); and,
- A description of potential mitigation measures and recommendations (Section 4.3).

1.1 Location and Study Area Description

The subject property is located at 6518 First Line in the Township of Centre Wellington (Figure 2). The property consists of 58 acres of agricultural lands with a c. 1900[1] residential building (Figure 3) and outbuilding accessed by a long driveway from First Line. The property has an irregular boundary formed by First Line to the northeast, the former Credit Valley Railway/Canadian Pacific Railway (which has been converted to trail use as the Elora Cataract Trailway) to the southeast, industrial properties to the southwest and subdivided residential properties to the northwest. The rural property is on the northern edge of the community of Fergus with commercial and industrial uses immediately to the southwest and agricultural farms to the northeast and northwest. Residential subdivisions are found 600 metres to the southeast.

[1] The Township of Centre Wellington notes the c.1900 date of construction on their Heritage Register. This information could not be confirmed through research for this CHER, though 1901 is the earliest known date that the existing farmhouse was present on the property. Though "c.1900" is used throughout this report, it is likely that the building may have been constructed sometime in the late-nineteenth century.



Figure 2: Satellite image of the subject property (Google 2020)



Figure 3: 6518 First Line (ASI 2021)

1.2 Ownership Information

Township of Centre Wellington
1 Macdonald Square
Elora, ON N0B1S0

1.3 Policy Framework

The authority to request this HIA arises from the *Ontario Heritage Act* (1990), Section 2(d) of the *Planning Act* (1990), the *Environmental Assessment Act* (1990), the *Provincial Policy Statement* (2020) and the Township of Centre Wellington *Official Plan* (2013).

The following resources were among those reviewed in the preparation of this CHER:

- *Ontario Heritage Act* and Ontario Regulation 9/06 (1990);
- *Planning Act* (1990);
- *Environmental Assessment Act* (1990); and,
- *Provincial Policy Statement* (2020).

1.4 Report Limitations

Due to the ongoing Covid-19 pandemic and "Stay-at-Home" restriction implemented by the Ontario Government[2], this report was completed with the following limitation: ASI did not access the interior of the residence on the property.

ASI did not enter the residence due to health and safety concerns for staff and the tenant of the residence. Typically, an interior investigation of the residence would have been conducted and may have revealed elements that would contribute to a greater understanding of the building. In lieu of interior access, photos of the interior have been provided by the tenant to provide ASI with a better understanding of the building.

2.0 CULTURAL HERITAGE VALUE OR INTEREST

The following draft Statement of Cultural Heritage Value or Interest is taken from the CHER prepared by ASI in 2022.

[2] See https://bit.ly/3hWXESc

2.1 Proposed Statement of Cultural Heritage Value or Interest

Description of Property
The property at 6518 First Line is located on the west side of First Line, north of Garafaxa Street East in the Township of Centre Wellington. The property consists of 58 acres of agricultural lands with a c. 1900 farmhouse and outbuilding, accessed by a long driveway from First Line. The property has an irregular boundary formed by First Line to the northeast, and the former Credit Valley Railway/Canadian Pacific Railway (which has been converted to trail use as the Elora Cataract Trailway) to the southeast. The rural property is on the northern edge of the community of Fergus with commercial and industrial uses immediately to the southwest and agricultural farms to the northeast and northwest. Residential subdivisions are found 600 metres to the southeast.

Draft Statement of Cultural Heritage Value or Interest
The property at 6518 First Line features a two-storey red and buff brick farmhouse with a square plan and a one-storey rear addition that is not original to the house. The residence, constructed c. 1900, is a representative example of an Italianate-style farmhouse in the Township of Centre Wellington. Common Italianate style elements incorporated into the residence include: the use of paired eaves brackets; tall and narrow segmentally arched windows with brick hood moulds; and buff brick used to embellish architectural elements such as the quoins, segmental arches, and in bands across the façade of the residence. The style is common in Fergus, though the use of a square plan and hipped roofs combined with the Italianate style is unique and rare in the community. Additionally, the property displays vestiges of its agricultural history through its driveway and the vegetation around the residence and along the property boundary, which are representative features of a nineteenth and early-twentieth century agricultural property.

Heritage Attributes
- The scale, form, and massing of the original residence;
- The symmetrical façade;
- The building's materials including the dichromatic brick and stone foundation;
- The use of buff brick to highlight the quoins and segmental arches and the decorative bands across the façade;
- The hipped roof with paired eaves brackets;
- The segmentally arched windows with brick hood moulds and stone sills with elongated hexagonal sparrow pecked designs;
- The long driveway through the centre of the property leading from First Line to the residence;
- The vegetation surrounding the house and along the property boundary.

Note: The rear addition is not considered a heritage attribute.

3.0 EXISTING CONDITIONS

A field review to survey and document the property was conducted by James Neilson, Cultural Heritage Specialist, on May 20, 2021. Due to the ongoing Covid-19 Pandemic, ASI did not enter the farmhouse

out of precaution for staff and the tenant. Photographs of the interior have been provided by the tenant for inclusion within this report.

3.1 Landscape

The subject property at 6518 First Line consists of a 58-acre property with agricultural lands that are not in active use, a c. 1900 residential building, and an outbuilding accessed by a long driveway from First Line. The rural property is on the northern edge of the community of Fergus with commercial and industrial uses immediately to the southwest and agricultural farms to the northwest and northeast. The Elora Cataract Trailway forms part of the southeastern boundary.

The property is accessed via an approximately 300m long gravel driveway through the centre of the property, which leads to the farmhouse and outbuilding (Figure 4). A small pond is located north of the farmhouse and outbuilding alongside the driveway (Figure 5). Trees and vegetation are primarily located immediately around the front and back of the farmhouse, around the property boundary, and as part of a woodlot found in the northwest corner of the property (Figure 6 to Figure 8). The yard immediately surrounding the residence is fenced in and has large coniferous and deciduous trees (Figure 9).



Figure 4: Driveway leading to the residence and outbuilding (ASI 2021)



Figure 5: Pond (ASI 2021)



Figure 6: Vegetation along the southeastern border of the property and Elora Cataract Trailway (ASI 2021)



Figure 7: Vegetation marking the property boundary (ASI 2021)



Figure 8: Woodlot to the northwest and neighbouring commercial property (ASI 2021)



Figure 9: Fenced in yard and vegetation behind the residence (ASI 2021)

3.2 Farmhouse

3.2.1 Exterior

The farmhouse at 6518 First Line consists of a two-storey red and buff brick farmhouse with a square plan and a one-storey rear addition that is not original to the house (Figure 10). The red and buff brick uses a stretcher bond pattern with the buff bricked reserved for the quoins, voussoirs and as part of bands on the first and second storey (Figure 11). The farmhouse has a hipped metal roof with paired eaves brackets (Figure 12) and a hipped roof over the one-storey rear addition. The front of the house has a wooden front porch which extends across the front elevation with the wooden deck extending around the side of the residence (Figure 13). The windows throughout the residence are comprised of vinyl, with segmental arches with brick hoodmoulds and stone sills with elongated hexagonal sparrow pecked designs (Figure 14 and Figure 16). The residence sits on a fieldstone foundation (Figure 15).



Figure 10: 6518 First Line (ASI 2021)



Figure 11: Red and buff brick (ASI 2021)



Figure 12: Paired eaves brackets (ASI 2021)



Figure 13: Wooden porch ASI 2021)



Figure 14: Example of a typical window (ASI 2021)



Figure 15: Fieldstone foundation (ASI 2021)



Figure 16: Stone sill with elongated hexagonal sparrow pecked design (ASI 2021)

The front elevation has a central entrance with a transom, flanked by windows (Figure 17). Three windows are found above the porch on the second storey. The windows on the front elevation consist of a large single pane of glass. The northwest elevation has one segmentally arched window with a stone sill on the first floor and two windows with a fixed pane above a slider on the second floor (Figure 18). The rear window on this elevation consists of a set of three casement windows located underneath the overhand of the rear addition that has been created to provide a secondary entrance to the rear addition. The southeast elevation has similar fenestration, except in lieu of the casement windows, a bay window is found at the rear (Figure 19). No fenestration is found on the rear elevation though the

rear addition connects to the house here (Figure 20). The brick at the back of the residence uses a common bond pattern and the outline of a former rear addition is visible in the brickwork.



Figure 17: Front (northeast) and southeast elevations (ASI 2021)



Figure 18: Northwest elevation (ASI 2021)



Figure 19: Southeast elevation (ASI 2021)


Figure 20: Southwest elevation (ASI 2021)

The one-storey rear addition has board-and-batten siding, a mix of slider and double hung windows, wooden sills, and an asphalt shingle roof (Figure 21 to Figure 24). Secondary entrances are found on the

northeast and southwest elevations and there is a sliding door to a wooden deck on the southeast elevation.



Figure 21: Rear addition, northeast elevation (ASI 2021)



Figure 22: Rear addition, northwest elevation (ASI 2021)



Figure 23: Rear addition, southwest addition (ASI 2021)



Figure 24: Rear addition, southeast addition (ASI 2021)

3.2.2 Interior

Due to Covid-19 restrictions and the health and safety of ASI staff and the tenant, ASI did not enter the residence. Instead, the tenant provided ASI with 43 photographs of interior spaces. Select photographs that were determined to be representative of interior spaces and details are included here. The remainder of the photographs are on file with ASI and can be provided upon request.

The residence at 6518 First Line is entered via a central entrance, which leads to the living room and a staircase to the second floor (Figure 25). Wooden panels are used on the lower third of the walls. The

staircase has a simple railing with no ornamentation. Much of the residence has wooden baseboards (Figure 26) and wooden floors (Figure 27). At least four types of wooden trim with rosettes in the corner are found in the residence: a dark (or potentially stained) wood trim is found around the entrance doorways and around windows; a lighter wood trim is found around the doorways to some room (seen in Figure 25); a lighter wood trim with scrolls above the rosettes (Figure 28); and a painted wood with rosettes and narrower profiles (Figure 29). The wooden trim and flooring are also present on the second floor (Figure 30). The kitchen has been renovated with new cabinets and a kitchen island (Figure 31). In the unfinished basement, the fieldstone foundation is visible and there is a cement floor (Figure 32. A portion of the foundation has been removed to accommodate the stairway (Figure 33). Hewn floor joists are exposed, and the first floor is supported by both unhewn wooden support posts and beams and metal posts (Figure 34).

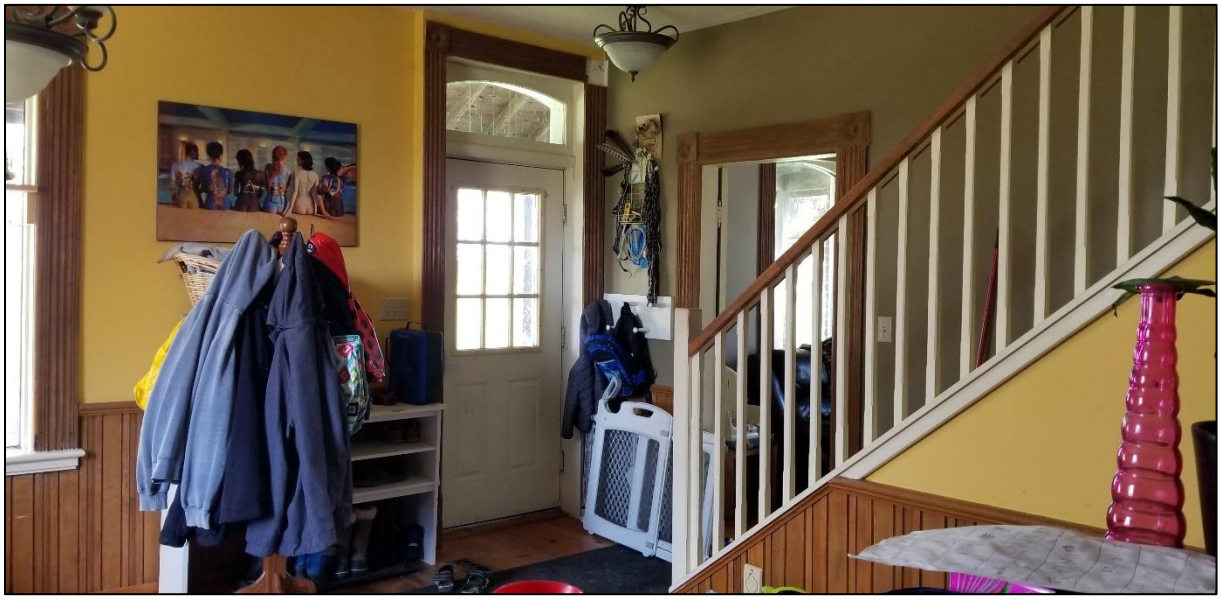


Figure 25: Front entrance and staircase (Tenant - 6518 First Line)



Figure 26: Example of the wooden baseboards and sills (Tenant - 6518 First Line)



Figure 27: Example of the wooden flooring (Tenant - 6518 First Line)



Figure 28: Trim around a bedroom doorway (Tenant - 6518 First Line)



Figure 29: Trim around a bedroom doorway (Tenant - 6518 First Line)

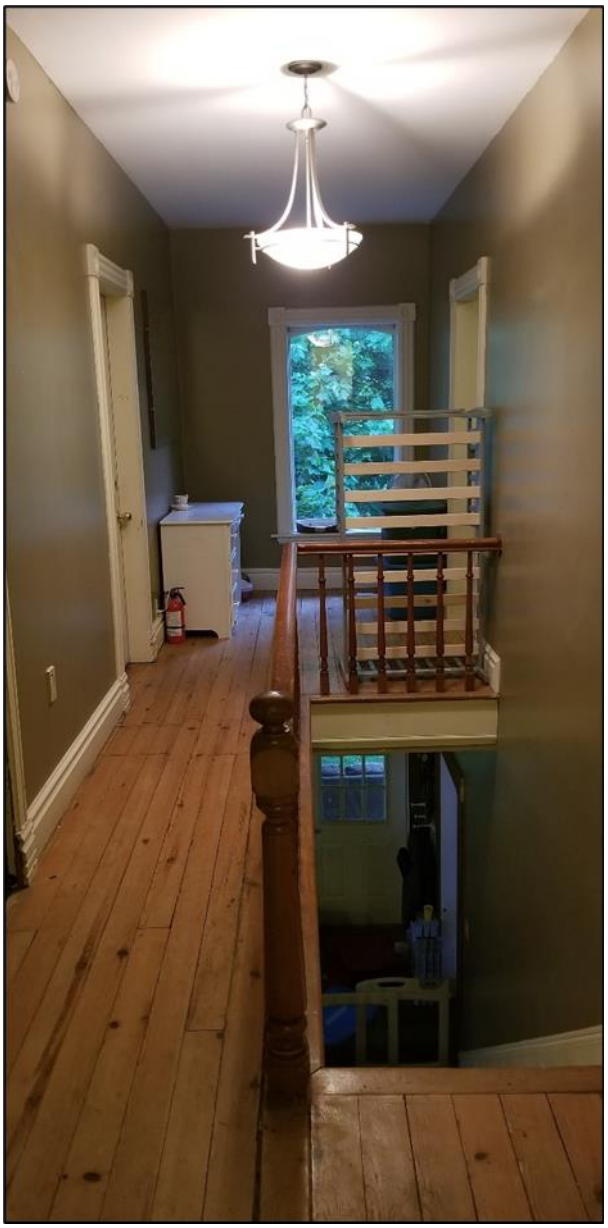


Figure 30: Upstairs landing (Tenant - 6518 First Line)



Figure 31: Renovated kitchen (Tenant - 6518 First Line)


Figure 32: Fieldstone foundation in the basement (Tenant - 6518 First Line)



Figure 33: Alterations to the foundation to accommodate access to the basement (Tenant - 6518 First Line)



Figure 34: Unhewn wooden supports in the basement (Tenant - 6518 First Line)

3.3 Outbuilding

The outbuilding is located to the northwest of the residence, separated by the gravel driveway. The outbuilding is a one-storey garage and workspace with board-and-batten siding (similar to the rear addition), and includes an asphalt shingled gable roof, two garage doors, and an entrance on the southeast elevation (Figure 35 to Figure 38). Fenestration was covered up by boards and plastic sheeting. A shed addition with French doors is located on the southwest elevation. The building sits on a concrete floor, though a portion of the foundation on the exterior appeared to be comprised of stone (Figure 39). The interior has been entirely clad in metal sheeting (Figure 40).



Figure 35: Outbuilding, southeast elevation (ASI 2021)



Figure 36: Outbuilding, southwest elevation (ASI 2021)



Figure 37: Outbuilding, northwest elevation (ASI 2021)



Figure 38: Outbuilding, northeast elevation (ASI 2021)



Figure 39: Stone found underneath a portion of the outbuilding (ASI 2021)



Figure 40: Outbuilding, interior (ASI 2021)

3.4 Archaeological Potential

The subject property at 6518 First Line was evaluated and determined to have archaeological potential in the Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Wellington Centre (ASI 2021). Subsequent Stage 2 survey of the property was completed and found that, while there were findspots and sites located, given their ephemeral nature and low artifact density, the components did not exhibit cultural heritage value or interest in accordance with the *Standards and Guidelines for Consultant Archaeologists* (Ministry of Tourism and Culture 2011); therefore, the property was considered free of any further archaeological concern and no further archaeological assessment is required (ASI 2022b).

4.0 DESCRIPTION AND PURPOSE OF PROPOSED ACTIVITY

4.1 Description of Proposed Development

The proposed undertaking for the Dickson Drive Extension Municipal Class EA involves the proposed extension of Dickson Drive, the existing municipal services, and the establishment of a Storm Water Management Strategy. The proposed works will, “provide access to municipality serviced (water and sanitary) light industrial, commercial, and/or institutional employment lands, and establish a multiuse path within the Centre Wellington Business Park in Fergus, which will allow for continued economic growth and promote a live/work opportunity within the Township” (Township of Centre Wellington 2022).

The proposed new subdivision for the business park covers the footprint of the property at 6518 First Line. The proposed development will be accessed via the proposed extension of Dickson Drive east to First Line and a new cul-de-sac (Dickson Court) extending south from the Dickson Drive extension. A total of 24 lots are proposed, with some fronting onto the Dickson Drive extension and some fronting onto Dickson Court. A multi-use asphalt recreational trail will extend south from Glengarry Crescent along Dickson Court and connect to the Elora Cataract Trailway. The proposed lot lines cut through the vegetation located north and south of the house, as well as through the existing entrance drive. Appendix A contains the concept plans for the considered alternatives. The buildings for the industrial park have not yet been designed. The farmhouse at 6518 First Line will be retained in situ. A future use for the house has not been identified but it may be adapted for office use or industrial storage.

4.2 Considered Alternatives

As part of the proposed subdivision for the business park, two potential configurations were considered: one with the eastern extension of Dickson Road only ("Phase 1" concept) and one with a cul-de-sac street extension running south from the eastern extension of Dickson Road ("Phase 2" concept), both with different lot configurations. The "Phase 1" concept would be considered if it was determined that a second street was not required. The Centre Wellington Business Park Strategy, however, determined that the development should include the new cul-de-sac (Dickson Court) as part of a single phase of development rather than approaching it in two separate phases (McSweeney and Associates 2021).

As part of the Dickson Drive Extension Municipal Class Environmental Assessment, five options were considered. Options 1 through 4 consist of the extension of Dickson Drive to First Line with an additional cul-de-sac extended south, each option differing in regard to stormwater infrastructure and the installation of a muti-use pathway. Option 5 consists of doing nothing with the existing conditions remaining as they are presently. Mapping of these options are included in Appendix A.

The five options considered are as follows (Triton Engineering Services Limited 2022):

- Option 1: Urban Section – MUP and Below Grade SWM
    - Dickson Drive extended to First Line with additional cul-de-sac extended south.
    - Typical urban section with curbs and gutters
    - Multi-use pathway connecting Glengarry Crescent to Elora-Cataract Trailway
    - Storm Water Management provided by way of below grade infrastructure including catchbasins, storm sewers, oil-grit separator(s), below grade run-off storage (chambers and/or super pipes) and a low slope polishing swale
- Option 2: Urban Section – MUP and Above Grade SWM
    - Dickson Drive extended to First Line with additional cul-de-sac extended south.
    - Typical urban section with curbs and gutters
    - Multi-use pathway connecting Glengarry Crescent to Elora-Cataract Trailway
    - Storm Water Management provided by way of both below and above grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s) with above grade run-off storage (ponds) and a low grade polishing swale
- Option 3: Rural Section – MUP and Above Grade SWM
    - Dickson Drive extended to First Line with additional cul-de-sac extended south

- Typical rural section with ditches
- Multi-use pathway connecting Glengarry Crescent to Elora-Cataract Trailway
- Storm Water Management provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale

- Option 4: Rural Section and Above Grade SWM
  - Dickson Drive extended to First Line with additional cul-de-sac extended south
  - Typical rural section with ditches
  - Multi-use pathway is not provided
  - Storm Water Management provided by way of above ground infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale
- Option 5: Do Nothing

Option 1 was chosen as the preferred alternative was selected as it addresses the problem statement, it provides increased safety for both pedestrians and vehicles, the short- and long-term impacts to the environment are reduced, and the storm sewers and catchbasin configurations provided for increased source water protection (Triton Engineering Services Limited 2022).

4.3 Impact Assessment – 6518 First Line, Fergus

To assess the potential impacts of the undertaking, identified built heritage resources and cultural heritage landscapes are considered against a range of possible impacts, based on the *Ontario Heritage Tool Kit InfoSheet #5: Heritage Impact Assessments and Conservation Plans* (Ministry of Citizenship and Multiculturalism 2006). These include:

- Destruction of any, or part of any, significant heritage attributes or features;
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance;
- Shadows created that alter the appearance of a heritage attribute or change the viability of a natural feature or plantings, such as a garden;
- Isolation of a heritage attribute from its surrounding environment, context or a significant relationship;
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features;
- A change in land use such as rezoning a battlefield from open space to residential use, allowing new development or site alteration to fill in the formerly open spaces;
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect an archaeological resource.

Additional guidance is outlined in a document set out by the Ministry of Culture and Communications (now Ministry of Citizenship and Multiculturalism) and the Ministry of the Environment entitled *Guideline for Preparing the Cultural Heritage Resource Component of Environmental Assessments* (October 1992) and include:

- Magnitude: the amount of physical alteration or destruction which can be expected;
- Severity: the irreversibility or reversibility of an impact;
- Duration: the length of time an adverse impact persists;
- Frequency: the number of times an impact can be expected;
- Range: the spatial distribution, widespread or site specific, of an adverse impact; and
- Diversity: the number of different kinds of activities to affect a heritage resource.

The impact assessment focuses on the proposed undertaking as part of the Dickson Drive Extension Municipal Class EA, while also considering potential impacts related to the proposed new subdivision of the business park covering the footprint of the property at 6518 First Line. The proposed Options 1 through 4 for the MCEA consist of the extension of Dickson Drive to First Line with an additional cul-de-sac extended south, each option differing in regard to stormwater infrastructure and the installation of a muti-use pathway. A review of the mapping for Options 1-4 indicate that potential impacts to the heritage attributes of the property, which are focused on the farmhouse, the vegetation surrounding the farmhouse, and the existing entrance drive, would be similar in each instance. The potential impacts of Options 1-4 are further discussed in Table 1 below.

As the subject property was determined to retain cultural heritage value or interest, the proposed undertaking was reviewed for potential impacts to any of the identified heritage attributes presented in the Draft Statement of Cultural Heritage Value.

Table 1: Impact Assessment – 6518 First Line, Fergus

Impact	
Destruction, removal or relocation	The proposed new road construction, and specifically the proposed cul-de-sac, will result in the partial removal of the entrance drive running through the centre of the property that is accessed from First Line. The proposed lot lines for the new business park subdivision cut through the existing entrance drive and will result in the potential removal of the entrance drive as the property will be divided into smaller lots. The house will be retained in situ and will not be directly impacted.
Alteration	The proposed lot lines for the new business park subdivision cut through some of the vegetation located north and south of the house. This may result in the alteration of vegetation surrounding the house, though this could potentially be avoided.
Shadows	There is the potential for shadows from future buildings on the site to impact the vegetation surrounding the house.
Isolation	The proposed development, including the proposed cul-de-sac and the proposed subdivision for the industrial park, will result in the isolation of the house from its relationship to the entrance drive and the treeline along First Line.
Direct or indirect obstruction of significant views	No significant views related to the property have been identified.
A change in land use	The proposed development requires a change in land use for the entire property,

Impact	
	from rural agricultural to industrial/commercial.
Soil disturbance	The proposed development will result in soil disturbance, though it is not anticipated that these disturbances will have an impact on any cultural heritage resources on the property. Depending on the excavation and construction methods required to accommodate the construction of the proposed development, vibration monitoring may be considered to ensure that negative impacts to the house are avoided.

No direct impacts to the residence at 6518 First Line are anticipated as a result of the proposed undertaking. Direct impacts to the long driveway are anticipated through its partial removal due to the proposed cul-de-sac, and potential removal due to the proposed business park subdivision. Though the long driveway is a heritage attribute that may be mostly removed, the bulk of the heritage value is found in the farmhouse on the property, which will be retained in situ. Though a future use for the house has not yet been determined, the intention is not to leave the house vacant.

Potential visual impacts to the subject property are also anticipated, as the proposed development will introduce a visual element not in-keeping with the historical use of the agricultural property. However, no significant views were identified as potential heritage attributes.

Depending on the future plans for the property, indirect impacts from construction-related vibration are possible as having potential to affect an identified built heritage resource where work is taking place within 50 metres of structures on a heritage property. A 50-metre buffer is applied in the absence of a project specific defined vibration zone of influence. This 50-metre buffer for vibration impacts is based on existing secondary source literature and direction provided from the Ministry of Citizenship and Multiculturalism (Wiss 1981; Rainer 1982; Ellis 1987; Crispino and D'Apuzzo 2001; Carman et al. 2012). This buffer accommodates the additional threat from collisions with heavy machinery or subsidence (Randl 2001).

4.4 Conservation and Mitigation Recommendations

While no direct adverse impacts to the residence on the subject property are anticipated, the proposed undertaking involves the removal of the long driveway, an identified heritage attribute of the property.

Potential visual impacts to the subject property are also anticipated, as the proposed development will introduce a visual element not in-keeping with the historical use of the property. No significant views, however, were identified for the property. Proposed mitigation measures to reduce the severity of these impacts could include establishing tree-protection zones, where feasible, to retain the mature vegetation on the subject property. Where retention of mature vegetation is not feasible, post-construction rehabilitation including vegetative planting with sympathetic species should be considered to mitigate impacts.

Potential vibration impacts to the residence are possible, depending on the future redevelopment of the property as a result of its location adjacent to the proposed work. It is recommended that baseline vibration monitoring be undertaken in advance of the construction to identify whether the residence is

located within the established vibration zone of influence. Where feasible, construction activities should be planned in order to prevent impacts to the heritage property. Should it not be feasible to avoid adverse vibration impacts to the structure on the property, a qualified engineer should undertake a condition assessment of the structures within the vibration zone of influence. Further, the proponent must make a commitment to repair any damages caused by vibrations. The area should be monitored for vibration impacts during construction, and immediately cease work if acceptable vibration thresholds are exceeded until the above has been undertaken.

To conserve the cultural heritage value or interest of the property at 6518 First Line and mitigate against the impacts of the proposed development on the heritage attributes, the following conservation and mitigation measures are proposed:

1. The Township of Centre Wellington should prepare a Conservation Plan for the subject property at 6518 First Line in the Township of Centre Wellington. The Conservation Plan should identify strategies to ensure the long-term viability of the resource as a residence or recommend appropriate strategies for potential adaptive re-use of the structure that would ensure the conservation of heritage attributes. The Conservation Plan should detail how the property's heritage attributes will be conserved, including such drawings and other specifications as required by the Township. The Conservation Plan should provide guidance in the event that alterations to the house are required, in particular the removal of the rear addition. The Conservation Plan should also identify areas where maintenance and/or repair is required to ensure the long-term conservation and maintenance of the building. Mitigation measures should be included for any elements identified within the proposed statement of significance that cannot be retained (for example, the property's driveway). The Conservation Plan should be prepared by a qualified heritage specialist in consultation with the Township of Centre Wellington heritage planning staff, the Heritage committee, and follow established guidelines in the *Standards and Conservation of Provincial Heritage Properties* (Ministry of Citizenship and Multiculturalism 2010).

2. Where possible, the trees and vegetation immediately surrounding the house and along the property boundary should be conserved.

3. Any buildings proposed to be built in proximity to the farmhouse should be designed to minimize any shadow impacts on the vegetation surrounding the house.

4. Depending on the excavation and construction methods required to accommodate the construction of the proposed development, vibration monitoring should be considered to ensure that negative impacts to the house are avoided.

5. Staging during construction should be carefully planned to ensure that negative impacts to the built heritage resource are avoided. All efforts should be made to eliminate potential impacts during construction. Construction and staging plans should be provided to the Township of Centre Wellington in advance of construction.

5.0 Summary of Community Engagement

The following municipal staff, organizations, websites, online heritage documents, and online heritage mapping tools were consulted to evaluate the level of significance of the subject property and to request additional information generally:

- Township of Centre Wellington's Heritage Register
  - The property at 6518 First Line is on the Heritage Register.
- Parks Canada's *Canada's Historic Places* website[3]
  - The subject property is not in Parks Canada's *Canada's Historic Places* database.
- Parks Canada's *Directory of Federal Heritage Designation*[4]
  - The subject property is not in Parks Canada's *Directory of Federal Heritage Designations*.
- Ontario Heritage Trust's *Ontario Heritage Act Register*[5]
  - The subject property is not included on the Ontario Heritage Trust's *Ontario Heritage Act Register*.
- Ontario Heritage Trust's *Ontario Heritage Plaque Guide*[6]
  - There are no plaques on the subject property.
- Ontario Heritage Trust's Places of Worship Inventory[7]
  - There are no places of worship on the subject property.
- *Ontario's Historical Plaques*[8]
  - There are no plaques on the subject property.

The following stakeholders were contacted with inquiries regarding the heritage status and for information concerning the subject property and any additional adjacent built heritage resources or cultural heritage landscapes (Table 2).

Table 2: Results of Stakeholder Communications

Contact	Organization	Date(s) of Communications	Description of Information Received
Mariana Iglesias, Senior Planner	Township of Centre Wellington	May and June 2021	Staff provided information on the current heritage status of the property. Staff also reviewed the draft CHER (June 2021) and provided comments on the report findings.

[3] Available at http://www.historicplaces.ca/en/pages/about-apropos.aspx [accessed 10 May 2021]
[4] Available at http://www.pc.gc.ca/apps/dfhd/default_eng.aspx [accessed 10 May 2021]
[5] Available at https://www.heritagetrust.on.ca/en/pages/tools/ontario-heritage-act-register [accessed 10 May 2021]
[6] Available at http://www.heritagetrust.on.ca/Resources-and-Learning/Online-Plaque-Guide.aspx [accessed 10 May 2021]
[7] Available at https://www.heritagetrust.on.ca/en/places-of-worship/places-of-worship-database [accessed 10 May 2021)
[8] Available at http://www.ontarioplaques.com/ [accessed 10 May 2021]

Table 2: Results of Stakeholder Communications

Contact	Organization	Date(s) of Communications	Description of Information Received
Josephy Harvey, Heritage Planner	Ministry of Citizenship and Multiculturalism	26 April and 22 October 2022	Staff provided initial comments and feedback on the draft CHER (June 2021) in April 2022. Staff provided subsequent feedback and comments in October 2022 on the Project File Report for the Dickson Drive Extension MCEA.

As part of the Dickson Drive Extension Municipal Class EA, a Public Information Centre (PIC) took place whereby Triton Engineering Services solicited feedback on the project. Various government agencies, Indigenous Nations, property owners, and area residents were contacted; along with notice of the project was advertised in the local newspaper and municipal staff were contacted. Feedback received from these communications are included in the Project File Report for the EA.

6.0 CONCLUSION

The property at 6518 First Line was evaluated using Ontario Regulation 9/06 under the *Ontario Heritage Act* and the Township of Centre Wellington's *Official Plan* (2013) in the previously completed CHER. The results of both evaluations determined that the property contains cultural heritage value or interest due to the residence's design and architectural value.

Overall, based on the range of possible impacts included in the *Ontario Heritage Toolkit*, the policies outlined in the Township of Centre Wellington's *Official Plan*, and the standards set in the *Standards and Guidelines for the Conservation of Historic Places in Canada*, the proposed development will have an impact on the property, however the property's cultural heritage value or interest is not anticipated to be lost or significantly compromised. With implementation of the recommended conservation and mitigation strategies, the property will continue to be able to sufficiently express its design and architectural values.

The following recommendations have been made for the property at 6518 First Line:

1. The Township of Centre Wellington should prepare a Conservation Plan for the subject property at 6518 First Line in the Township of Centre Wellington. The Conservation Plan should identify strategies to ensure the long-term viability of the resource as a residence or recommend appropriate strategies for potential adaptive re-use of the structure that would ensure the conservation of heritage attributes. The Conservation Plan should detail how the property's heritage attributes will be conserved, including such drawings and other specifications as required by the Township. The Conservation Plan should provide guidance in the event that alterations to the house are required, in particular the removal of the rear addition. The Conservation Plan should also identify areas where maintenance and/or repair is required to ensure the long-term conservation and maintenance of the building. Mitigation measures should be included for any elements identified within the proposed statement of significance that cannot be retained (for example, the property's driveway). The Conservation Plan should

be prepared by a qualified heritage specialist in consultation with the Township of Centre Wellington heritage planning staff, the Heritage committee, and follow established guidelines in the *Standards and Conservation of Provincial Heritage Properties* (Ministry of Citizenship and Multiculturalism 2010).

2. Where possible, the trees and vegetation immediately surrounding the house and along the property boundary should be conserved.

3. Any buildings proposed to be built in proximity to the farmhouse should be designed to minimize any shadow impacts on the vegetation surrounding the house.

4. Depending on the excavation and construction methods required to accommodate the construction of the proposed development, vibration monitoring should be considered to ensure that negative impacts to the house are avoided.

5. Staging during construction should be carefully planned to ensure that negative impacts to the built heritage resource are avoided. All efforts should be made to eliminate potential impacts during construction. Construction and staging plans should be provided to the Township of Centre Wellington in advance of construction.

7.0 REFERENCES

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2022b Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Wellington Centre.

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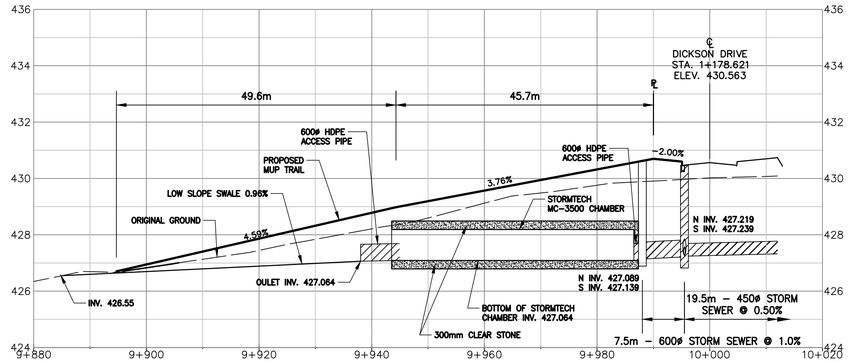
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2022 Township of Centre Wellington Class Environmental Assessment Dickson Drive Extentsion Notice of Project Commencement. https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension.

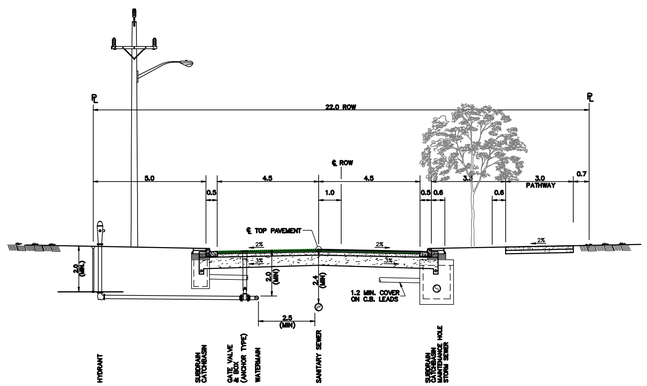
Triton Engineering Services Limited
2022 Dickson Drive Extension Schedule B Municipal Class Environmental Assessment Project File.

Wiss, J.F.
1981 Construction Vibrations; State-of-the-Art. Journal of Geotechnical Engineering 107:167–181.

APPENDIX A: CONSIDERED ALTERNATIVES



PROPOSED GRAVEL MULTI USE PATHWAY
N.T.S.



URBAN TYPICAL SECTION – 22m ROW WITH MULTI USE PATHWAY
N.T.S.

LEGEND:

- ASPHALT PAVEMENT
- CONCRETE PATHWAY
- GRAVEL PATHWAY
- CONCRETE CURB AND GUTTER
- STORM SEWER
- SANITARY SEWER
- SANITARY FORCEMAIN
- WATERMAIN

DICKSON DRIVE

WETLAND BOUNDARY

PROPOSED 3.0m WIDE GRANULAR (LIMESTONE SCREENINGS) MUP

LOW SLOPE SWALE

PROPOSED GRAVEL MUP ALIGNMENT

STORMTECH CHAMBER (BELOW GRADE)

SWM BLOCK (BELOW GRADE)

PROPOSED 12.0m WIDE BLOCK FOR MUP CONNECTION TO TRESTLE TRAIL

STREET A

FIRST LINE

15m DAYLIGHT TRIANGLE

GARAGE

SHED

HOUSE No.6518

Lot 1 2.49ac
Lot 2 2.08ac
Lot 3 1.45ac
Lot 4 1.68ac
Lot 5 2.04ac
Lot 6 2.13ac
Lot 7 2.11ac
Lot 8 1.48ac
Lot 9 1.24ac
Lot 10 1.68ac
Lot 11 1.65ac
Lot 12 1.62ac
Lot 13 1.83ac
Lot 14 3.21ac
Lot 15 2.15ac
Lot 16 1.11ac
Lot 17 1.21ac
Lot 18 2.07ac
Lot 19 1.37ac
Lot 20 1.33ac
Lot 21 1.37ac
Lot 22 2.17ac
Lot 23 1.82ac
Lot 24 1.63ac

DRAFT

OPTION 1

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

DICKSON DRIVE EXTENSION

EAST OF GARTSHORE STREET TO FIRST LINE

OCTOBER 2021	SCALE 1:1000	M6468

DICKSON DRIVE

WETLAND BOUNDARY

PROPOSED 3.0m WIDE GRANULAR (LIMESTONE SCREENINGS) MUP

LOW SLOPE SWALE

PROPOSED GRAVEL MUP ALIGNMENT

SWM BLOCK (ABOVE GRADE)

CENTRE WELLINGTON HYDRO DEAD END HYDRO POLE 3-PHASE FEEDER

GARAGE

SHED

HOUSE No.6518

STREET A

FIRST LINE

15m DAYLIGHT TRIANGLE

PROPOSED 12.0m WIDE BLOCK FOR MUP CONNECTION TO TRESTLE TRAIL

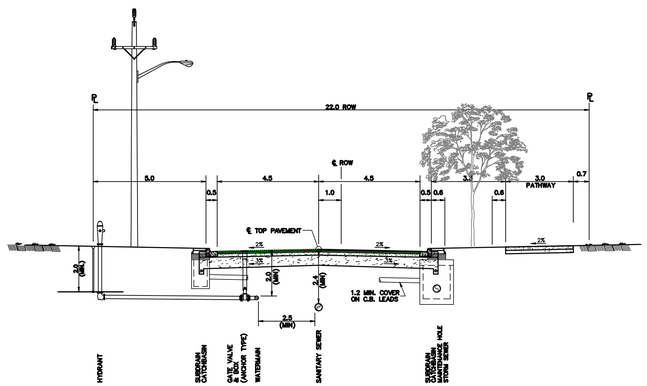
LOW SLOPE SWALE

SWM BLOCK (ABOVE GRADE)

0+700 0+750 0+800 0+850 0+900 0+950 1+000 1+050 1+100 1+150 1+200 1+250 1+300 1+350 1+400 1+450 1+500

9+850 9+900 9+950 10+000 2+000 2+050 2+100 2+150 2+200 2+250

Lot 1 2.49ac
Lot 2 2.08ac
Lot 3 1.45ac
Lot 4 1.68ac
Lot 5 2.04ac
Lot 6 2.13ac
Lot 7 2.11ac
Lot 8 1.48ac
Lot 9 1.24ac
Lot 10 1.68ac
Lot 11 1.65ac
Lot 12 1.62ac
Lot 13 1.83ac
Lot 14 3.21ac
Lot 15 2.15ac
Lot 16 1.11ac
Lot 17 1.21ac
Lot 18 2.07ac
Lot 19 1.37ac
Lot 20 1.33ac
Lot 21 1.37ac
Lot 22 2.17ac
Lot 23 1.82ac
Lot 24 1.63ac



URBAN TYPICAL SECTION – 22m ROW WITH MULTI USE PATHWAY
N.T.S.

LEGEND:

- ASPHALT PAVEMENT
- CONCRETE PATHWAY
- GRAVEL PATHWAY
- CONCRETE CURB AND GUTTER
- STORM SEWER
- SANITARY SEWER
- SANITARY FORCEMAIN
- WATERMAIN

DRAFT

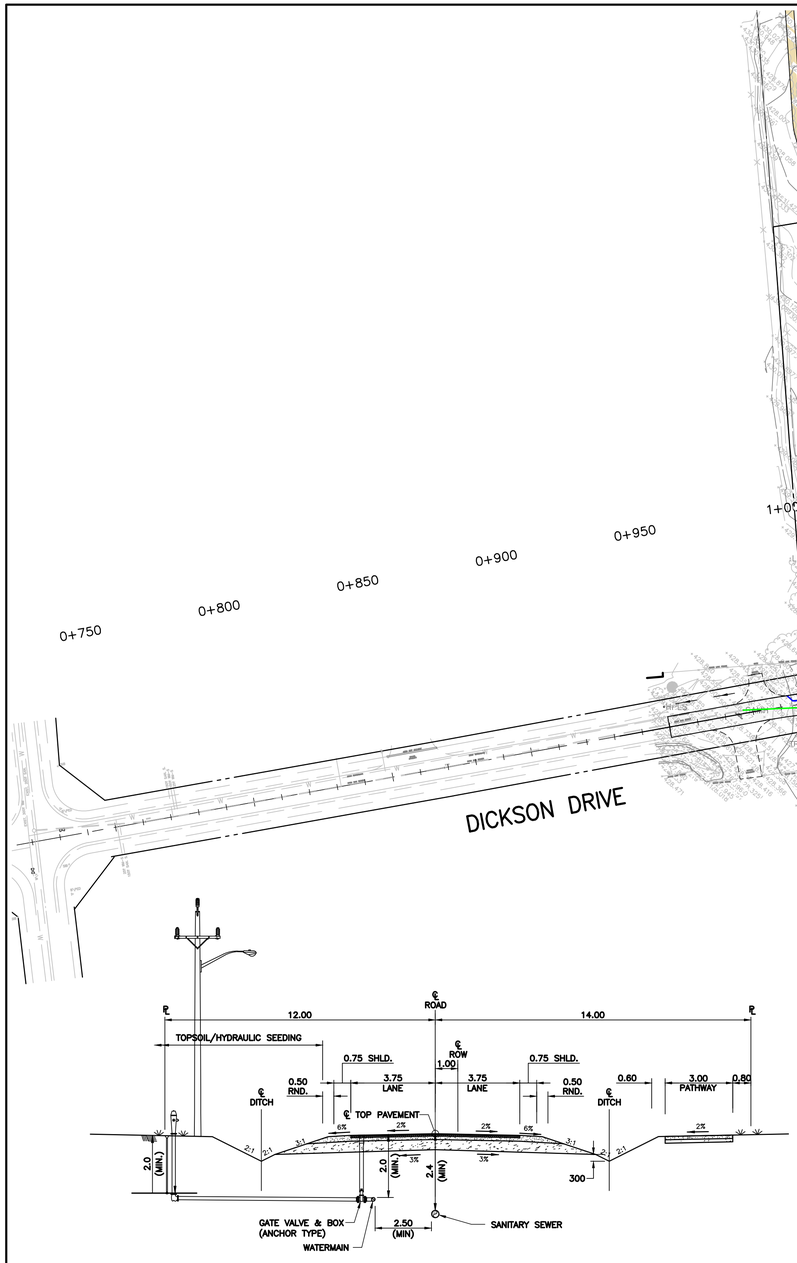
OPTION 2

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

DICKSON DRIVE EXTENSION

EAST OF GARTSHORE STREET TO FIRST LINE

OCTOBER 2021	SCALE 1:1000	M6468



RURAL TYPICAL SECTION – 26m ROW WITH MULTI USE PATHWAY

N.T.S.

LEGEND:

- ASPHALT PAVEMENT
- CONCRETE PATHWAY
- GRAVEL PATHWAY
- CONCRETE CURB AND GUTTER
- STORM SEWER
- SANITARY SEWER
- SANITARY FORCEMAIN
- WATERMAIN

WETLAND BOUNDARY

PROPOSED 3.0m WIDE GRANULAR (LIMESTONE SCREENINGS) MUP

LOW SLOPE SWALE

SWM BLOCK (ABOVE GRADE)

GARAGE

SHED

HOUSE No.6518

DICKSON DRIVE

FIRST LINE

STREET A

15m DAYLIGHT TRIANGLE

PROPOSED BLOCK FOR MUP CONNECTION TO TRESTLE TRAIL

0+750 0+800 0+850 0+900 0+950 1+000 1+050 1+100 1+150 1+200 1+250 1+300 1+350 1+400 1+450 1+500 2+000 2+050 2+100 2+150 2+200 2+250 2+300

Lot 1 2.47ac
Lot 2 2.05ac
Lot 3 1.43ac
Lot 4 1.52ac
Lot 5 2.02ac
Lot 6 2.10ac
Lot 7 2.09ac
Lot 8 1.45ac
Lot 9 1.19ac
Lot 10 1.57ac
Lot 11 1.63ac
Lot 12 1.60ac
Lot 13 1.81ac
Lot 14 3.21ac
Lot 15 2.15ac
Lot 16 0.96ac
Lot 17 1.21ac
Lot 18 2.06ac
Lot 19 1.36ac
Lot 20 1.31ac
Lot 21 1.29ac
Lot 22 2.15ac
Lot 23 1.80ac
Lot 24 1.58ac

DRAFT

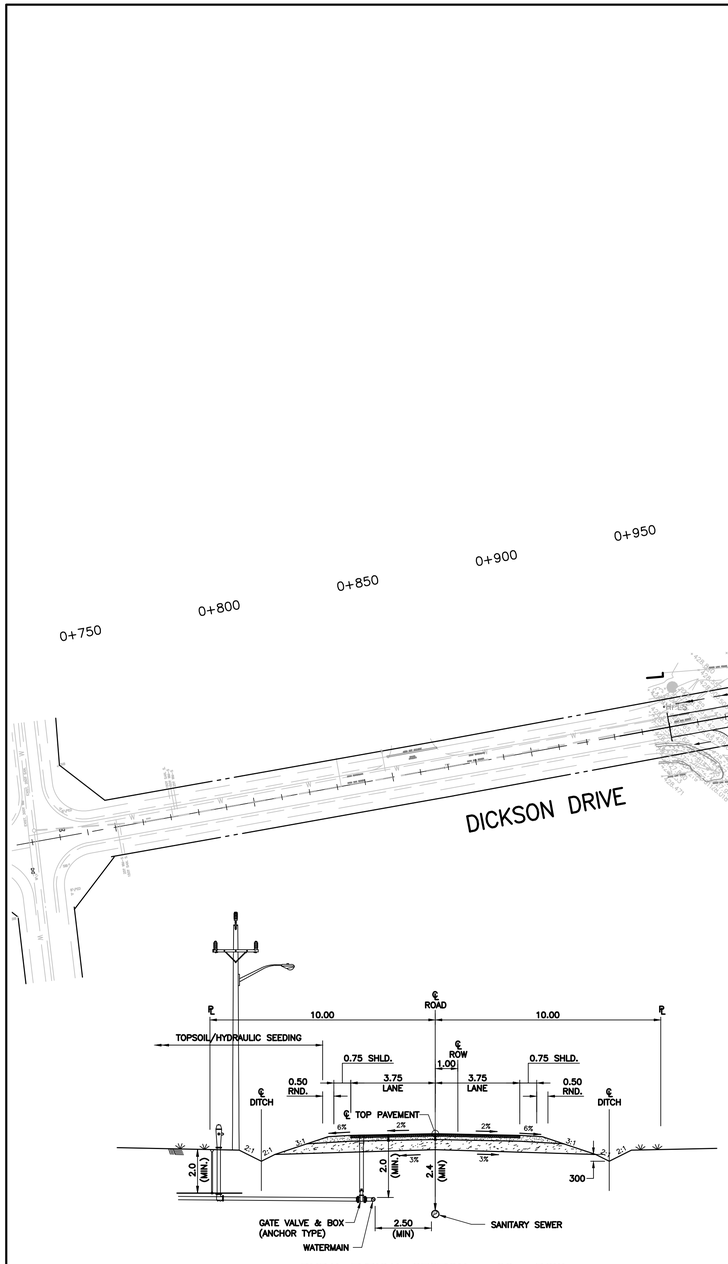
OPTION 3

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

DICKSON DRIVE EXTENSION

EAST OF GARTSHORE STREET TO FIRST LINE

OCTOBER 2021	SCALE 1:1000	M6468



RURAL TYPICAL SECTION – 20m ROW WITH MULTI USE PATHWAY

N.T.S.

LEGEND:

- ASPHALT PAVEMENT
- STORM SEWER
- SANITARY SEWER
- SANITARY FORCEMAIN
- WATERMAIN

WETLAND BOUNDARY

GARAGE

LOW SLOPE SWALE

SWM BLOCK (ABOVE GRADE)

DICKSON DRIVE

FIRST LINE

15m DAYLIGHT TRIANGLE

STREET A

SHED

HOUSE No.6518

Lot 1 2.49ac
Lot 2 2.08ac
Lot 3 1.45ac
Lot 4 1.54ac
Lot 5 2.04ac
Lot 6 2.13ac
Lot 7 2.11ac
Lot 8 1.48ac
Lot 9 1.21ac
Lot 10 1.78ac
Lot 11 1.67ac
Lot 12 1.64ac
Lot 13 1.84ac
Lot 14 3.21ac
Lot 15 2.15ac
Lot 16 0.96ac
Lot 17 1.21ac
Lot 18 2.07ac
Lot 19 1.38ac
Lot 20 1.33ac
Lot 21 1.44ac
Lot 22 2.20ac
Lot 23 1.84ac
Lot 24 1.62ac

0+750 0+800 0+850 0+900 0+950 1+000 1+050 1+100 1+150 1+200 1+250 1+300 1+350 1+400 1+450 1+500 2+000 2+050 2+100 2+150 2+200 2+250 2+300

DRAFT

OPTION 4

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

DICKSON DRIVE EXTENSION

EAST OF GARTSHORE STREET TO FIRST LINE

OCTOBER 2021	SCALE 1:1000	M6468

Section 6

Stage 1 Archaeological Assessment

Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Wellington Centre

Original Report

Prepared for:

Township of Centre Wellington

1 MacDonald Square

Elora, Ontario

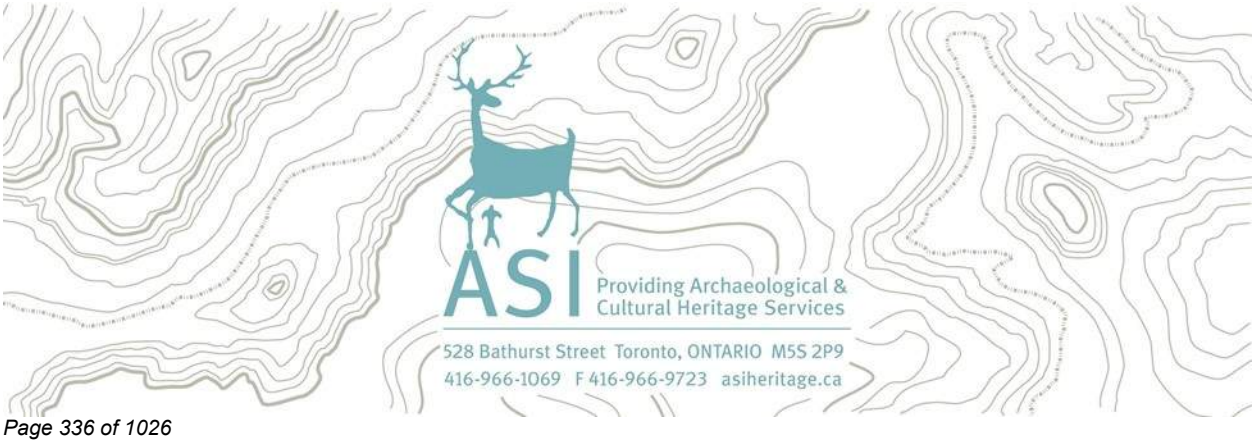
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Archaeological Licence: P449 (Bhardwaj)

PIF P449-0540-2021

Archaeological Services Inc. File: 20PL-066

7 October 2021



Executive Summary

ASI was contracted by the Township of Wellington Centre to undertake a Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Wellington Centre. The subject property is approximately 22.3 hectares.

The Stage 1 background research entailed consideration of the proximity of previously registered archaeological sites and the original environmental setting of the property, along with nineteenth- and twentieth-century settlement trends. This research indicated there was potential for the presence of both Indigenous and Euro-Canadian archaeological resources on the subject property.

The Stage 1 Archaeological Assessment has resulted in the determination that the entirety of the subject property is found to contain the potential for encountering archaeological resources. Therefore, a Stage 2 Archaeological Assessment is required in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' 2011 *Standards and Guidelines for Consultant Archaeologists.*

Project Personnel

- **Project Manager**: Robb Bhardwaj, MA (P449), Associate Archaeologist, Project Manager, Planning Assessment Division
- **Project Director**: Robb Bhardwaj
- **Project Administrator**: Lauren Vince, Hons. BA (R1235), Associate Archaeologist, Project Administrator, Planning Assessment Division
- **Report Preparation**: Dana Millson, PhD, Archaeologist, Technical Writer, Planning Assessment Division
- **Graphics**: Adam Burwell, MSc, GIS Technician, Operations Division; Jonas Fernandez, MSc, (R281), Lead Archaeologist, Manager, Geomatics, Operations Division
- **Report Reviewers**: Robb Bhardwaj, Jennifer Ley, Associate Archaeologist, Manager, Planning Assessment Division

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1.0 Project Context

ASI was contracted by the Township of Wellington Centre to undertake a Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Wellington Centre (Figure 1). The subject property is approximately 22.3 hectares.

1.1 Development Context

This assessment was conducted under the senior project management of Beverly Garner, the project management and the project direction of Robb Bhardwaj (P449) under Ministry of Heritage, Sport, Tourism and Culture Industries (hereafter "the Ministry") PIF P449-0540-2021. All activities carried out during this assessment were completed prior to a zoning by-law amendment, as required by the Town of Fergus and the *Planning Act* (Ministry of Municipal Affairs and Housing, 1990). All work was completed in accordance with the *Ontario Heritage Act* (Ministry of Culture, now the Ministry, 1990) and the *Standards and Guidelines for Consultant Archaeologists* (hereafter "the Standards") (Ministry of Tourism and Culture (now the Ministry), 2011).

Permission to access the subject property and to carry out all activities necessary for the completion of the assessment was granted by the proponent on July 23, 2021.

1.2 Historical Context

The purpose of this section is to describe the past and present land use and settlement history, and any other relevant historical information gathered through the Stage 1 background research. First, a summary is presented of the current understanding of the Indigenous land use of the subject property. This is followed by a review of historical Euro-Canadian settlement trends.

Historically, the subject property is located in the northwest portion of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County. The property currently consists of four active agricultural fields, a wooded area in the

northwest corner, and a residence with surrounding lawns. A lane connects the residence with First Line through the centre of the property.

1.2.1 Pre-Contact Settlement

Southern Ontario has a cultural history that began approximately 11, 000 years ago and continues to the present. Table 1 provides a general summary of the pre-contact Indigenous settlement of the subject property and surrounding area.

Table 1: Pre-contact Indigenous Temporal Culture Periods in Southern Ontario

Period	Description
Paleo 13,000 B.P. – 9,000 B.P.	• First human occupation of Ontario • Astronomers/ Artists/ Hunters/ Gatherers/ Foragers • Language Unknown • Small occupations • Non-stratified populations
Archaic 9,000 B.P. – 3,000 B.P.	• Astronomers/ Artists/ Hunters/ Gatherers/ Foragers • Small occupations • Non-stratified populations • Mortuary ceremonialism • Extensive trade networks for raw materials and finished objects
Early Woodland 3,000 B.P. – 2,400 B.P.	• Astronomers/ Artists/ Hunters/ Gatherers/ Foragers • General trend in spring/summer congregation and fall/winter dispersal • Small and large occupations • First evidence of community identity • Mortuary ceremonialism • Extensive trade networks for raw materials and finished objects

Period	Description
Middle Woodland 2,400 B.P. – 1,300 B.P., Transitional Woodland 1,300 B.P. – 1,000 B.P.	• Astronomers/ Artists/ Hunters/ Gatherers/ Foragers • A general trend in spring/summer congregation and fall/winter dispersal into large and small settlements • Kin-based political system • Increasingly elaborate mortuary ceremonialism • Incipient agriculture in some regions • Longer term settlement occupation and reuse
Late Woodland (Early) A.D. 900 – A.D. 1300	• Foraging with locally defined dependence on agriculture • Villages, specific and special purpose sites • Socio-political system strongly kinship based
Late Woodland (Middle) A.D. 1300 – A.D. 1400	• Major shift to agricultural dependency • Villages, specific and special purpose sites • Development of socio-political complexity
Late Woodland (Late) A.D. 1400 – A.D. 1650	• Complex agricultural society • Villages, specific and special purpose sites • Politically allied regional populations

1.2.2 Post-Contact Settlement

The Ajetance Purchase (Treaty 19)

The subject property is within Treaty 19, the Ajetance Purchase, signed in 1818 between the Crown and the Mississaugas (Crown-Indigenous Relations and Northern Affairs, 2016). This treaty excluded lands within one mile on either side of the Credit River, Twelve Mile Creek, and Sixteen Mile Creeks. In 1820, Treaties 22 and 23 were signed which acquired these remaining lands, except a 200 acre parcel along the Credit River (Heritage Mississauga, 2012, p. 18).

Township Settlement and Development

The District of Wellington, containing Wellington, Waterloo, Grey, and parts of Dufferin County was formed in 1838. In 1854, the County of Wellington was formed, containing Garafraxa Township (among other towns and townships). The first Euro-Canadian settler to Wellington arrived in 1816, founding the town of Elora. Fergus was incorporated as a village in 1858 and was serviced by the Wellington, Grey and Bruce railway. Fergus, situated on the banks of the Grand River, became a town in 1953 (Mika and Mika 1983:619-621).

The Township of West Garafraxa was first surveyed in 1821 and settlers followed quickly, using the Grand River as the major transportation route until the construction of the Garafraxa Road. The Township separated into East and West in 1869 (Mika and Mika 1983:627-628).

1.2.3 Review of Map Sources

A review of nineteenth- and early twentieth-century mapping was completed to determine if these sources depict any nineteenth-century Euro-Canadian settlement features that may represent potential historical archaeological sites within or adjacent to the subject property. Historic map sources are used to reconstruct/predict the location of former features within the modern landscape by cross-referencing points between the various sources and then georeferencing them in order to provide the most accurate determination of the location of any property from historic mapping sources. The results can be imprecise (or even contradictory) because sources of error, such as the vagaries of map production, differences in scale or resolution, and distortions caused by the reproduction of the sources, introduce error into the process. The impacts of this error are dependent on the size of the feature in question, the constancy of reference points on mapping, the distances between them, and the consistency with which both are depicted on historic mapping.

In addition, not all settlement features were depicted systematically in the compilation of these historical map sources, given that they were financed by subscription, and subscribers were given preference with regards to the level of detail provided. Thus, not every feature of interest from the perspective of

archaeological resource management would have been within the scope of these sources.

The 1861 *Tremaine Map of the County of Wellington* (Tremaine, 1861) illustrates the subject property under the ownership of James Dunlop (Figure 2). There are no settlement features or watercourses illustrated within the subject property. The historically important present-day concession road of First Line abuts the subject property along the northeast boundary and there is open land on all other sides.

The 1877 *Illustrated Historical Atlas of the Counties of Waterloo and Wellington* (Walker and Miles, 1877) depicts the subject property once again under the ownership of James Dunlop and fronts the historically important present-day concession road of First Line (Figure 3). While there are no settlement features or watercourses within the subject property, a railway corridor for the Credit Valley Railway is depicted to the south.

Early topographic mapping was also reviewed for the presence of potential historical features. Figure 4 illustrates the subject property located on the 1935 *Topographic Map Guelph Sheet* (Department of National Defence, 1935). Land features, such as waterways, wetlands, woodlots, and elevation are clearly illustrated on this series of mapping, along with roads and structure locations. The subject property is depicted on the 1400 feet (426 metres) elevation contour. The northwest corner of the property overlies a marsh that extends further northwest and the remaining parts of the subject property consist of cleared land. Present-day First Line is visible along the northeast limit of the property and there is a lane that extends from First Line into the centre of the subject property where a house and a barn are depicted. The railway corridor from the 1877 *Illustrated Atlas* still is shown to the south, and there is a culvert and embankment associated with this south of the subject property.

1.2.4 Review of Twentieth Century Aerial Imagery

In order to further understand the previous land use on the subject property, twentieth-century aerial imagery was reviewed (Hunting Survey Corporation Limited, 1954). In 1954, the subject property consists of a wooded area in the

northwest corner and four agricultural fields across the rest of the property (Figure 5). There is a farmhouse and barn in the centre of the property and a lane connecting the farm to present-day First Line in the northeast. The Canadian Pacific Railway corridor fronts the southern limit of the property.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the subject property, its environment characteristics (including drainage, soils, surficial geology, topography, etc.), and current land use and field conditions.

1.3.1 Registered Archaeological Sites

In order that an inventory of archaeological resources could be compiled for the subject property, three sources of information were consulted: the site record forms for registered sites housed at the Ministry, published and unpublished documentary sources, and the files of ASI.

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database (OASD), which is maintained by the Ministry. This database contains archaeological sites registered within the Borden system. The Borden system was first proposed by Dr. Charles E. Borden and is based on a block of latitude and longitude. Each Borden block measures approximately 13 kilometres east-west by 18.5 kilometres north-south and is referenced by a four-letter designator. Sites within a block are numbered sequentially as they are found. The subject property is located in the south-central part of the AkHc Borden block.

No archaeological sites have been registered with an approximate one-kilometre radius of the subject property (Ministry of Heritage, Sport, Tourism and Culture Industries, 2021). The paucity of documented archaeological sites in the general vicinity of the property is probably related to the lack of archaeological investigation of the area prior to the instigation of systematic archaeological assessments under provincial legislation. It does not necessarily reflect the intensity of Indigenous settlement or land use prior to Euro-Canadian

colonization, nor the absence of early Euro-Canadian settlement, and thus should not be taken as an indicator of any lack of Indigenous or Euro-Canadian land use or occupation.

1.3.2 Previous Assessments

During the course of the background research, it was determined that no archaeological assessments are known to have been completed within the subject property.

1.3.3 Physiography

The subject property is located on the Drumlinized Till Plains of the Guelph Drumlin Field physiographic region. The subject property is situated within the Guelph Drumlin Field physiographic region of southern Ontario in a former spillway (Chapman & Putnam, 1984). The Guelph Drumlin Field physiographic region (Chapman and Putnam 1984:137-139) centres upon the City of Guelph and Guelph Township and occupies roughly 830 km^2. Within the Guelph Drumlin Field, there are approximately 300 drumlins of varying sizes. For the most part these hills are of the broad oval type with slopes less steep than those of the Peterborough drumlins and are not as closely grouped as those in some other areas. The till in these drumlins is loamy and calcareous and was derived mostly from dolostone of the Amabel Formation that can be found exposed below the Niagara Escarpment. Spillways are the former glacial meltwater channels. They are often found in association with moraines but in opposition are entrenched rather than elevated landforms. They are often, though not always, occupied by stream courses, the fact of which raises the debate of their glacial origin. Spillways are typically broad troughs floored wholly or in part by gravel beds and are typically vegetated by cedar swamps in the lowest beds (Chapman and Putnam 1984:15).

The surficial geology of the subject property is comprised of glaciofluvial deposits, river deposits, delta topset facies, and sandy deposits (Ontario Geological Survey, 2000).

The subject property is within the Grand River and Lake Belwood watersheds (Ministry of Natural Resources and Forestry, 2020). There are tributaries of the Grand River west and east of the subject property. Lake Belwood is approximately

2.7 kilometres east of the subject property. A marsh, as illustrated in the 1935 DMD topographic map, is located immediately north of the subject property.

1.3.4 Review of Pre-contact Indigenous Archaeological Potential

The Standards, Section 1.3.1 stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), as well as 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.) are characteristics that indicate archaeological potential. Geographic characteristics also indicate archaeological potential and include distinct topographic features and soils.

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 modelling of site location.

Other geographic characteristics that can indicate pre-contact archaeological potential include: elevated topography (eskers, drumlins, large knolls, plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, and distinctive land formations that might have been special or spiritual places for indigenous populations, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use by indigenous peoples, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including food or medicinal plants (migratory routes, spawning areas, prairie), and scarce raw materials (quartz, copper, ochre, or outcrops of chert) are also considered characteristics that indicate pre-contact archaeological potential.

Given the proximity of the subject property to a marsh and tributaries of the Grand River, there is potential for the presence of pre-contact resources, depending on the degree of subsequent soil alteration.

1.3.5 Review of Historical Archaeological Potential

The Standards, Section 1.3.1 stipulates that areas of early Euro-Canadian settlement, including places of early military pioneer settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries, are considered to have archaeological potential. There may be commemorative markers of their history, such as local, provincial, or federal monuments or heritage parks. 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 historical 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.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those which are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be captured by the basic proximity to the water model, since these occupations were subject to similar environmental constraints. An added factor, however, is the development of the network of concession roads and railroads through the course of the nineteenth century. These transportation routes frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 metres of an early historical transportation route are also considered to have potential for the presence of Euro-Canadian archaeological sites.

Given the subject property's proximity to the historically important present-day concession road of First Line, there is potential for the presence of historical archaeological resources, depending on the degree of subsequent soil alteration.

1.3.6 Existing Conditions

The subject property is 22.3 hectares in size and consists of a wooded area in the northwest, a residence and farm complex in the centre, a laneway, and active agricultural fields in the remaining areas of the property. The property is bounded by a woodlot to the north, the Christian Reformed Church of Fergus North and First Line to the east, a woodlot and the Canadian Pacific Railway to the south, and industrial buildings to the west.

2.0 Field Methods

The optional field review was not required as part of this assessment, as per the Standards, Section 1.2. In order to provide images to support the analysis, conclusions, and recommendations of this report, current orthographic imagery and images available through Google Earth Street View were reviewed (Figure 7; Images 1-6). The Google Earth Street View images were taken in September 2019 and are presented in Section 7.0 of this report. Photo locations and assessment conclusions have been compiled on project mapping (Figure 7).

2.1 Findings

The subject property comprises of a farm complex and residence (Image 1), a gravel lane (Image 2), a woodlot (Image 3), and agricultural fields (Images 4-5). The entire property exhibits potential for encountering archaeological resources and must be subject to Stage 2 Archaeological Assessment in accordance with the Standards.

3.0 Analysis and Conclusions

ASI was contracted by the Township of Wellington Centre to complete a Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Wellington Centre. The subject property is approximately 22.3 hectares.

The Stage 1 background research entailed consideration of the proximity of previously registered archaeological sites and the original environmental setting of the property, along with nineteenth- and twentieth-century settlement trends. This research indicated there was potential for the presence of Indigenous and Euro-Canadian historical archaeological resources on the subject property, depending on the degree of subsequent soil alteration.

The entire property exhibits potential for encountering archaeological resources and must be subject to Stage 2 Archaeological Assessment in accordance with the Standards.

4.0 Recommendations

In light of these results, the following recommendation is made:

1. Prior to any land-disturbing activities within the subject property, a Stage 2 Archaeological Assessment must be conducted on all undisturbed lands within the subject property in accordance with the Ministry of Heritage, Sport, Tourism, and Culture Industries' 2011 *Standards*.

    a) All agricultural or open lands within the subject property must be assessed by means of a pedestrian survey. The fields/open areas must be ploughed in advance of survey and allowed to weather for at least one substantial rainfall. Ploughing must be deep enough to provide total topsoil exposure, but not deeper than previous ploughing. The pedestrian survey must be completed at five-metre intervals, as outlined in Section 2.1.1 of the Standards.

    b) All undisturbed lands that cannot be ploughed within the property must be assessed by means of a test pit survey. All test pits must be excavated at least five centimetres into sterile subsoil, with all soils being screened through six-millimeter mesh to facilitate artifact recovery. All test pits must be at least 30 centimetres in diameter and backfilled upon completion. Test pits must be excavated at five-metre transect intervals but may be adjusted in light of considerations of disturbance, topography, and drainage as outlined in the Standards, Section 2.1.2.

NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Heritage, Sport, Tourism and Culture Industries must be immediately notified.

The above recommendations are subject to Ministry approval and it is an offence to alter any archaeological site without Ministry of Heritage, Sport, Tourism and Culture Industries concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MHSTCI approval has been received.

5.0 Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, RSO 2005, 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 field work and report recommendations ensure the conservation, preservation and protection 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 Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

- It is an offence under 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 field work 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 sec. 48 (1) of the Ontario Heritage Act.

- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the Ontario Heritage Act and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

6.0 Bibliography and Sources

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Walker and Miles. (1877). *Illustrated Historical Atlas of Waterloo and Wellington Counties* [Map].

7.0 Images



Image 1: View of farm complex and residence within central portion of the subject property.



Image 2: View of gravel laneway.



Image 3: Wooded area in the northwest corner of the subject property.



Image 4: View of agricultural fields within northern portion of the subject property.

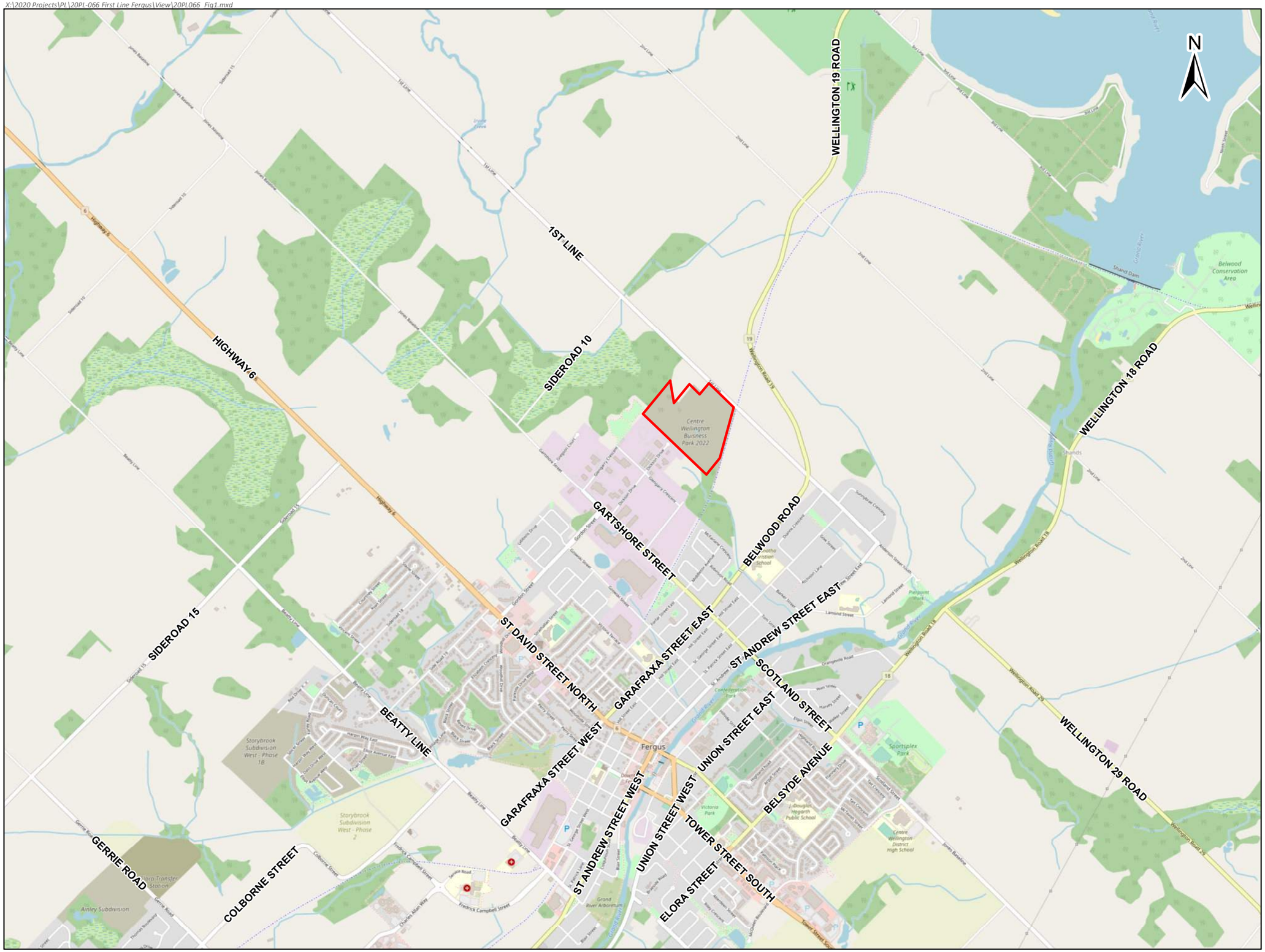


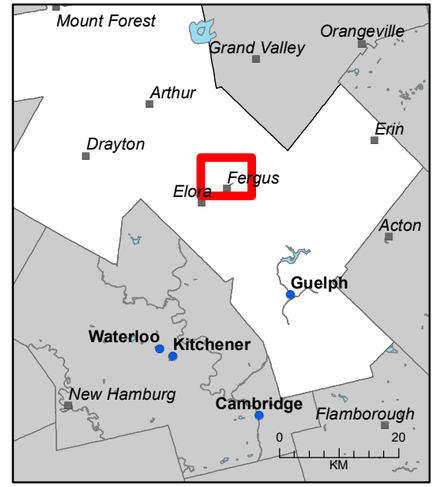
Image 5: View of agricultural fields in the southern portion of the subject property.

8.0 Maps

See following pages for detailed assessment mapping and figures

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SUBJECT PROPERTY

Sources:
Open Street Map

Projection: NAD 1983 UTM Zone 17N

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Page Size: 11 x 17

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ASI PROJECT NO.: 20PL-066
DATE: 2021-08-15

DRAWN BY: A.C.
FILE: 20PL066_Fig1

Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
T 416-966-1069 F 416-966-9723 asiheritage.ca

Figure 1: Location of Subject Property

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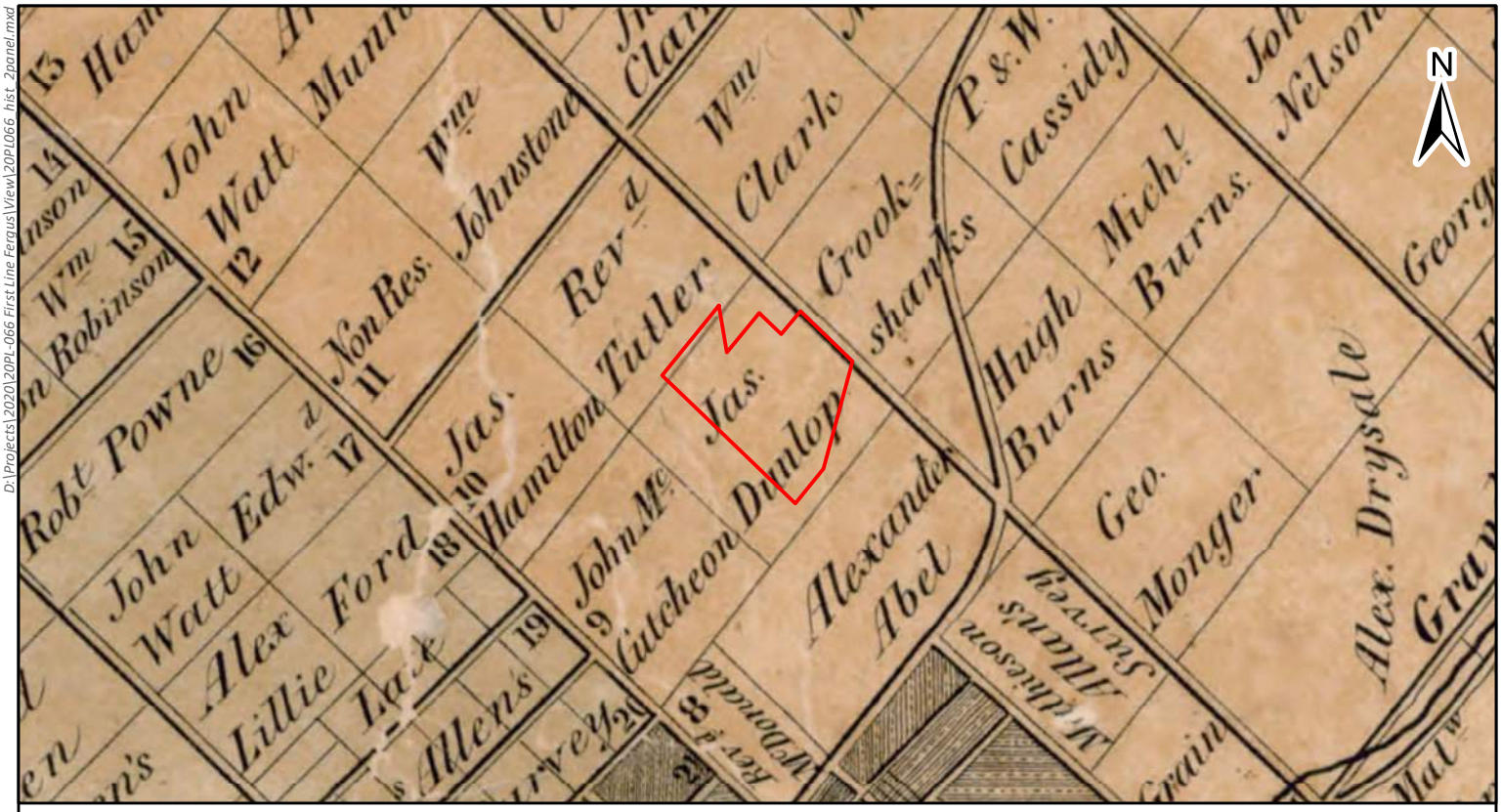


Figure 2: Subject Property located on the 1861 Tremaine Map of the County of Wellington

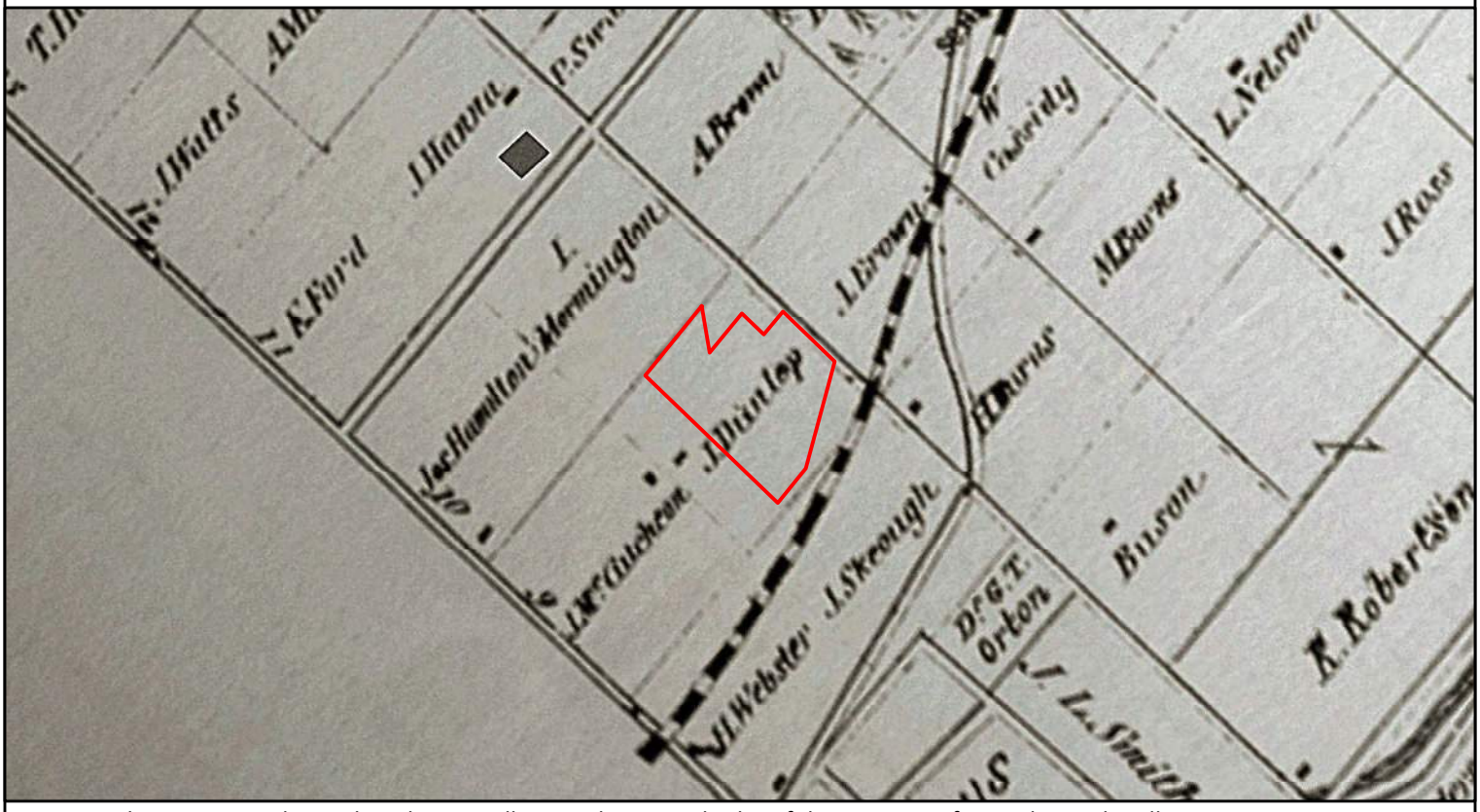


Figure 3: Subject Property located on the 1877 Illustrated Historical Atlas of the Counties of Waterloo and Wellington

SUBJECT PROPERTY

Sources:
1861 Tremaine Map of the County of Wellington
1877 Illustrated Historical Atlas of the Counties of Waterloo and Wellington

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ASI PROJECT NO.: 20PL-066
DATE: 2021-08-27

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FILE: 20PL066_hist_2panel

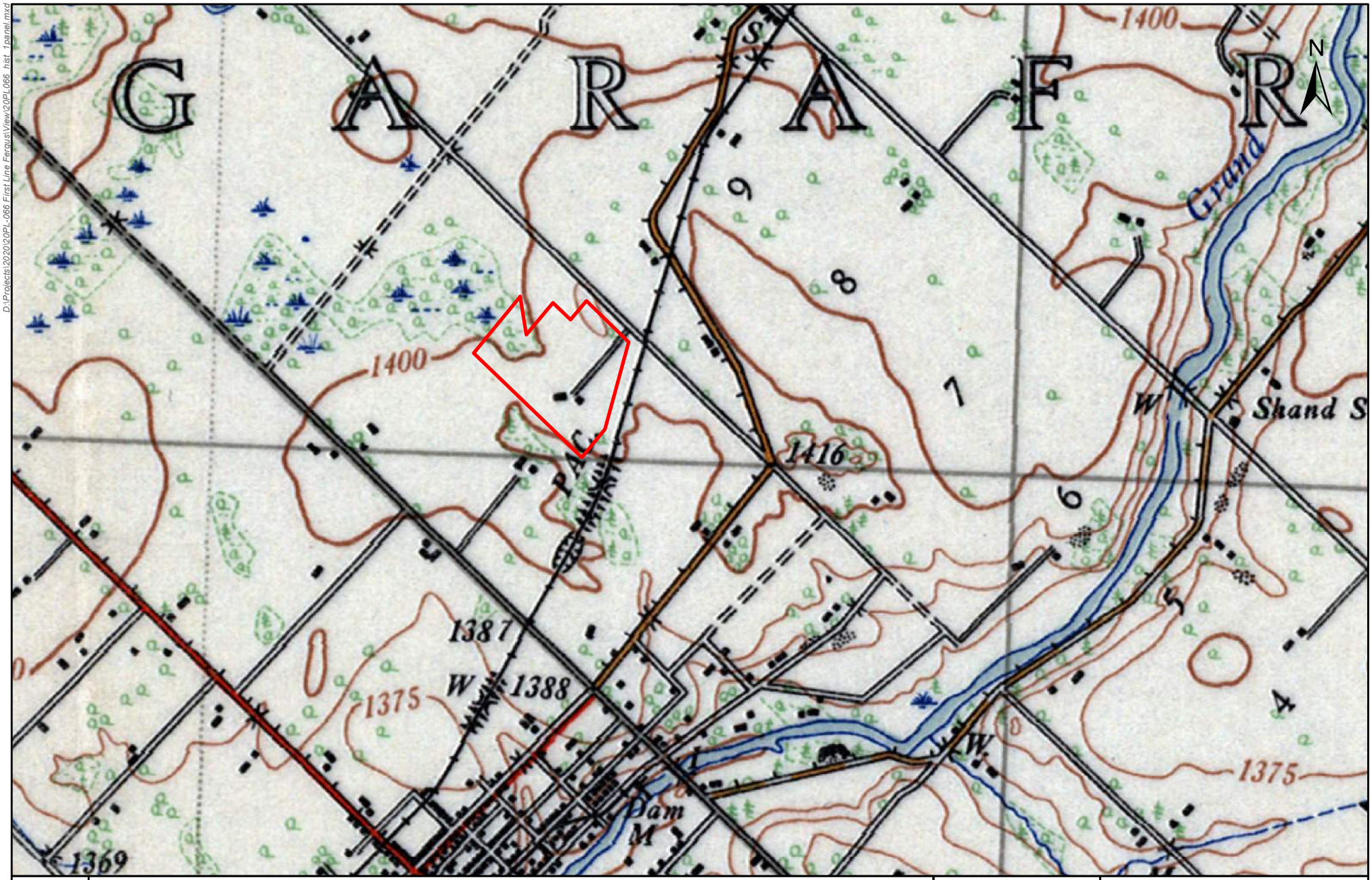


Figure 4: Subject Property located on the DMD 1935 Topographic Map Guelph Sheet



Figure 5: Subject Property located on the 1954 Aerial Photography of Southern Ontario



Figure 6: Existing Conditions of Subject Property

X:\2020 Projects\PL\20PL-066 First Line Fergus\View\20PL066_Fig7_Stage1.mxd



SUBJECT PROPERTY

STAGE 2 ARCHAEOLOGICAL ASSESSMENT REQUIRED

PHOTO LOCATIONS

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Projection: NAD 1983 UTM Zone 17N
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Page Size: 11 x 17

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Metres

ASI PROJECT NO.: 20PL-066
DATE: 2021-09-17
DRAWN BY: AB
FILE: 20PL066_Fig7_Stage1

Figure 7: Stage 1 Archaeological Assessment Results

Ministry of Heritage, Sport, Tourism, and Culture Industries

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Ontario

Nov 16, 2021

Robb Bhardwaj (P449)
ASI Archaeological and Cultural Heritage Services
200-2321 Fairview Burlington ON L7R 2E3

RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 1 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Wellington Centre", Dated Oct 7, 2021, Filed with MHSTCI Toronto Office on N/A, MHSTCI Project Information Form Number P449-0540-2021, MHSTCI File Number 0014919

Dear Mr. Bhardwaj:

The above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18, has been entered into the Ontario Public Register of Archaeological Reports without technical review.[1]

Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require further information, please do not hesitate to send your inquiry to Archaeology@Ontario.ca

cc. Archaeology Licensing Officer
Mariana Iglesias,Centre Wellington
Chantalle Pellizzari,Centre Wellington

1*In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

Section 7

Stage 2 Archaeological Assessment

Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Centre Wellington

Original Report

Prepared for:

Township of Centre Wellington

1 MacDonald Square

Elora, Ontario

NOB 1S0

Archaeological Licence: P449 (Bhardwaj)

Project Information Form P449-0623-2022

Archaeological Services Inc. File: 21PL-341

2 September 2022



Executive Summary

Archaeological Services Inc. was retained by the Township of Centre Wellington to undertake a Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Centre Wellington. The subject property is approximately 22.3 hectares.

The previous Stage 1 assessment of the subject property was conducted in October 2021, entailing consideration of the proximity of previously registered archaeological sites and the original environmental setting of the property. Based on this research, it was determined that the entirety of the subject property had potential for the presence of archaeological resources.

The Stage 2 assessment was conducted on April 22, 26-29, May 5, 30, and June 15-16, 2022, by means of a combined test pit and pedestrian survey. Test pit survey was conducted at five-metre intervals and increased to ten-metres when disturbance was encountered, while pedestrian survey was conducted at five-metre and three-metre intervals. This assessment resulted in the identification of five Indigenous findspots (P1, P3, P7, P8, and P9) and three Indigenous sites (AkHc-20, AkHc-21, and AkHc-22).

Given the ephemeral nature and low artifact density of findspots P1, P3, P7, P8, and P9 and sites AkHc-20, AkHc-21, and AkHc-22 these components do not exhibit cultural heritage value or interest in accordance with the Ministry of Tourism, Culture and Sport's 2011 *Standards and Guidelines for Consultant Archaeologists* and may be considered free of any further archaeological concern. It is therefore recommended that no further archaeological assessment of the subject property be required.

Project Personnel

- **Senior Project Manager:** Jennifer Ley, Honours Bachelor of Arts (R376), Lead Archaeologist, Manager, Planning Assessment Division
- **Project Manager**: Robb Bhardwaj, Master of Arts (P449), Associate Archaeologist, Project Manager, Planning Assessment Division
- **Project Director**: Robb Bhardwaj
- **Project Administrator**: Lauren Vince, Honours Bachelor of Arts (R1235), Archaeologist, Project Administrator, Planning Assessment Division
- **Field Directors**: Jesse Hume, Bachelor of Arts (R1254), Archaeologist, Field Director, Mitigation Division; Poorya Kashani, Doctor of Philosophy (P1133), Associate Archaeologist, Field Director, Planning Assessment Division
- **Field Archaeologists**: Chris Langlois, Master of Arts (P1177), Associate Archaeologist, Field Director, Mitigation Division; Kaitlyn Specht, Honours Bachelor of Arts; Cedric Sabourin, Honours Bachelor of Arts; Matthew Lawrence, Honours Bachelor of Arts; Robert Skrepnek, Honours Bachelor of Arts; Leah Gukathasan, Bachelor of Arts; Oli Oliveira; Sean Haefner, Bachelor of Science (R1254), Archaeologist, Field Director, Planning Assessment Division
- **Report Preparation**: Dana Millson, Doctor of Philosophy, Archaeologist, Technical Writer, Planning Assessment Division
- **Graphics**: Jonas Fernandez, Master of Science, (R281), Lead Archaeologist, Manager, Geomatics, Operations Division; Robin Latour, Master of Philosophy, Postgraduate Diploma, Associate Archaeologist, Geomatics Specialist, Operations Division; Carolyn Nettleton, Bachelor of Arts, Archaeologist, Geographic Information System Technician, Operations Division
- **Artifact Processing**: Kaitlyn McMullen, Honours Bachelor of Arts, Archaeologist, Laboratory Technician, Laboratory and Fieldwork Services, Operations Division
- **Artifact Analysis**: Deborah Steiss, Master of Arts (P049), Senior Associate
- **Artifact Photography**: Deborah Steiss

- **Report Reviewers**: Robb Bhardwaj; Jennifer Ley, David Robertson, MA, Director, Planning Assessment Division

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1.0 Project Context

Archaeological Services Inc. was retained by the Township of Centre Wellington to undertake a Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Centre Wellington (Figure 1). The subject property is approximately 22.3 hectares.

1.1 Development Context

This assessment was conducted under the senior project management of Jennifer Ley, (R376), and the project management and the project direction of Robb Bhardwaj (P449) under Ministry of Tourism, Culture and Sport (hereafter "the Ministry") Project Information Form P449-0623-2022. All activities carried out during this assessment were completed in preparation of a development application, as required by the Town of Fergus and the *Planning Act* (Ministry of Municipal Affairs and Housing, 1990). All work was completed in accordance with the *Ontario Heritage Act* (Ministry of Culture, 1990; now the Ministry) and the *Standards and Guidelines for Consultant Archaeologists* (hereafter the Standards) (the Ministry of Tourism and Culture, 2011; now the Ministry).

Permission to access the subject property and to carry out all activities necessary for the completion of the assessment was granted by the proponent on October 26, 2021. Buried utility locates were obtained prior to fieldwork.

Archaeological Services Inc. previously completed a Stage 1 Archaeological Assessment of the subject property under the Ministry Project Information Form P449-0540-2021 (Archaeological Services Inc., 2021). This report was entered into the Ontario Public Register of Archaeological Reports on November 16, 2021. A summary of the background information pertinent to this assessment has been excerpted from the Stage 1 report.

1.2 Historical Context

The subject property was historically located in part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County. It is now comprised of a

rural residence, a woodlot, and agricultural lands within the Town of Fergus, Township of Centre Wellington.

1.2.1 Review of Map Sources

The 1861 *Tremaine Map of the County of Wellington* (Tremaine, 1861) illustrates the subject property under the ownership of James Dunlop (Figure 2). There are no settlement features or watercourses illustrated within the subject property. The historically important present-day concession road of First Line abuts the subject property along the northeast boundary and there is open land on all other sides.

The 1877 *Illustrated Historical Atlas of the Counties of Waterloo and Wellington* (Walker and Miles, 1877) depicts the subject property once again under the ownership of James Dunlop and fronts First Line (Figure 3). While there are no settlement features or watercourses within the subject property, a structure is now located approximately 100 metres from the property limits. A railway corridor for the Credit Valley Railway is further depicted to the south.

Early topographic mapping was also reviewed for the presence of potential historical features. Figure 4 illustrates the subject property located on the 1935 *Guelph Topographic Map* (Department of National Defence, 1935). Land features, such as waterways, wetlands, woodlots, and elevation are clearly illustrated on this series of mapping, along with roads and structure locations. The subject property is depicted on the 1400 feet (426 metres) elevation contour. The northwest corner of the property overlies a woodlot with an immediately adjacent marsh area, while the majority of the property comprised cleared land for agriculture. First Line is visible along the northeast limit of the property and there is a lane that extends from First Line into the centre of the subject property where a house and a barn are depicted. The railway corridor from the 1877 *Illustrated Atlas* still is shown to the south, and there is a culvert and embankment associated with this south of the subject property.

1.2.2 Review of Aerial Imagery

In order to further understand the previous land use on the subject property, twentieth-century aerial imagery was reviewed (Hunting Survey Corporation

Limited, 1954). In 1954, the subject property consists of a wooded area in the northwest corner and four agricultural fields across the rest of the property (Figure 5). There is a farmhouse and barn in the centre of the property and a lane connecting the farm to First Line in the northeast. The Canadian Pacific Railway corridor fronts the southern limit of the property.

1.1 Archaeological Context

1.3.1 Registered Archaeological Sites

The previous Stage 1 Archaeological Assessment determined that no archaeological sites have been registered within an approximate one-kilometre radius of the subject property, and no new sites have been registered within this catchment (the Ministry, 2022).

The paucity of documented archaeological sites in the general vicinity of the property is probably related to the lack of archaeological investigation of the area prior to the instigation of systematic archaeological assessments under provincial legislation. It does not necessarily reflect the intensity of Indigenous settlement or land use prior to Euro-Canadian colonization, nor the absence of early Euro-Canadian settlement, and thus should not be taken as an indicator of any lack of Indigenous or Euro-Canadian land use or occupation.

1.3.2 Previous Assessments

With the exception of the previous Stage 1 Archaeological Assessment, no other assessments are known to have been completed in close proximity (within 50 metres) of the subject property.

In 2021, Archaeological Services Inc. was retained by the Township of Centre Wellington to conduct a Stage 1 Archaeological Assessment of the subject property (Archaeological Services Inc., 2021). The background research for this study determined that there remained Indigenous and Euro-Canadian archaeological potential on the entire subject property. As such, a Stage 2 Archaeological Assessment would be required ahead of future development.

1.3.3 Physiography

The subject property is situated within the Guelph Drumlin Field physiographic region of southern Ontario, in a former spillway (Chapman and Putnam, 1984). This physiographic region (Chapman and Putnam 1984:137-139) centres upon the City of Guelph and Guelph Township and occupies roughly 830 square kilometres. Within the Guelph Drumlin Field, there are approximately 300 drumlins of varying sizes. For the most part these hills are of the broad oval type with slopes less steep than those of the Peterborough drumlins and are not as closely grouped as those in some other areas. The till in these drumlins is loamy and calcareous and was derived mostly from dolostone of the Amabel Formation that can be found exposed below the Niagara Escarpment. Spillways are the former glacial meltwater channels and are often found in association with moraines, but in opposition, are entrenched rather than elevated landforms. They are often, though not always, occupied by stream courses, the fact of which raises the debate of their glacial origin. Spillways are typically broad troughs floored wholly or in part by gravel beds and are typically vegetated by cedar swamps in the lowest beds (Chapman and Putnam, 1984:15).

The surficial geology of the subject property is comprised of glaciofluvial deposits, river deposits, delta topset facies, and sandy deposits (Ontario Geological Survey, 2000).

The subject property is within the Grand River and Lake Belwood watersheds (Ministry of Natural Resources and Forestry, 2020). There are tributaries of the Grand River west and east of the subject property. Lake Belwood is approximately 2.7 kilometres east of the subject property. A marsh, as illustrated in the 1935 *Guelph Topographic Map*, is located immediately north of the subject property.

1.3.4 Existing Conditions

The subject property is 22.3 hectares in size and consists of a rural residential property, along with surrounding agricultural fields and a large woodlot. The property is generally bounded by a woodlot to the north, the Christian Reformed Church of Fergus North property and First Line to the east, a woodlot and the Canadian Pacific Railway to the south, and industrial properties to the west.

2.0 Field Methods

The Stage 2 field assessment was conducted on April 22, 26-29, May 5, 30, and June 15-16, 2022, to identify, inventory, and describe any archaeological resources extant within the subject property prior to development. All fieldwork was conducted under the field direction of Jesse Hume (R1254) on April 22, 26-29, 2022 and Poorya Kashani (R1133) on May 5, 30, June 15-16, 2022, and was carried out in accordance with the Standards. The weather conditions were appropriate for the completion of fieldwork, permitting good visibility of the land features.

Representative photos documenting the field conditions during the Stage 2 fieldwork are presented in Section 8.0 of this report, and photo locations and field observations have been compiled on project mapping (Figure 7; Images 1-13). Field observations and photographs were recorded with a Trimble Catalyst Digital Antennae 1 Geographic Positioning System unit using World Geodetic System 1984.

2.1 Areas of No Potential

The assessment was initiated by conducting a visual review to identify areas with no archaeological potential. During the review, it was determined that the footprints of the residence and garage, along with the gravel laneway, and the footprint of the isolated outbuilding and the artificial berm in the north end of the property had all been thoroughly disturbed (Images 1-4). In accordance with the Standards, Section 2.1, Standard 2b, these areas of deep and extensive disturbance, which comprise approximately 3.3% of the subject property, are considered to have no archaeological potential.

Additionally, a marshy area within the northwest woodlot and an adjacent pond, as well as a second pond beside the residence, were identified as permanently low and wet areas (Images 5-7). In accordance with the Standards, Section 2.1, Standard 2a (i), permanently wet areas, which comprise approximately 9.9% of the subject property, are considered to have no archaeological potential.

Overall, approximately 13.2% of the subject property was determined to have no archaeological potential and was not included in the Stage 2 field survey (Figure 7).

2.2 Test Pit Survey

Approximately 9.6% of the subject property was assessed by means of test pit survey. The areas tested consisted of portions of the woodlot in the northwest of the subject property and areas of maintained lawns around the structures and laneway. The test pit survey was initiated at five-metre intervals and increased to intervals of ten metres when disturbance was encountered (Image 8). All standards under Section 2.1.2 Test Pit Survey of the Standards were met. Test pits were hand excavated at least five centimetres into the subsoil and all topsoil was screened through six-millimetre aperture mesh to facilitate artifact recovery. The test pits were examined for stratigraphy, cultural features, and evidence of fill. All test pits were at least 30 centimetres in diameter and excavated within one metre of all structures and/or disturbances when possible. Upon completion, all test pits were backfilled.

Intact soil profiles were found within the woodlot, on the north side of the isolated outbuilding, on either side of the laneway and along the west, south and east of the residence and garage. These areas, comprising approximately 7.9% of the subject property, were surveyed at intervals of five metres. Soil profiles consisted of approximately 30 centimetres of very dark greyish brown (10YR 3/2) sandy loam A-horizon, overlying yellowish brown (10YR 5/4) sand B-horizon (Image 9).

Approximately 1.7% of the subject property consisted of disturbed test pit profiles and was therefore surveyed at ten-metre intervals. These areas were found surrounding the pond and to the north of the residence, along with an area to the rear of the residence adjacent to the agricultural field. Disturbed soil profiles consisted of approximately 50 centimetres of yellowish brown (10YR 5/4) sandy clay with gravel inclusions, over yellowish brown (10YR 5/4) sand B-horizon (Image 10).

2.2.1 Intensified Test Pit Survey

During the course of the test pit survey, a single Indigenous artifact was encountered in the northwest corner of the property (Supplementary Documentation: Figure 1). In accordance with the Standards, Section 2.1.2, Standard 2 (Option A), intensification involved the excavation of additional test pits at maximum intervals of 2.5 metres surrounding the positive test pit, as well as the excavation of a single one-metre-square test unit over the initial find (Supplementary Documentation: Figure 2).

In accordance with the Standards, Section 3.2.2, the one-metre-square test unit was hand-excavated by natural strata to a minimum of five centimetres into sterile subsoil and all soil was screened through six millimetres mesh to facilitate artifact recovery (Supplementary Documentation: Figure 2; Image 11). The profiles and subsoil floor were examined for the presence of undisturbed cultural strata and potential features; no cultural features were encountered. The test unit stratigraphy was photographed and mapped by hand. Upon completion, the test unit was backfilled and leveled.

The test unit profile comprised approximately 30 centimetres of very dark greyish brown (10YR 3/2) sandy loam A-horizon, overlying yellowish brown (10YR 5/4) sand B-horizon (Supplementary Documentation: Figure 2; Image 12).

Despite careful scrutiny, no further archaeological material was encountered during the intensified test pit survey and test unit excavation.

2.3 Pedestrian Survey

The remaining 77.2% of the subject property, consisting of the actively cultivated agricultural fields, was assessed by means of a pedestrian survey (Image 13-14; Figure 7). The majority (57.2%) of the survey was conducted at intervals of five metres, while a portion (20%) within the central field was surveyed at reduced three-metre intervals as an accommodation in the field between the Field Director and Indigenous monitors from Haudenosaunee Development Institute, Six Nations of the Grand River Elected Council, and the Mississaugas of the Credit

First Nation due to minor vegetation growth. In accordance with the Standards, Section 2.1.1, the field was ploughed and allowed to weather appropriately prior to survey, and ploughing was deep enough to provide total topsoil exposure but not extend beyond the depth of previous ploughing. Ground surface visibility was greater than 80%. Ploughzone soils consisted of sandy loam.

2.3.1 Intensified Pedestrian Survey

During the course of the pedestrian survey, Indigenous artifacts were encountered in the north and south portions of the property (Supplementary Documentation: Figure 1). In accordance with the Standards, Section 2.1.1, Standard 7, when archaeological material was encountered, an intensified survey at one-metre transects was conducted at a radius of 20-metres around all surface artifacts (Supplementary Documentation: Figure 1; Image 15). The location of each artifact was recorded, and all artifacts encountered during the pedestrian survey were collected and retained for analysis.

3.0 Record of Finds

During the course of the Stage 2 assessment, five Indigenous findspots and three Indigenous sites were documented. All artifacts observed during the survey were collected according to provenience. The two diagnostic Indigenous sites (AkHc-21 and AkHc-22) and one non-diagnostic Indigenous site (AkHc-20) have been registered in the Ontario Archaeological Site. The five non-diagnostic findspots do not meet the requirements for registry as outlined by the Standards.

3.1 Inventory of Documentary and Material Record

The documentation and materials related to this project will be curated by Archaeological Services Inc. until such a time that arrangements for their ultimate transfer to Her Majesty the Queen in right of Ontario, or other public institution, can be made to the satisfaction of the project owner(s), the Ontario Ministry of Tourism, Culture and Sport, and any other legitimate interest groups.

Table 1 provides an inventory and location of the documentary and material record for the project in accordance with the Standards, Sections 6.7 and 7.8.2.3.

Table 1: Inventory of Documentary and Material Record

Material	Location	Comments
Written Field Notes, Annotated Field Maps, and GPS Logs.	Archaeological Services Inc., 528 Bathurst Street, Toronto, ON, M5S 2P9	Hard copy notes stored in company project folder 21PL-341; location coordinates and digital information stored on company network servers.
Field Photography (Digital)	Same as above.	Stored on company network servers.
Research, Analysis and Reporting Materials (Various Formats)	Same as above.	Digital files stored on company network servers.
Artifacts	Same as above.	All artifacts collected stored by class and provenience. Artifacts stored in 12.7-centimetre by 20.32-centimetre plastic bags and further separated into 5.08-centimetre by 7.62-centimetre plastic bags. All material housed in a standard banker's box (width 30 centimetres, depth 38 centimetres, height 25 centimetres). Artifact assemblage stored in one box labeled: 21PL-341, 6518 First Line, Fergus Stage 2.

Global Positioning System coordinates for all surface artifacts were recorded with a Trimble Catalyst Global Navigation Satellite System receiver using World Geodetic System 1984. No correction was used for the coordinates, and conditions (such as, clear skies and tree cover) were optimal for recording accuracy. Detailed site mapping and location coordinates are provided in the Supplementary Documentation associated with this project.

3.2 Indigenous Locations

A pre-contact Indigenous site is distinguished from an isolated find by either the quantity of material encountered (three or more artifacts), by the presence of a diagnostic artifact (for example, a projectile point), or single examples of artifacts of special interest. Whenever artifacts were encountered, a unique field designation (P-number) was assigned (see Supplementary Documentation: Figure 1).

3.2.1 Isolated Finds

In total, five isolated, non-diagnostic Indigenous findspots were recorded within the subject property. Findspot P1 was encountered during test pit survey in the northwest of the subject property and yielded no further artifacts after intensification. Findspots P3, P7, P8, and P9 were identified during pedestrian survey of the ploughed fields, each yielding one artifact. Table 2 displays the field designation (P-number), artifact yield, artifact type(s), and any pertinent comments. A full catalogue of the findspot material is presented in Appendix A, and a sample of the artifacts are displayed in Section 8.0 (Images 16-17).

Table 2: Indigenous Findspots Documented within Subject Property

Findspot	Quantity	Artifact Types	Artifacts (collected/observed)	Comments
P1	1	1 Biface	1/1	Single test pit (test unit negative)
P3	1	1 secondary knapping flake	1/1	
P7	1	1 flake fragment	1/1	
P8	1	1 flake fragment	1/1	
P9	1	1 secondary retouch flake	1/1	

3.2.2 Sites

A total of three Indigenous sites were documented on the subject property during pedestrian survey. A full catalogue of all site material is presented in Appendix A.

AkHc-20

Field designations P5 and P6 were grouped based on their proximity, as they were approximately 10 metres apart. The non-diagnostic Indigenous site AkHc-20 consists of a scatter of nine flake fragments and secondary retouch flakes of Onondaga Chert (see Supplementary Document: Figure 1) (Image 17). The site was identified in the northern portion of the subject property, set back approximately 95 metres from First Line. It measures approximately 19 metres north to south and 26 metres east to west.

AkHc-21

AkHc-21 was documented in the north of the subject property fronting First Line. The site consists of a single Middle Archaic Otter Creek-like projectile point made of Onondaga chert (Supplementary Documentation: Figure 1) (Image 16). The site is approximately 85 metres northeast of AkHc-20.

AkHc-22

AkHc-22 was documented in the south of the subject property approximately 85 metres from the south corner. The site consists of a single Middle Archaic Brewerton Corner-Notched-like projectile point made of Onondaga chert (Supplementary Documentation: Figure 1) (Image 16).

4.0 Analysis and Conclusions

Archaeological Services Inc. was retained by the Township of Centre Wellington to undertake a Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, in the Geographic Township of Garafraxa, Wellington County, now in the Town of Fergus, Township of Centre Wellington. The subject property is approximately 22.3 hectares.

The previous Stage 1 assessment entailed consideration of the proximity of previously registered archaeological sites and the original environmental setting of the property. Based on this research, it was determined that the entirety of the subject property retained archaeological potential and further archaeological assessment was recommended ahead of any future development.

The Stage 2 assessment consisted of a combined test pit and pedestrian survey. Test pits were initiated at five-metre intervals and increased to ten metres when disturbance was encountered, while the pedestrian survey was conducted at five and three-metre transects. During test pit survey, one findspot (P1) was documented in the northwest corner of the property. During the pedestrian survey, a further four findspots (P3, P7, P8, and P9) and three Indigenous sites (AkHc-20, AkHc-21, and AkHc-22) were documented.

4.1 Indigenous Locations

Findspots P1, P3, P7, P8, and P9 represent isolated non-diagnostic artifact locations that do not reflect loci of prolonged activity or occupation. As such, these findspots do not meet the criteria outlined in the Standards, Section 2.2, Standard 1 requiring Stage 3 Archaeological Assessment.

Site AkHc-20 comprises a diffuse scatter of nine flake fragments and secondary retouch flakes of Onondaga chert. The presence of this scatter is indicative of ephemeral activity, likely indicating a tool sharpening event. Hence, AkHc-20 does not meet the criteria for cultural heritage value or interest requiring a Stage 3 Archaeological Assessment as outlined in the Standards, Section 2.2, Standard 1.a.i (3).

AkHc-21 and AkHc-22 are isolated Middle Archaic projectile points, which are the product of random or casual loss rather than indicative of a location of prolonged occupation or activity. As such, both sites do not meet the criteria outlined in the Standards, Section 2.2, Standard 1 for requiring Stage 3 Archaeological Assessment due to the isolated nature.

5.0 Recommendations

In light of these results and in accordance with the 2011 *Standards and Guidelines for Consultant Archaeologists*, the following recommendations are made:

1. Given the isolated and non-diagnostic nature of Indigenous findspots P1, P3, P7, P8, and P9, these locations do not exhibit cultural heritage value or interest and may be considered free of any further archaeological concern.

2. Given the ephemeral nature of Indigenous site AkHc-20, this site does not meet the criteria for cultural heritage value or interest and may be considered free of any further archaeological concern.

3. Given the isolated nature of Indigenous sites AkHc-21 and AkHc-22, these sites do not meet the criteria for cultural heritage value or interest and may be considered free of any further archaeological concern.

4. No further archaeological assessment of the subject property is required.

NOTWITHSTANDING the results and recommendations presented in this study, Archaeological Services Inc. notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport must be immediately notified.

The above recommendations are subject to Ministry approval, and it is an offence to alter any archaeological site without Ministry of Tourism, Culture and Sport concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of Ministry approval has been received.

6.0 Advice on Compliance with Legislation

Archaeological Services Inc. advises compliance with the following legislation:

- This report is submitted to the Ministry of Tourism, Culture and Sport as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, RSO 2005, 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 field work and report recommendations ensure the conservation, preservation and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Tourism, Culture and Sport, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.

- It is an offence under 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 field work 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 sec. 48 (1) of the Ontario Heritage Act.

- The Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Government and Consumer Services is also immediately notified.

- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the Ontario Heritage Act and

may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

7.0 Bibliography and Sources

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Walker and Miles. (1877). Illustrated Historical Atlas of Waterloo and Wellington Counties [Map].

8.0 Images



Image 1: View of the residence in the centre of the subject property; test pit survey in progress.



Image 2: View of the gravel laneway leading to the rural residence from First Line.



Image 3: View of the outbuilding in the north of the subject property; test pit survey in progress.



Image 4: View of berm in the northwest of the subject property, separating wetland from ploughed field.



Image 5: View of the pond in the northwest corner of the subject property.



Image 6: View of the permanently low and wet marsh area in the northwest corner of the subject property.



Image 7: View of the pond near the centre of the subject property adjacent to the residence.



Image 8: View of field crew test pitting adjacent to the residence near the centre of the subject property.



Image 9: View of a typical intact test pit soil profile.



Image 10: View of a typical disturbed test pit soil profile.



Image 11: View of test unit excavation.



Image 12: View of test unit soil profile.



Image 13: View of field crew conducting pedestrian survey at five metre intervals.



Image 14: View of field crew conducting pedestrian survey at three metre intervals.



Image 15: View of field crew conducting intensified pedestrian survey in the northeast of the subject property.



Image 16: Sample of Indigenous artifacts. From left to right: P1, AkHc-22 and AkHc-21.

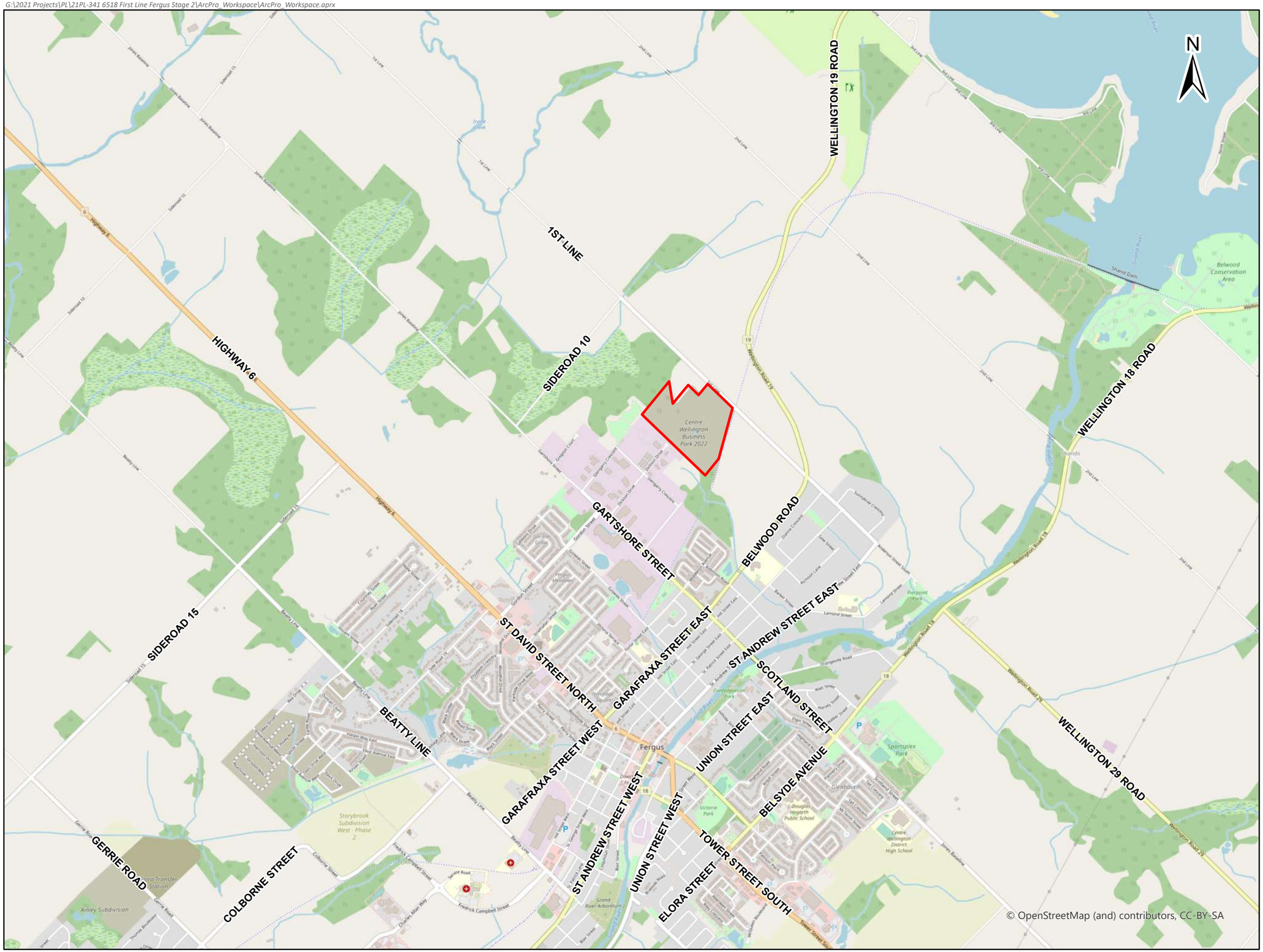


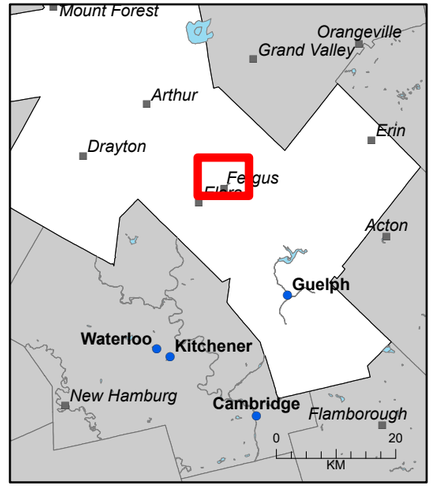
Image 17: Sample of artifacts from Site AkHc-20. Top row, from left to right: L1, L2, L3. Bottom row, from left to right: L4, L5, L6, L7.

9.0 Maps

See following pages for detailed assessment mapping and figures

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SUBJECT PROPERTY

Sources:
Open Street Map

Projection: NAD 1983 UTM Zone 17N

Scale: 1:1,000,000

Page Size: 11 x 17

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ASI PROJECT NO.: 21PL-341
DATE: 8/3/2022

DRAWN BY: jfernandez
FILE: 21PL341_Fig1

Providing Archaeological & Cultural Heritage Services
528 Bathurst Street Toronto, ONTARIO M5S 2P9
T 416-966-1069 F 416-966-9723 asiheritage.ca

Figure 1: Location of Subject Property

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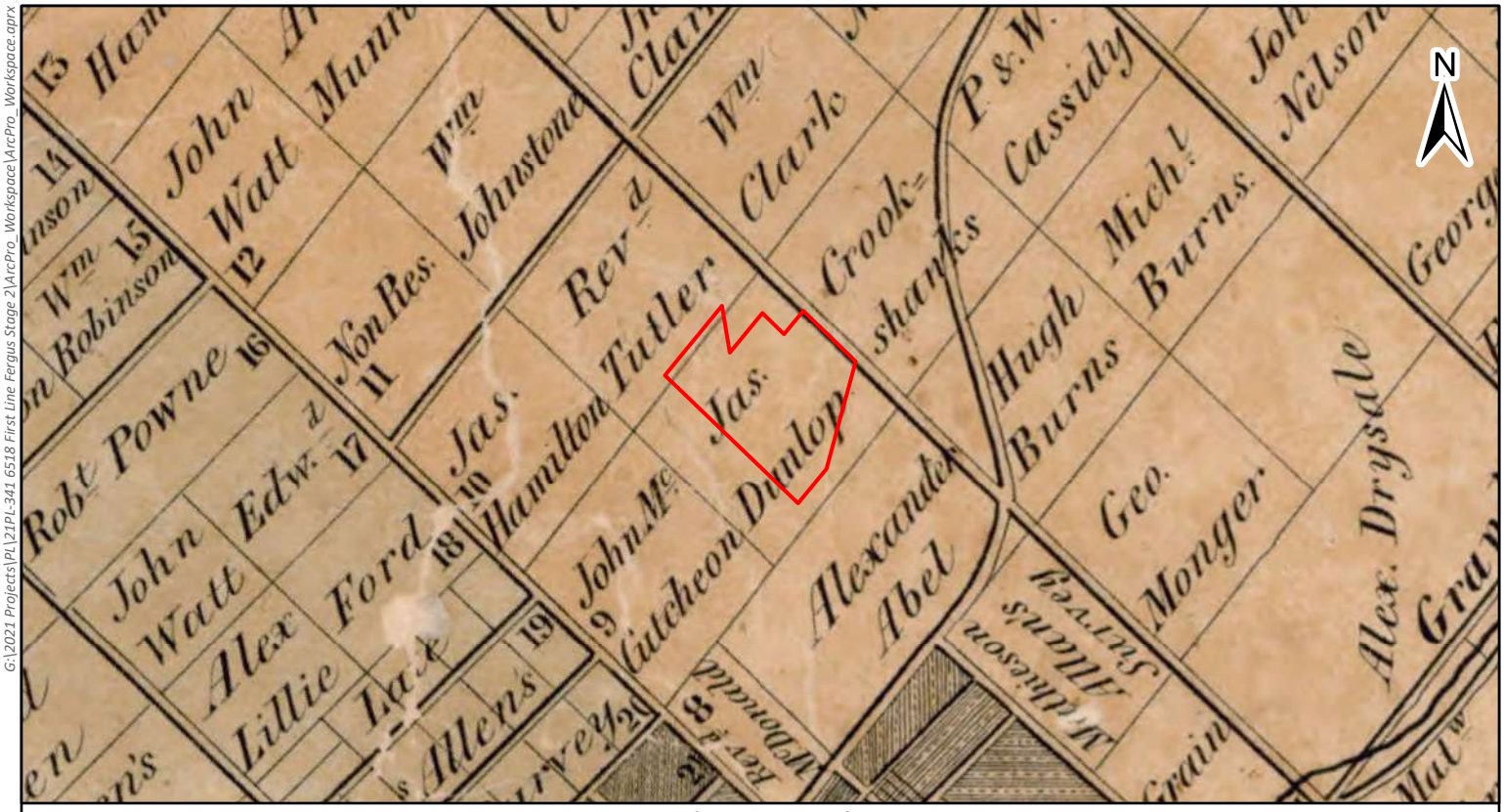


Figure 2: Subject Property located on the 1861 Tremaine Map of the County of Wellington

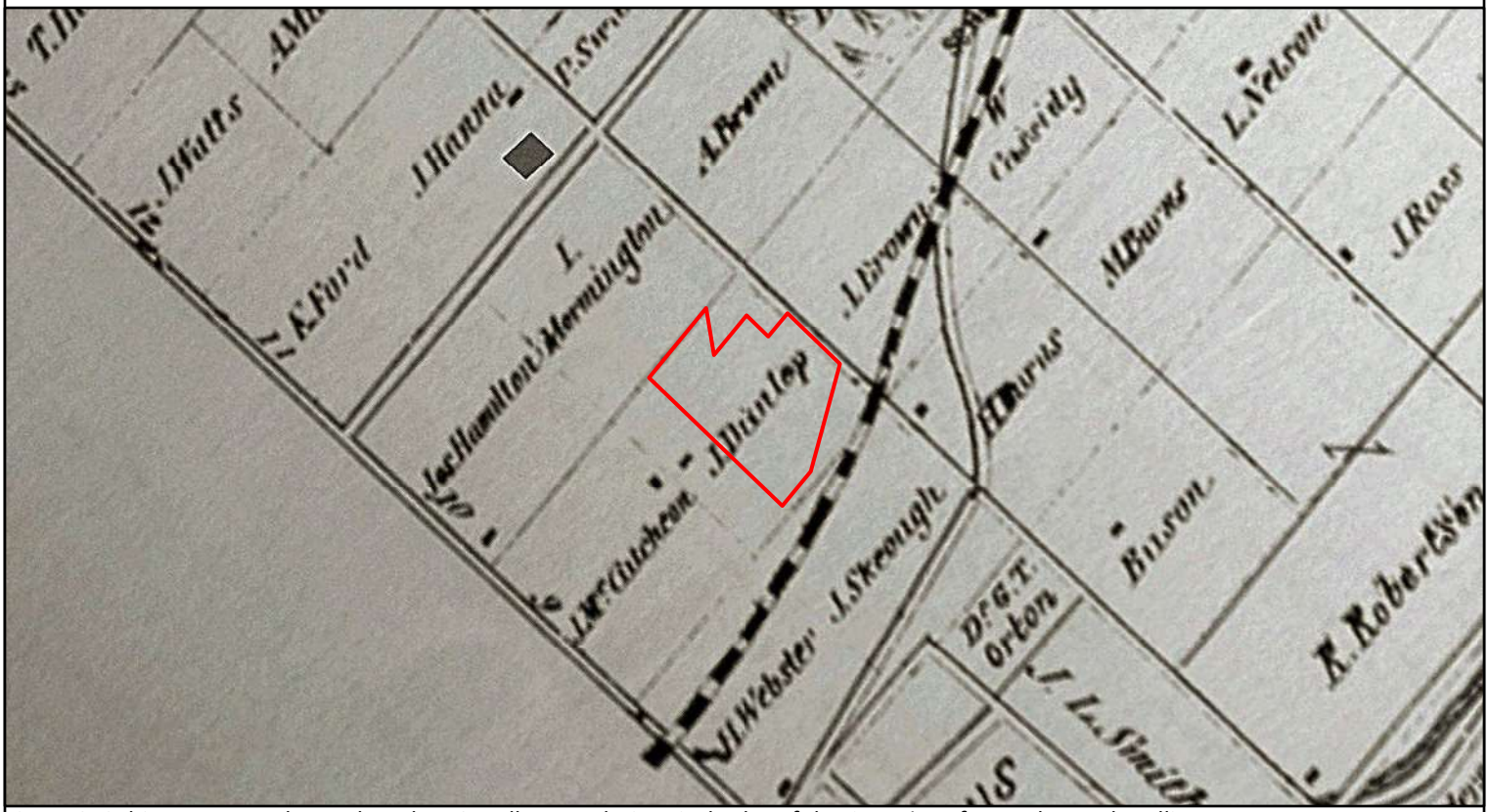


Figure 3: Subject Property located on the 1877 Illustrated Historical Atlas of the Counties of Waterloo and Wellington

SUBJECT PROPERTY

Sources:
1861 Tremaine Map of the County of Wellington
1877 Illustrated Historical Atlas of the Counties of Waterloo and Wellington

Projection: NAD 1983 UTM Zone 17N
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ASI PROJECT NO.: 21PL-341
DATE: 8/3/2022

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FILE: 21PL341_Fig2_3

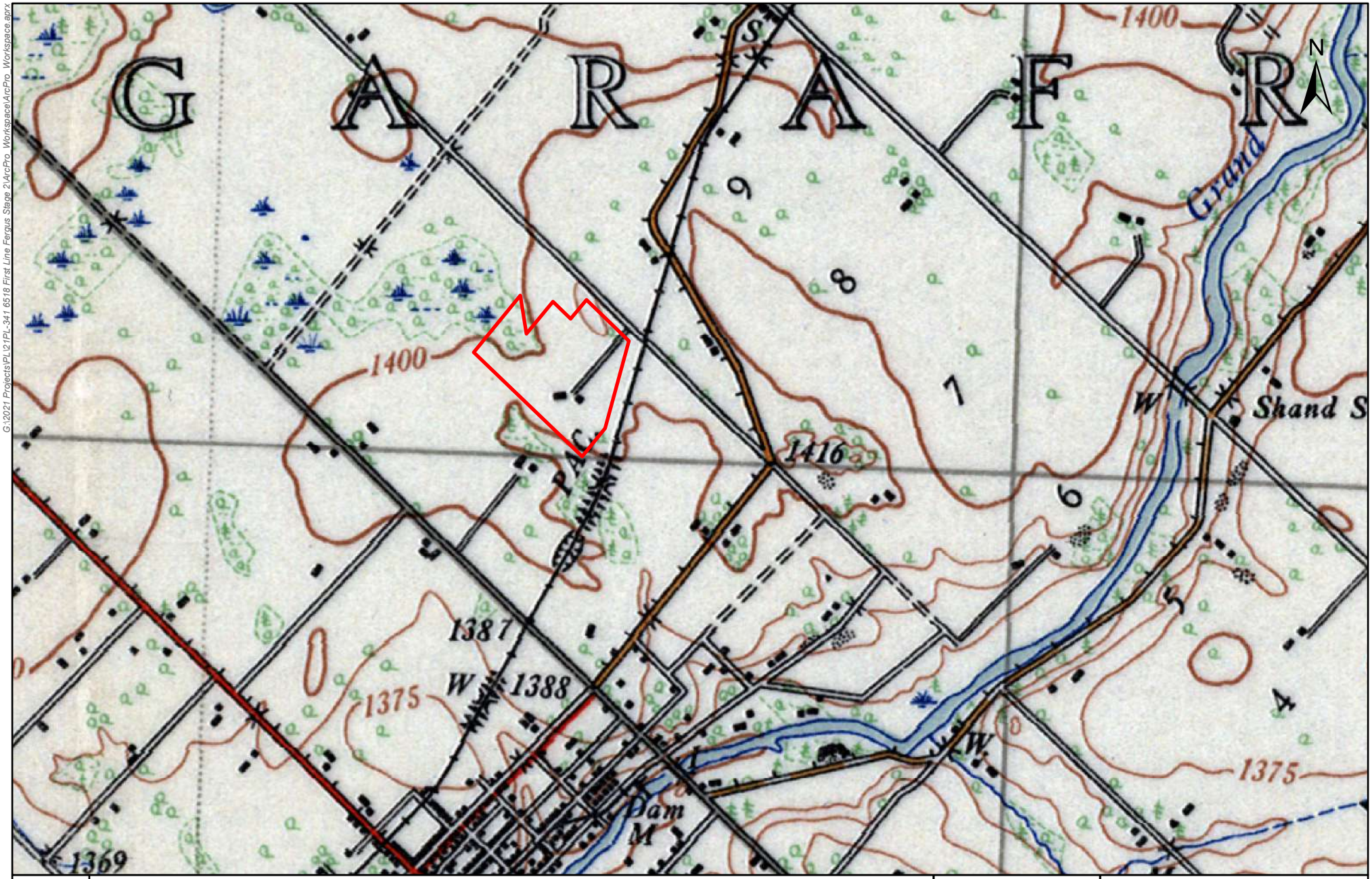


Figure 4: Subject Property located on the 1935 Guelph Topographic Map



Figure 5: Subject Property located on the 1954 Aerial Photo of Southern Ontario

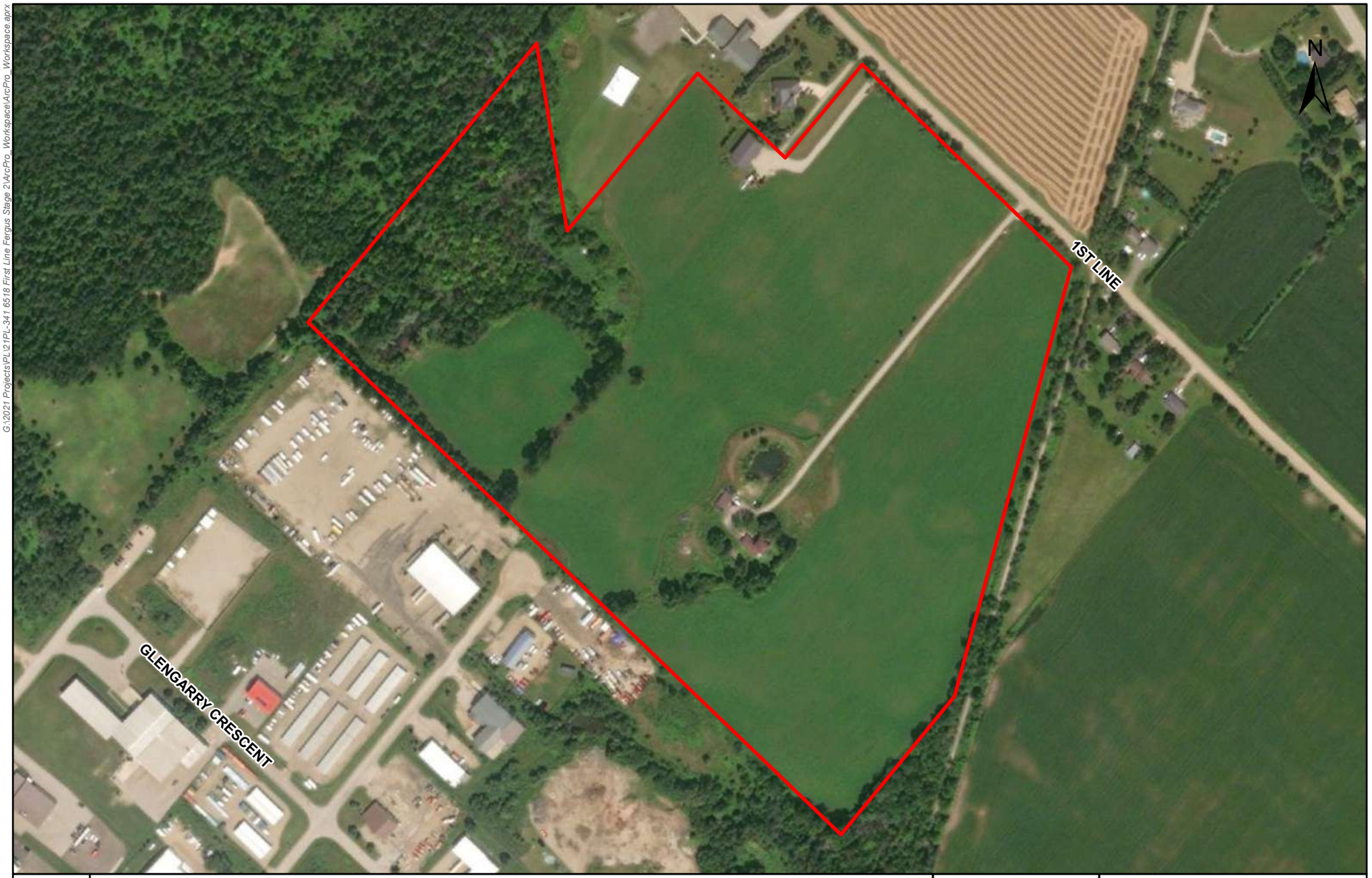


Figure 6: Existing Conditions of Subject Property

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Figure 7: Stage 2 Archaeological Assessment Results

Appendix A

Stage 2 Lithic Catalogue

Stage 2 Lithic Catalogue

Cat#	Qty	Provenience	Stratum	Type	Material	Comments
P1						
1	1	Test Pit 1	Ploughzone	Biface	Onondaga Chert	L:41 mm W:29 mm T:6 mm; complete; refined with retouch on distal and lateral margins for scraper use; retouched at proximal end with possible graver tip
Total : 1 artifact						
P3						
1	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
Total : 1 artifact						
P7						
1	1	Surface	Ploughzone	Flake Fragment	Onondaga Chert	
Total : 1 artifact						
P8						
1	1	Surface	Ploughzone	Flake Fragment	Bois Blanc Chert	
Total : 1 artifact						
P9						
1	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
Total : 1 artifact						
AkHc-20						
P6-1	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
P5-1	1	Surface	Ploughzone	Flake Fragment	Onondaga Chert	
P6-2	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
P5-2	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
P6-3	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
P6-4	1	Surface	Ploughzone	Flake Fragment	Onondaga Chert	ventral lateral retouch
P6-5	1	Surface	Ploughzone	Flake Fragment	Onondaga Chert	
P6-6	1	Surface	Ploughzone	Secondary Retouch Flake	Onondaga Chert	
P6-7	1	Surface	Ploughzone	Flake Fragment	Onondaga Chert	
Total : 9 artifacts						
AkHc-21						
1	1	Surface	Ploughzone	Projectile Point	Onondaga Chert	Otter Creek-like (Middle Archaic Period: 4500 BCE - 3000 BCE); Corner-Notching (W 13 mm); serration; L:47 mm W:24 mm T:6 mm; complete; very fine edge serration; slightly concave retouched base

Cat#	Qty	Provenience	Stratum	Type	Material	Comments
Total : 1 artifact						
AkHc-22						
1	1	Surface	Ploughzone	Projectile Point	Onondaga Chert	Brewerton Corner-Notched-like (Middle Archaic Period: 6000 BCE - 2000 BCE); Corner-Notching (W 20 mm); basal grinding; L:30 mm W:30 mm T:6 mm; base and partial blade fragment; broken basal ears; non-diagnostic
Total : 1 artifact						
Grand Total : 16 artifacts						

Ministry of Citizenship and Multiculturalism (MCM)

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Programs and Services Branch
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Ontario

Sep 30, 2022

Robb Bhardwaj (P449)
ASI Archaeological and Cultural Heritage Services
200-2321 Fairview Burlington ON L7R 2E3

RE: Entry into the Ontario Public Register of Archaeological Reports: Archaeological Assessment Report Entitled, "Stage 2 Archaeological Assessment of 6518 First Line, Part of Lot 9, Concession 1, Geographic Township of Garafraxa, Wellington County, Town of Fergus, Township of Centre Wellington", Dated Sep 26, 2022, Filed with MHSTCI Toronto Office on N/A, MHSTCI Project Information Form Number P449-0623-2022, MHSTCI File Number 0014919

Dear Mr. Bhardwaj:

The above-mentioned report, which has been submitted to this ministry as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, R.S.O. 1990, c 0.18, has been entered into the Ontario Public Register of Archaeological Reports without technical review.[1]

Please note that the ministry makes no representation or warranty as to the completeness, accuracy or quality of reports in the register.

Should you require further information, please do not hesitate to send your inquiry to Archaeology@Ontario.ca

cc. Archaeology Licensing Officer
Mariana Iglesias,Centre Wellington
Lee Wheildon,Township of Centre Wellington
Chantalle Pellizzari,Centre Wellington
Meagan Ferris,Wellington County Planning

1*In no way will the ministry be liable for any harm, damages, costs, expenses, losses, claims or actions that may result: (a) if the Report(s) or its recommendations are discovered to be inaccurate, incomplete, misleading or fraudulent; or (b) from the issuance of this letter. Further measures may need to be taken in the event that additional artifacts or archaeological sites are identified or the Report(s) is otherwise found to be inaccurate, incomplete, misleading or fraudulent.*

Section 8

Geotechnical Study

GEOTECHNICAL INVESTIGATION

DICKSON DRIVE EXTENSION (M6468C)
DICKSON DRIVE
FERGUS, ONTARIO
TOWNSHIP OF CENTRE WELLINGTON

CMT Project 21-279.R01

Prepared for:

Township of Centre Wellington
c/o Triton Engineering Services Limited

October 5, 2021

CMT Engineering Inc.
1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

October 5, 2021 21-279.R01

Township of Centre Wellington
c/o Triton Engineering Services Limited
105 Queen Street West, Unit 14
Fergus, Ontario
N1M 1S6

Attention: Mr. Dustin Lyttle, P.Eng.

Dear Sir:

Re: Geotechnical Investigation
Dickson Drive Extension (M6468C)
Dickson Drive Street
Fergus, Ontario
Township of Centre Wellington

As requested, CMT Engineering Inc. conducted a geotechnical investigation at the above-referenced site, and we are pleased to present the enclosed report.

We trust that this information meets your present requirements and we thank you for allowing us to undertake this project. Should you have any questions, please do not hesitate to contact our office.

Yours truly,

Brandon Figg

Brandon R Figg, C.Tech.
Senior Soil Technician

ks

1cc: Banks Groundwater Engineering Limited - Bill Banks, P.Eng.

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Appendix C - Well Records

1.0 INTRODUCTION

The services of CMT Engineering Inc. (CMT Inc.) were retained by Mr. Dustin Lyttle, P.Eng., of Triton Engineering Services Limited, on behalf of the Township of Centre Wellington, to conduct a geotechnical investigation and install monitoring wells that will be utilized for a hydrogeological investigation (by Banks Groundwater Engineering Limited) for the extension of Dickson Drive in the Township of Centre Wellington, Fergus, Ontario. The location of the site is shown on Drawing 1.

It is understood that the project will comprise the construction of a commercial and industrial subdivision and the extension of Dickson Drive. Municipal utilities will service the proposed development. It is understood that the development of the property will require area grading which will result in cut and fill areas throughout the site. It is understood that there is the potential that some of the proposed infrastructure will be constructed above the current existing ground surface elevation.

The purpose of the geotechnical investigation was to assess the existing soil and groundwater conditions encountered in the boreholes. Included in the assessment are the soil classification and groundwater observations, as well as comments and recommendations regarding geotechnical resistance (bearing capacity); serviceability limit states (anticipated settlement); dewatering considerations; site classification for seismic site response; recommendations for site grading, site servicing, excavations and backfilling; recommendations for slab-on-grade construction; pavement design/drainage; and a summary of the laboratory results.

2.0 EXISTING SITE CONDITIONS

The existing site currently comprises vacant farmland with topsoil and low-lying vegetation at the ground surface. Typically, the land is utilized for agricultural crop production. As well, there is an existing house and detached garage located in the southeast portion of the site. There is an existing pond located north of the house and there is another pond located in the northwest corner of the property. There is also a storage shed located in the north portion of the property and appears that the shed is part of the development at 6528 First Line; however; it does not appear to be on that property. The site generally slopes down toward the northwest. The site is bounded by First Line to the east, industrial development to the west, the Cataract Trail to the south, and bush to the north.

3.0 FIELD AND LABORATORY PROCEDURES

The field investigation was conducted on May 19 and 20, 2021 and comprised the advancement of nine (9) boreholes (referenced as Boreholes 1 to 9), using a Geoprobe 7822DT drillrig operated by employees of CMT Drilling Inc. Boreholes 1 to 3, inclusive, were advanced to depths of approximately 6.10 m (20.0 ft), Borehole 4 was advanced to a depth of approximately 9.14 m (30.0 ft), Borehole 5 was advanced to a depth of approximately 7.62 m (25.0 ft), and Boreholes 6 to 9, inclusive, were advanced to depths of approximately 5.18 m (17.0 m).

Standard penetration testing (SPT) and sampling was carried out in Boreholes 6 to 9, inclusive, using 38 mm inside diameter split spoon sampling equipment and an automatic hammer, in accordance with ASTM D 1586 "Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils". SPT soil sampling was generally conducted at 0.76 m (2.5 ft) intervals to approximately 3.05 m (10.0 ft) and about every 1.52 m (5.0 ft) thereafter to borehole termination in the majority of the boreholes. Macro Core (MC5) soil sampling was generally conducted continuously to borehole termination in Boreholes 1 to 5, inclusive, and between the SPT soil samples conducted below approximately 3.05 m (10.0 ft) depth in Boreholes 6 to 9, inclusive. Technical staff from CMT Inc. observed the drilling operation and collected and logged the recovered soil samples. A small portion of each sample was placed in a sealed, marked jar for moisture content determinations. Representative samples from the boreholes at the following depths were submitted to the CMT Inc. laboratory in St. Clements, Ontario for grain size analyses:

- Borehole 1 - depth 3.05 m to 4.57 m (10.0 ft to 15.0 ft)
- Borehole 2 - depth 4.57 m to 6.10 m (15.0 ft to 20.0 ft)
- Borehole 3 - depth 4.57 m to 6.10 m (15.0 ft to 20.0 ft)
- Borehole 4 - depth 0.28 m to 1.52 m (0.91 ft to 5.0 ft)
- Borehole 5 - depth 6.10 m to 7.36 m (20.0 ft to 24.1 ft)

The borehole logs are provided in Appendix A and the grain size analyses are provided in Appendix B.

The ground surface elevation at the borehole locations were surveyed by Triton Engineering Services Limited staff and reported to CMT Inc. on September 23, 2021. As such, the ground surface elevations at the borehole locations ranged from approximately 426.83 m to 433.05 m. The locations of the boreholes are shown on Drawing 2.

4.0 SUBSOIL CONDITIONS

The soils encountered in the boreholes are described briefly below and a more detailed stratigraphic description is provided on the borehole logs in Appendix A. The following paragraphs have been simplified into terms of major soil strata. The soil boundaries indicated have been inferred from non-continuous samples and observations of sampling and drilling resistance and typically represent transitions from one soil type to another rather than exact planes of geological change. Further, the subsurface conditions are anticipated to vary between and beyond the borehole locations.

4.1. Topsoil

Loose, moist, dark brown, silty organic topsoil was encountered at the ground surface in all boreholes, with buried topsoil being encountered below the fill in Boreholes 1 and 3. The thickness of the topsoil layer ranged from approximately 50 mm to 525 mm. It should be expected that topsoil thicknesses may vary outside of the location of the boreholes. Materials noted as topsoil in this report were classified based on visual and textural evidence. Testing of organic content or for other nutrients was not carried out.

4.2. Sand Fill

Dark brown, sand fill was encountered underlying the existing topsoil in Boreholes 1 and 3. The fill was considered to be moist, with moisture contents ranging between approximately 7.0% and 11.1% (average 9.1%).

4.3. Sand

Dark brown to brown sand, with trace silt and clay was encountered underlying the topsoil/buried topsoil in Boreholes 1 to 3, inclusive, Borehole 5, and underlying the sandy silt in Boreholes 8 and 9. The sand was considered to be loose to compact, with SPT N-values ranging from 9 to 23 blows per 0.3 m (average 16 blows per 0.3 m). The sand was considered to be moist to saturated, with moisture contents ranging from about 3.0% to 21.3% (average 12.2%).

4.4. Silt

Brown, silt, with trace clay, sand and gravel was encountered underlying the sand in Borehole 1, within the sand in Borehole 3, and underlying the sandy silt in Borehole 7. The silt was considered to be compact, with SPT N-values ranging from 16 to 18 blows per 0.3 m (average 17 blows per 0.3 m). The silt was considered to be moist to saturated, with moisture contents ranging from about 6.6% to 21.3% (average 14.0%).

4.5. Sandy Silt

Dark brown to brown, sandy silt, with some clay, trace gravel was encountered underlying the topsoil at Boreholes 6 to 9, inclusive. The sandy silt was considered to be very loose to compact, with SPT N-values ranging from 2 to 12 blows per 0.3 m (average 7 blows per 0.3 m). The sandy silt was considered to be moist, with moisture contents ranging from about 9.7% to 20.7% (average 15.2%).

4.6. Sand and Silt

Grey, sand and silt, with some clay, trace gravel was encountered within the sandy silt till in Borehole 5. The sand and silt was considered to be compact. The sand and silt was considered to be saturated, with a moisture content of approximately 16.9%.

4.7. Sandy Silt Till

Grey, sandy silt till, with some clay, trace gravel was encountered underlying the silt in Boreholes 3 and 7, underlying the topsoil at Borehole 4, underlying the sand/sand and silt in Borehole 5, and underlying the sandy silt in Borehole 6. The sandy silt till was considered to be dense to very dense, with SPT N-values ranging from 31 to greater than 100 blows per 0.3 m (average 66 blows per 0.3 m). The sandy silt was considered to be moist, with moisture contents ranging from about 7.1% to 9.1% (average 8.1%).

4.8. Groundwater

Wet to saturated soil conditions were encountered in the boreholes, excluding Borehole 6. It should be noted that the compact to very dense, fine-grained soils observed in the boreholes have the potential to create perched water conditions. These perched conditions would be expected to occur near the interface of the looser upper soils and the compact to very dense lower soils. Groundwater conditions (particularly perched water) are generally dependent on the amount of precipitation, control of surface water, as well as the time of year, and can fluctuate significantly in elevation and volume. The groundwater levels and wet to saturated soil conditions encountered in the boreholes could make excavations difficult and it should be expected that caving or sloughing of the excavation walls will occur when excavating into wet to saturated zones.

38 mm (1.5 inch) diameter monitoring wells were installed in Boreholes 1 to 5, inclusive, to measure the static groundwater level. The water levels in Boreholes 1 to 5, inclusive, were measured by Banks Groundwater Engineering Limited staff on July 28, 2021 and reported to CMT Inc. on July 28, 2021. The groundwater was measured to be approximately 3.26 m below ground surface at Borehole 1, approximately 1.77 m below ground surface at Borehole 2, approximately 3.61 m below ground surface at Borehole 3, approximately 2.11 m below the ground surface at Borehole 4, and approximately 2.54 m below the ground surface at Borehole 5.

The recorded groundwater elevations in the monitoring wells installed in Boreholes 1 to 5, inclusive, and the approximate zone of wet to saturated soils observed in all of the boreholes, as well as the ground surface and bottom of borehole elevations, are provided in the following table:

Borehole No.	Ground Surface Elevation (m)	Approximate Elevation of Water in the Monitoring Well (m) July 28, 2021 (Depth to Water)	Estimated Zone of Wet to Saturated Soil at the Time of Investigation Elevation (m)	Approximate Depth Below Ground Surface of Estimated Zone of Wet to Saturated Soil at the Time of Investigation (m)	Bottom of Borehole Elevation (m)
BH 1	426.83	423.57 (3.26)	425.05 to 420.73 (termination)	1.78 to 6.10 (termination)	420.73
BH 2	427.58	425.81 (1.77)	426.61 to 421.48 (termination)	0.97 to 6.10 (termination)	421.48
BH 3	430.23	426.62 (3.61)	427.69 to 424.13 (termination)	2.54 to 6.10 (termination)	424.13
BH 4	430.13	428.02 (2.11)	422.51 to 420.99 (termination)	7.62 to 9.14 (termination)	420.99
BH 5	428.15	425.61 (2.54)	422.05 to 420.53 (termination)	6.10 to 7.62 (termination)	420.53
BH 6	433.05	--	--	--	427.87
BH 7	428.29	--	426.79 to 426.00	1.50 to 2.29	423.11
BH 8	431.16	--	426.59 to 425.98 (termination)	4.57 to 5.18 (termination)	425.98
BH 9	429.92	--	425.83 to 424.74 (termination)	4.09 to 5.18 (termination)	424.74

Recommendations with respect to dewatering conditions are provided in Section 5.8 of this report.

The monitoring wells installed in the boreholes must be decommissioned by a licensed well driller when they are no longer required for monitoring the static water level or for sampling. CMT Drilling Inc. can provide decommissioning services when required.

5.0 DISCUSSION AND RECOMMENDATIONS

It is understood that the project will comprise the construction of a commercial and industrial subdivision and the extension of Dickson Drive, as well as associated streets and utilities. Utilizing the information gathered during the geotechnical investigation and assuming that the borehole information is representative of the subsoil conditions throughout the site, the following comments and recommendations are provided.

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

5.1. Serviceability and Ultimate Limit Pressure

Based on the information obtained in Boreholes 6, 7, 8 and 9, the following table provides the estimated geotechnical reaction at the Serviceability Limit State (SLS) and the estimated factored geotechnical resistance at the Ultimate Limit State (ULS) at the various elevations, including soil type:

Borehole No.	Ground Surface Elevation (m)	SLS kPa (psf)	ULS kPa (psf)	Estimated Highest Founding Elevation (m)	Depth to Highest Founding Elevation (m)	Soil Type
BH 6	433.05	150 (3,000) 250 (5,000)	225 (4,500) 400 (8,000)	432.29 to 430.76 430.76 to 427.87 (termination)	0.76 2.29	Sandy Silt Sandy Silt Till
BH 7	428.29	150 (3,000) 250 (5,000)	225 (4.500) 400 (8,000)	427.53 to 426.00 426.00 to 423.11 (termination)	0.76 2.29	Silt Sandy Silt Till
BH 8	431.16	150 (3,000)	225 (4,500)	429.64 to 425.98 (termination)	1.52	Sandy Silt/Sand
BH 9	429.92	150 (3,000)	225 (4,500)	428.40 to 424.74 (termination)	1.52	Sand

The proposed founding elevations and required bearing capacities were not available at the time of report preparation. Based on the data provided in the table above, suitable founding elevations for any proposed buildings with conventional foundations designed with a minimum bearing capacity of 150 kPa (3,000 psf) at SLS range from depths of about 0.76 m to 1.52 m below the existing ground surface, while soils suitable of supporting conventional foundations designed with a bearing capacity of 250 kPa (5,000 psf) at SLS were typically encountered at approximately 2.29 m below the existing ground surface in Boreholes 6 and 7.

Due to the varying depth of the wet to saturated soils, as well as the anticipated area grading of the site, the founding soils must be assessed at the time of construction by qualified geotechnical personnel in order to confirm their founding suitability, and to determine whether or not drainage layers, mud mats and/or widened footings may be required.

Should footings be designed to be constructed at elevations higher than the elevations indicated in the table above, then structural fill will be required in order to achieve the design grades for the proposed foundations. It is expected that some areas of the site may have a significant amount of structural fill placed to achieve the design grades. The serviceability limit pressure for good quality granular structural fill placed and compacted in accordance with Section 5.4.3 of this report is estimated to be at least 150 kPa (3,000 psf) at SLS and 225 kPa (4,500 psf) at ULS. It is imperative that the founding soils be assessed at the time of construction by qualified geotechnical personnel in order to confirm their suitability.

It is recommended that structural foundation drawings be cross-referenced with site servicing drawings to ensure that service pipes do not conflict with building foundations (including the zone of influence down and away from the footings).

With respect to the Serviceability Limit State (SLS), the total and differential footing settlements are not expected to exceed the generally acceptable limits of 25 mm (1") and 19 mm (3/4") respectively, assuming a minimum foundation width of 0.6 m (2.0 ft).

All exterior foundations must be provided with a minimum of 1.4 m of soil cover or equivalent thermal insulation (sufficient thermal insulation is required to protect all footings and slab-on-grades during construction until such a time that the structure is heated) in order to provide protection against frost action.

CMT Inc. would be pleased to review design drawings when they become available and provide further recommendations with respect to bearing and foundation elevations.

5.2. Seismic Site Classification

The site classification for seismic response in Table 4.1.8.4 of the 2012 Ontario Building Code relates to the average properties of the upper 30.0 m of strata. The information obtained in the geotechnical field investigation was gathered from the upper 5.18 m to 9.14 m of strata. Based on the information gathered in the geotechnical field investigation, the site classification for seismic site response would be considered Site Class D (stiff soils) for structures founded on the soils at the recommended founding elevations provided in Section 5.1 of this report. For structures founded on structural fill placed in accordance with Section 5.4.3 of this report, a Site Class D (stiff soils) would be appropriate. The structural engineer responsible for the design of the structure should review the earthquake loads and effects.

5.3. Soil Design Parameters

The following table provides estimated soil design parameters for imported granular fill, as well as the existing native soils encountered on-site. It should be noted that earth pressure coefficients (Ka, Kp, Ko) provided are for flat ground surface conditions and will differ for areas with slopes or embankments. The estimated soil design parameters can be utilized for the design of perimeter shoring, foundations and retaining walls, as required:

Soil Type	Soil Density (kg/m^3)	Friction Angle (Degree)	Coefficient of Active Pressure (K_a)	Coefficient of Passive Pressure (K_p)	Coefficient of At-Rest Pressure (K_o)	Coefficient of Friction (μ)	Cohesion (Undrained) (kPa)
Imported Granular 'A'/ Granular 'B' (OPSS 1010)	2,100	34	0.28	3.54	0.44	0.45	0
Existing Fill	1,800	28	0.36	2.77	0.53	0.35	0
Sand	1,850	33	0.29	3.39	0.46	0.43	0
Silt	1,700	30	0.33	3.00	0.50	0.38	0
Sandy Silt	1,800	32	0.31	3.25	0.47	0.41	0
Sand and Silt	1,800	32	0.31	3.25	0.47	0.41	0
Sandy Silt Till	1,800	32	0.31	3.25	0.47	0.38	0

5.4. Site Preparation

The site preparation for the extension of Dickson Drive and the proposed new commercial/industrial subdivision is anticipated to comprise the stripping of topsoil, removal/relocation of any existing services, and then site grading to achieve the design grades.

5.4.1. Topsoil Stripping/Vegetation Removal

All topsoil and vegetation (including tree root structures as well as any loose soils that are typically associated with root structures) must be stripped prior to the site grading. The topsoil may be used in landscaped areas where some settlement can be tolerated; otherwise it should be properly disposed of off-site.

The volume of topsoil removed during the stripping process can be influenced by the equipment utilized for the stripping process as well as the moisture conditions at the time of stripping.

5.4.2. Removal/Relocation of Existing Services

Any existing servicing that may be located within the proposed building envelopes must be removed/relocated. This includes any existing field tiles that are present. Any piping that is left in place that is no longer active must be completely sealed with watertight mechanical covers, concrete or grout at termination points to prevent the migration of soils into pipe voids, which may result in potential settlement. All existing trench backfill material associated with any existing buried pipes must be subexcavated and the subsequent excavation must be backfilled with approved soils placed in accordance with Section 5.4.3 of this report.

Any monitoring wells that have been installed on the property to determine static water levels on-site should be decommissioned by a Ministry of the Environment, Conservation and Parks (MECP) licensed well contractor with a Class 1, Class 2 or Class 3 license in accordance with Reg. 903.

5.4.3. Site Grading/Structural Fill

Currently, there are no design site grades available. Following the removal of any unsuitable soils, the exposed subgrade must be proof-rolled, and any soft or unstable areas must be subexcavated and replaced with approved fill materials.

Any fill materials required to achieve the design site grades should be placed according to the following procedures:

- Should the native subgrade soils at the design founding elevation within proposed building envelope(s) comprise wet to saturated soils, as was observed in some of the boreholes, then a granular drainage layer, constructed in accordance with Section 9.14.4 of the current Ontario Building Code (OBC) may be required. Alternatively, a lean mix concrete mud mat may be placed overlying the subgrade soils to provide a stable base;

- Prior to placement of any structural fill or bulk fill, the subgrade must be prepared large enough to accommodate a 1:1 slope commencing a distance of 1.0 m beyond the outside edge of the proposed foundations down to the approved competent founding soils;

- Soils approved for use as structural fill must be placed in loose lifts not exceeding 0.3 m (12") in depth for granular soils (recommended fill material) and 0.2 m (8") in depth for silts and clays (not recommended for this application), or the capacity of the compactor (whichever is less);

- Approved imported granular fill materials (OPSS 1010 Type III Granular 'B' recommended for this application) can be compacted utilizing adequate heavy vibratory smooth drum or padfoot compaction equipment;

- Fine-grained silt and clay soils (not recommended) must be compacted utilizing adequate heavy padfoot vibratory compaction equipment;

- Approved fill materials must be at suitable moisture contents (at or near to the optimum moisture content as determined by laboratory Proctor testing) to achieve the specified compaction. Soil moisture will also be dependent on weather conditions at the time of construction. Granular soils may require the addition of water in order to achieve the specified compaction;

- Approved structural fill materials that will support structures (including industrial building foundations, interior slab-on-grades, sidewalks, large expansive exterior slabs and decks) must be compacted to a minimum of 100% standard Proctor maximum dry density (SPMDD). The native silt soils are generally not recommended for use as structural fill as they can be subject to excess void space and potential settlement if not properly placed and compacted;

- Approved bulk fill (foundation wall backfill, bulk fill under slab-on-grades that will not support footings or heavy point loading, bulk fill for driveways and parking lots) must be compacted to a minimum 95% SPMDD. It would be expected that the existing on-site soils, free of any deleterious materials, would be suitable for use as bulk fill; however, depending on the time of year and weather conditions when construction takes place, soils may require air-drying in order to achieve the specified density;

- Granular 'B' subbase and Granular 'A' base materials for the proposed new streets, driveways, and any paved areas must be compacted to 100% SPMDD.

Some of the existing wet to saturated native soils will require significant air-drying along with working of the soils in order to achieve the specified compaction of 100% SPMDD in building envelopes (including 1:1 as required) and 95% SPMDD for bulk fill for the driveways and parking areas. Utilizing the existing soils during site grading may be more achievable if work is completed during the generally drier summer months. Reuse of excavated soils on-site will be subject to approval from qualified geotechnical personnel.

Due to the fine-grained nature of the native soils encountered throughout the boreholes, they can be easily disturbed and subject to strength losses, making travel on this material somewhat difficult with conventional rubber-tired construction equipment such as dump trucks and even smooth drum vibratory compactors. Conditions should be expected to worsen, if the subgrade soils are in a wet to saturated condition. Therefore, it is recommended that construction traffic be minimized, where possible, from driving on the subgrade soils. Depending on the time of year, it may be required to construct a haul road utilizing a granular base.

5.5. Foundation Subgrade Preparation

The fine-grained soils encountered throughout the boreholes can be sensitive to changes in moisture content and can become loose/soft if the soils are subjected to additional water or precipitation, as well as severe drying conditions. The soils could also be easily disturbed if traveled on during construction. Once they become disturbed, they are no longer considered adequate for the support of foundations.

To ensure and protect the integrity of the founding soils during construction operations, the following is recommended:

- During construction, the subgrade soils should be sloped/ditched to a sump (as required) located outside the footprint of any foundations (if feasible) in the excavation to promote surface drainage of rainwater or seepage and the collected water should be pumped out of the excavation. It is critical that all water be

controlled (not allowed to pond) and that the subgrade and foundation preparation commence in dry conditions;

- There is the potential that some of the subgrade soils at the design founding elevation in the proposed building envelopes comprise wet soils, in which case a granular drainage layer, constructed in accordance with Section 9.14.4 of the current Ontario Building Code (OBC), may be required. Alternatively, a lean mix concrete mud mat may be poured over top of the subgrade soils to provide a stable base;

- Construction equipment travel and foot traffic on the founding soils should be minimized;

- If construction is to be undertaken during subzero weather conditions, the founding native soils and fill materials must be maintained above freezing;

- Prior to placing concrete for the footings, the founding soils must be cleaned of all disturbed, caved, soft or wet materials;

- The foundation formwork and concrete should be installed as soon as practical following the excavation, inspection and approval of the founding soils. The longer that the excavated soils remain open to weather conditions and groundwater seepage, the greater the potential for construction problems to occur;

- If it is expected that the founding soils will be left open to exposure for an extended period of time, it is recommended that a 75 mm concrete mud slab be poured in order to protect the structural integrity of the founding soils.

Due to the amount of cut and fill activities which are anticipated to be undertaken at this site, all foundation excavations must be reviewed to confirm the suitability of the founding soils prior to foundation placement.

5.6. Slab-on-Grade/Modulus of Subgrade Reaction

Prior to the placement of the granular base for the slab-on-grade construction, the subgrade soils should be proof-rolled. Any soft or weak zones, as well as any unsuitable fill in the subgrade, should be subexcavated and backfilled with approved fill materials (see Sections 5.4.3 and 5.10 of this report).

The following table provides the modulus of subgrade reaction (k) for imported granular fill, as well as the native soils encountered on-site:

Soil Type	Modulus of Subgrade Reaction (k)
Imported Granular 'A'/Granular 'B' (OPSS 1010)	81,000 kN/m^3 (300 lb/in^3)
Sand	48,000 kN/m^3 (175 lb/in^3)
Silt/Sandy Silt	41,000 kN/m^3 (150 lb/in^3)
Sand and Silt	34,000 kN/m^3 (125 lb/in^3)
Sandy Silt Till	54,000 kN/m^3 (200 lb/in^3)

In dry conditions, the slab-on-grade can be founded on a minimum thickness of 150 mm (6") of an OPSS 1010 granular material containing less than 10% fines and compacted to 100% SPMDD. Alternatively, (particularly in wet conditions), 150 mm (6") of 19 mm clear crushed stone (OPSS 1004) could be used instead of Granular 'A'. Utilizing clear crushed stone for the slab-on-grade base can assist in providing a moisture barrier by reducing the potential for capillary rise of moisture from the subgrade soils. Compactive effort is required to consolidate the clear stone. The 19 mm clear crushed stone should meet the physical property and gradation requirements of OPSS 1004.

It is recommended that areas of extensive exterior slab-on-grade be constructed with a Granular 'B' subbase (450 mm) and a Granular 'A' base (150 mm), as well as incorporating subdrains, to promote rapid drainage and reduce the effects of frost heaving. This is particularly critical at barrier-free access points and at the location of out-swinging doors. Alternatively, structural frost slabs could be designed and constructed, or sufficient thermal insulation could be provided, at all door entrances and areas of barrier-free access.

5.7. Excavations

All excavations must be carried out in accordance with Ontario Regulation 213/91 (Reg 213/91) of the Occupational Health and Safety Act and Regulations for Construction Projects.

Type 2 Soils - In general, the native sandy silt till soils encountered in the boreholes, in a drained state (not saturated), would be classified as Type 2 soils under Reg 213/91. Type 2 soils must be sloped from within 1.2 m of the bottom of the excavation at a minimum gradient of 1 horizontal to 1 vertical. Soils underlain by Type 3 or Type 4 soils that are exposed in the excavation must be treated accordingly as Type 3 or Type 4 soils (see below). Soils in a saturated condition (if encountered) must be treated as Type 4 soils, addressed below.

Type 3 Soils - In general, the fill soils as well as the native sand, silt, sandy silt and sand and silt soils encountered in the boreholes, in a drained state (not wet or saturated), would be classified as Type 3 soils under Reg 213/91. The Type 3 soils must be sloped from the bottom of the excavation at a minimum gradient of 1 horizontal to 1 vertical. All saturated soils encountered must be treated as Type 4 soils, as described below.

Type 4 Soils - In general, any wet to saturated soils would be classified as Type 4 soils under Reg 213/91. Type 4 soils must be sloped from the bottom of the excavation at a minimum gradient of 3 horizontal to 1 vertical.

If it is not practical to excavate according to the above requirements, then a trench support system (designed in accordance with the Ontario Health and Safety Act Regulations) may be utilized. When using a temporary trench support system consisting of trench boxes to reduce the lateral extent of the excavations, it should be noted that the support system is intended primarily to protect workers as opposed to controlling lateral soil movement. Any voids between the excavation walls and the support system should be immediately filled to reduce the potential for loss of ground and to provide support to existing adjacent utilities and structures, and it is recommended that the excavation be carried out in short sections, with the support system installed immediately upon excavation completion. It should be noted that the native soils were observed to be dense to very dense in places and may be slow and/or difficult to excavate by conventional means.

5.8. Construction Dewatering Considerations

Water levels in the monitoring wells installed in Boreholes 1 to 5, inclusive were measured by Banks Groundwater Engineering Limited staff and reported to CMT Inc. on July 28, 2021 (see Section 4.8 of this report). It should be noted that groundwater levels (particularly perched water) are generally dependent on the amount of precipitation, control of surface water, as well as the time of year, and can fluctuate significantly in elevation and volume. As such, provisions for site dewatering should be part of the site development and construction process.

Seepage control requirements during construction will depend upon the area of work on the site, the depth of the excavations, the time of year, the amount of precipitation and the control of surface water. As required, seepage should generally be adequately controlled using conventional construction dewatering techniques such as pumping from sump pits. However, if heavy seepage occurs, it may be necessary to increase the number of pumps during construction.

Dewatering should be performed in accordance with OPSS 517 and the control of water must be in accordance with OPSS 518. It is the responsibility of the contractor to propose a suitable dewatering system based on the groundwater elevation at the time of construction. Collected water should discharge a sufficient distance away from the excavation to prevent re-entry. Sediment control measures must be installed at the

discharge point of the dewatering system to avoid any potential adverse impacts on the environment.

5.9. Service Pipe Bedding

The existing native soils that are free of any organics or deleterious materials are generally considered suitable for indirect support of the site service pipes; however, wet to saturated soils maybe encountered. Should instability due to saturated soil conditions be encountered, it may be necessary to increase the thickness of the granular base and utilize 19 mm clear stone to create an adequate supporting base for the service pipes and/or manholes. Pipe embedment, cover and backfill for both flexible and rigid pipes should be in accordance with all current and applicable OPSD, OPSS and OBC standards and guidelines and as follows.

Flexible Pipes – The pipe bedding should be shaped to receive the bottom of the pipe. If necessary, pipe culvert frost treatment should be undertaken in accordance with OPSD-803.030 and 803.031. The trench excavations should be symmetrical with respect to the centre-line of the pipe. The granular material placed under the haunches of the pipe must be compacted to 95% SPMDD prior to the continued placement and compaction of the embedment material. The homogeneous granular material used for embedment should be placed and compacted uniformly around the pipe. Should wet conditions be encountered at the base of the trench, then the pipe bedding should consist of 19 mm clear stone (meeting OPS Specifications) wrapped completely in a geotextile fabric such as Terrafix 270 or equivalent.

Rigid Pipes - In general, the pipe installation recommendations for rigid pipes are the same as those for flexible pipes, except that the minimum bedding depth below a rigid pipe should be 0.15*D* (where *D* is the pipe diameter). In no case should this dimension be less than 150 mm or greater than 300 mm.

Any service pipes that are not provided with sufficient frost coverage must be protected with the necessary equivalent thermal insulation. The general contractor is responsible to protect existing and new service piping from damage by heavy equipment.

5.10. Perimeter Building Drainage, Foundation Wall Backfill and Trench Backfill

In order to assist in maintaining dry buildings with respect to surface water seepage, it is recommended that exterior grades around the buildings be sloped down and away at a 2% gradient or more, for a distance of at least 1.5 m. Any surface discharge rainwater leaders must be constructed with solid piping that discharges with positive drainage at least 1.5 m away from the building foundations and/or beyond external slab-on-grades to a drainage swale or appropriate storm drainage system.

Depending on the design founding elevations and groundwater levels at the time of construction, it may be necessary to install a granular drainage layer to provide a suitable base for the foundations. The granular drainage layer must conform to the general requirements listed in Section 9.14.4 of the OBC 2012.

Should any of the proposed structures have a basement, an exterior perimeter drainage tile system comprising perforated drainage pipe with a factory installed filter sock, bedded in 19 mm clear crushed stone and wrapped in a geotextile filter fabric such as Terrafix 270R (or equivalent), is recommended to improve drainage around the buildings. The drainage tile should be installed at the founding elevation and be constructed with positive drainage into a sump pit or other suitable outlet that provides positive drainage away from the structure. The portion of the piping that connects any exterior drainage tile system into an interior sump pit must comprise solid piping to prevent exterior water from being introduced into the interior subslab stone. It may be prudent to install perforated drainage pipe in the interior area as well to provide an outlet for any water that may collect in the subslab stone. It is also recommended that a capped cleanout port(s) be extended up to the ground surface elevation to provide future access (if required). Rainwater leaders must not be connected to the perimeter weeping tile system. Any foundation walls that are constructed below the water table must be waterproofed, not dampproofed. A waterproofing system should be installed in accordance with the OBC (2012). It is recommended that a waterproofing specialist be consulted for a waterproofing system to suit the site conditions.

In order to reduce the effects of surficial frost heave in areas that will be hard surfaced, it is recommended that the exterior foundation backfill consist of free-draining granular material such as imported sand or Granular 'B' Type I or Type III (OPSS 1010), with a maximum aggregate size not exceeding 100 mm, and that it extend a minimum lateral distance of 600 mm out from the foundation walls and/or beyond perimeter sidewalks and entranceway slabs. It is critical that particles greater than 100 mm in diameter are not in contact with the foundation wall to prevent point loading and overstressing. The backfill material used against the foundation walls must be placed so that the allowable lateral capacities of the foundation walls are not exceeded. Where only one side of a foundation wall will be backfilled, and the height of the wall is such that lateral support is required, or where the concrete strength has not been achieved, the wall must be braced or laterally supported prior to backfilling. In situations where both sides of the wall are backfilled, the backfill should be placed in equal lifts, not exceeding 200 mm differential on each side during backfill operations and the backfill should be compacted to a minimum of 98% SPMDD.

It is recommended that frost tapers be constructed (refer to OPSD 3101.150 for typical details) in order to minimize differential frost action between the foundation wall backfill and any paved areas. The frost taper must be constructed utilizing the OPSS 1010 granular material that is used for the foundation wall backfill.

The native mineral soils, free of any organics or deleterious materials, are generally considered suitable for reuse as trench backfill and bulk fill; however, wet soils encountered may require air-drying in order to achieve the specified compaction. Air-drying cannot typically be achieved during winter construction; therefore, depending on the time of year that construction takes place, it may be more feasible to utilize an imported granular fill for this project (keeping in mind that frost tapers, as noted above, would be recommended to minimize differential frost heave).

Backfilling operations should be carried out with the following minimum requirements:

- Adequate heavy smooth drum or padfoot vibratory compaction equipment should be used (depending on the soil type) for the compaction and to break down any large blocky pieces of soil;

- Loose lift thicknesses should not exceed 0.3 m (12") for granular soils or 0.2 m (8") for silt soils or the capacity of the compactor (whichever is less);

- The soils must be at suitable moisture contents to achieve compaction to a minimum 95% SPMDD in non-structural bulk fill areas. Service trenches excavated within the zone of influence of footings for structures must be compacted to a minimum of 100% SPMDD;

- It is recommended that inspection and testing be carried out during construction to confirm backfill quality, thickness and to ensure that compaction requirements are achieved;

- Service trench backfill materials may consist of approved excavated soils with no particles greater than 100 mm and no topsoil or other deleterious materials;

- If construction operations are undertaken in the winter, strict consideration should be given to the condition of the backfill material to make certain that frozen material is not used.

5.11. Pavement Design/Drainage

Any soils containing organics or other deleterious material must be subexcavated from within the proposed sidewalks, roadways, driveways and parking areas. It is recommended to either subexcavate any existing loose subgrade materials or provide further consolidation with vibratory compaction equipment in order to prepare a proper, stable subgrade. Prior to placement of the granular base, the subgrade must be proof-rolled, and any soft or unstable areas should be subexcavated and replaced with suitable drier materials. The subgrade should be graded smooth (free of depressions) and properly crowned to ensure positive drainage, with a minimum grade of 3% toward the drainage outlet or curb line. When service pipes are installed, pipe bedding and backfilling should be undertaken as indicated in Sections 5.9 and 5.10 of this report.

Rapid drainage of the pavement structure is critical to ensure long-term performance. As such, it is recommended to install subdrains for this project (provided gravity drainage to a suitable outlet can be provided). Subdrains should be designed and installed in accordance with OPSS 405 and OPSD 216.021. If Granular 'A' bedding (OPSS 1010) is utilized, the subdrains should be equipped with a factory installed filter sock. If 19 mm clear stone (OPSS 1004) is utilized as bedding for the subdrain (recommended for this application), then the bedding must be wrapped completely with geotextile filter fabric such as Terrafix 270R (or equivalent). Installation of rigid subdrains allows for better grade control and less potential for damage during installation or service. Positive drainage through grade control of subdrains is critical, as improperly installed subdrains can turn drainage systems into reservoirs, which can fuel frost action. The subdrains will hasten the removal of water, thereby reducing the risk and effects of frost heaving and load transfer in saturated conditions. It is suggested that subdrains be installed at regular intervals (to be designed based on layout of catch basins and storm sewers) through paved driveways and parking areas. It is also recommended to install subdrains through any areas that cannot tolerate differential frost heave such as accessibility ramps/sidewalks. The subdrains should be installed in a 0.3 m (1.0 ft) by 0.3 m (1.0 ft) trench in the subgrade and bedded approximately 50 mm (2") above the bottom of the trench. The subgrade must be prepared with positive drainage to the subdrains and the subdrains must be installed with positive drainage into a catch basin structure or other suitable outlet.

The native subgrade soils are highly sensitive to change in moisture content and can become loose or soft if the soils are subject to inclement weather and seepage or severe drying. Furthermore, the subgrade soils could be easily disturbed if traveled on during construction. As such, where this material will be exposed, it is recommended that the granular subbase be placed immediately upon completion of the subgrade preparation to protect the integrity of the subgrade soils.

Should wet to saturated conditions be encountered during construction, site assessments may be required to determine what options can be undertaken to construct a modified pavement base. These options may include subexcavation of loose/soft soils, increasing the thickness of the granular base, the use of reinforcing geotextiles or geogrids, or a combination of all.

Given that the development is to be a commercial/industrial subdivision, it is anticipated that the roadways and driveways will experience some light traffic (personal vehicles) and significant heavy traffic (trucks, maintenance and emergency vehicles).

Based on the anticipated vehicle loading and frost-susceptibility of the subgrade soils, the following pavement design is provided:

Material	**Recommended Thickness For New Pavement**
Asphaltic Concrete	HL3 - 50 mm (2.0") HL4 or HL8 - 63 mm (2.5")
Granular 'A' Base (OPSS 1010)	150 mm (6.0")
Granular 'B' Subbase (OPSS 1010)	450 mm (18.0")

Construction joints in the surface and intermediate binder asphalt must be offset a minimum of 150 mm to 300 mm (6" to 12") from construction joints in the binder asphalt so that longitudinal joints do not coincide.

Should any new asphalt be joined into existing asphalt, it is recommended that the existing asphalt be sawcut in a straight line prior to being milled to a depth of 40 mm and a width of 150 mm as per OPSD 509.010. It is recommended that a tackcoat in conformance with OPSS 308 be applied to the edge and surface of all milled asphalt prior to placement of new asphalt.

The granular base and subbase materials must conform to the physical property and gradation requirements of OPSS 1010 and must be compacted to 100% SPMDD. Asphaltic concrete should be supplied, placed and compacted to a minimum 92.0% Marshall maximum relative density, in accordance with OPSS 1150 and OPSS 310.

The pavement should be designed to ensure that water will not pond on the pavement surface. If the surface asphalt is not placed within a reasonable time following placement of the binder asphalt, it is recommended that the catch basin lids are set at a lower elevation or apertures provided to allow surface water to drain into the catch basins and not accumulate around the catch basins. The strength of the pavement structure relies on all of the components to be in place in order to provide the design strength; therefore, it is strongly recommended that the surface asphalt be placed shortly after placement of the binder asphalt so as to avoid undue stress on the binder asphalt by not having the complete pavement structure in place.

It should be noted that, currently, asphalt mixes tend to be more flexible and, as such, there is a tendency for damage to occur from vehicles turning their steering wheels or applying excessive brake pressure. The condition is further intensified during hot weather. In high traffic areas or areas subjected to frequent turning of heavy vehicles, it is recommended that rigid Portland cement pavement be considered.

5.12. Excess Soil Management

5.12.1. Chemical Testing was NOT Undertaken by CMT Engineering Inc.

Generally, if surplus soils are to be exported off-site, it will be necessary to perform chemical analysis of the soils. Chemical analysis was not undertaken as part of this geotechnical investigation. Should chemical analysis tests be required, the required tests vary and will be dependent on the disposal site utilized by the general contractor.

5.12.2. Leachate Testing Requirement

If soils are transported to a landfill facility, additional chemical testing in accordance with Ontario Regulation 347, Schedule 4, as amended to Ontario Regulation 558/00, dated March 2001, Toxicity Characteristic Leaching Procedure (TCLP) will be required.

When transporting soils off-site, the following is recommended:

- All chemical analyses and environmental assessment reports must be fully disclosed to the receiving site owners/authorities, who must agree to receive the material.
- An environmental consultant must confirm the land use at the receiving site is compatible to receive the material.
- An environmental consultant must monitor the transportation and placement of the materials to ensure that the material is placed appropriately at the pre-approved site.
- The excess materials may not be transported to a site that has previously had a Record of Site Condition (RSC) filed, unless the material meets the criteria outlined in the RSC.

It should be noted that landfill sites will generally only accept laboratory test results that have been completed within 30 days of exporting. Therefore, it is recommended that provisions for chemical analysis be included in the tender documents. It should also be noted that the laboratory testing generally takes five (5) working days to process with a regular turnaround time.

5.13. Radon

According to information provided by Health Canada, radon is a radioactive gas that is naturally formed through the breakdown of uranium in soil, rock and water. When radon escapes the earth in the outdoors, it mixes with fresh air, resulting in concentrations that are too low to be of concern. However, when radon enters an enclosed space, such as a building, high concentration of radon can accumulate and become a health concern. Health Canada indicates that most buildings and homes have some level of radon in them. Unfortunately, it is not possible to predict before construction whether or not a new building will have high radon levels as radon can only be detected by radon measurement devices, which would be installed in a building, post construction. Section 9.13.4.1 Soil Gas Control of the current 2012 Ontario Building Code (OBC) states that *"Where methane or radon gases are known to be a problem, construction shall comply with the requirements for soil gas control in MMAH Supplementary Standard SB-9, Requirements for Soil Gas Control"*.

6.0 SITE INSPECTION

Qualified geotechnical personnel should supervise excavation inspections as well as compaction testing for structural filling, site grading and site servicing. This will ensure that footings are founded in the proper strata and that proper material and techniques are used and the specified compaction is achieved. CMT Engineering Inc. would be pleased to review the design drawings and provide an inspection and testing program for the construction of the proposed subdivision.

7.0 LIMITATIONS OF THE INVESTIGATION

This report is intended for the Client named herein and for their Client. The report should be read in its entirety, and no portion of this report may be used as a separate entity. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties.

The recommendations made in this report are in accordance with our present understanding of the project. We request that we be permitted to review our recommendations when the drawings and specifications are complete, or if the proposed construction should differ from that mentioned in this report.

It is important to emphasize that a soil investigation is, in fact, a random sampling of a site and the comments are based on the results obtained at the test locations only. It is therefore assumed that these results are representative of the subsoil conditions across the site. Should any conditions at the site be encountered which differ from those found at the test locations, we request that we be notified immediately in order to permit a reassessment of our recommendations.

It should be noted that this report specifically addresses geotechnical aspects of the project and does not include any investigations or assessments relating to potential subsurface contamination. As such, there should be no assumptions or conclusions derived from this report with respect to potential soil or water contamination. Soil or water contamination is generally caused by the presence of xenobiotic (human-made) chemicals or other alteration processes in the natural soil and groundwater environment. If necessary, the investigation, assessment and rehabilitation of soil and water contaminants should be undertaken by qualified environmental specialists.

The samples obtained during the geotechnical investigation will be stored for a period of three months, after which time they will be disposed of unless alternative arrangements are made.

We trust that this report meets with your present requirements. Should you have any questions, please do not hesitate to contact our office.

Prepared by:

Brandon Figg

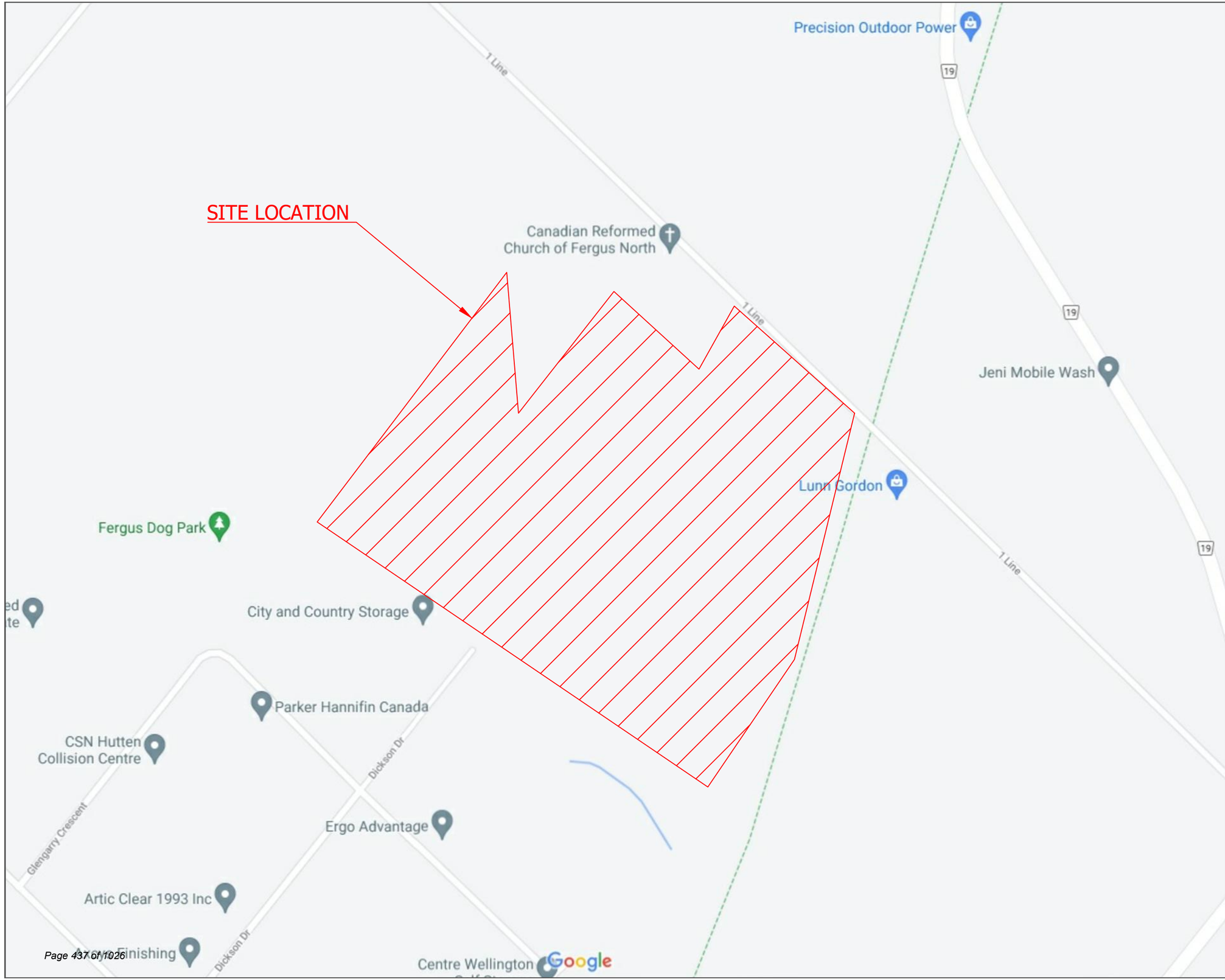
Brandon R Figg, C. Tech.
Senior Soil Technician



Reviewed by:

Nathan Chortos, P.Eng.
Senior Geotechnical Engineer

ks



NOTES:

1. BASE MAP PROVIDED BY GOOGLE MAPS

N

NO.	DESCRIPTION	DATE

REVISIONS

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1011 Industrial Crescent, Unit 1
St. Clements, Ontario N0B 2M0
Tel.: 519-699-5775
Fax: 519-699-4664
www.cmtinc.net

PROJECT:
DISCKSON DRIVE EXTENSION
(M6468C)
Dickson Drive,
Fergus, Ontario

DRAWING TITLE:
SITE LOCATION MAP

PROJECT NO.:	DATE:
21-279	September 23, 2021
SCALE: N.T.S.	DRAWING NO. 1



NOTES:

Drawing provided by Triton Engineering Services Limited.

Legend

CMT Borehole (2021)

NO.	DESCRIPTION	DATE

REVISIONS

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1011 Industrial Crescent, Unit 1
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PROJECT:

DICKSON DRIVE EXTENSION
(M6468C)
Dickson Drive,
Fergus, Ontario

DRAWING TITLE:

SITE PLAN SHOWING
BOREHOLE LOCATIONS

PROJECT NO.:	DATE:
21-279	September 23, 2021
SCALE:	DRAWING NO.
N.T.S.	2

APPENDIX A

BOREHOLE LOGS

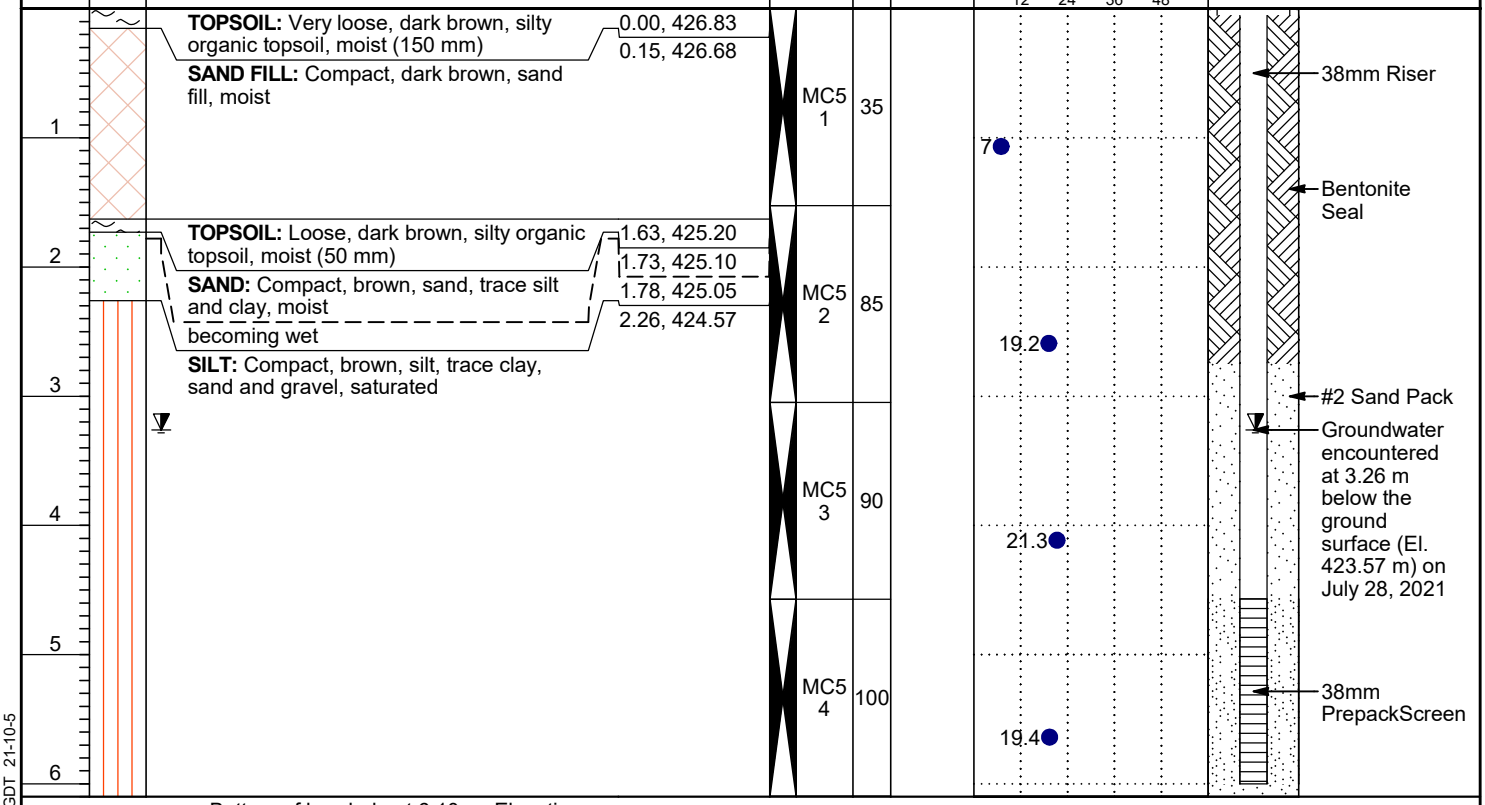
CMT Engineering Inc.
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BOREHOLE NUMBER BH1

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT NUMBER: 21-279
PROJECT LOCATION: Fergus, ON
DRILLING DATE: 21-5-20
GROUND ELEVATION: 426.83 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (150 mm)	0.00, 426.83	MC5 1	35	
		0.15, 426.68			
	SAND FILL: Compact, dark brown, sand fill, moist				
1					
	TOPSOIL: Loose, dark brown, silty organic topsoil, moist (50 mm)	1.63, 425.20			
		1.73, 425.10			
2	**SAND:** Compact, brown, sand, trace silt and clay, moist becoming wet	1.78, 425.05	MC5 2	85	
		2.26, 424.57			
	SILT: Compact, brown, silt, trace clay, sand and gravel, saturated				
3					
4			MC5 3	90	
5			MC5 4	100	
6					

Bottom of borehole at 6.10 m, Elevation 420.73 m.



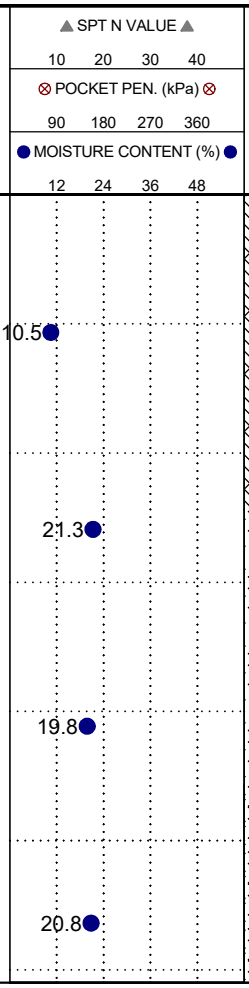
CMT Engineering Inc.
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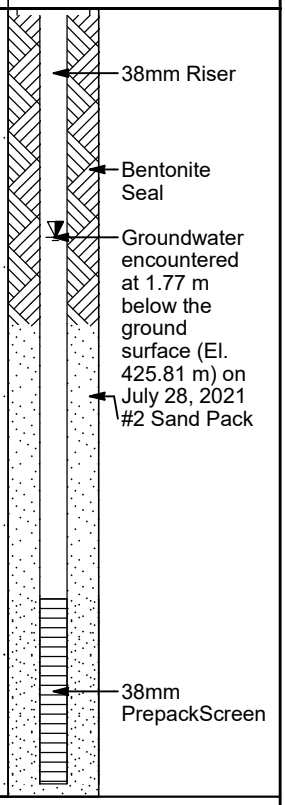
BOREHOLE NUMBER BH2

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT NUMBER: 21-279
PROJECT LOCATION: Fergus, ON
DRILLING DATE: 21-5-20
GROUND ELEVATION: 427.58 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (525 mm)	0.00, 427.58			
0	**SAND:** Compact, dark brown, sand, trace silt and clay, moist	0.53, 427.06	MC5 1	85	
1	becoming wet	0.97, 426.61			
1	becoming brown and saturated	1.52, 426.06			
2			MC5 2	93	
3			MC5 3	85	
4					
5			MC5 4	95	
6					

Bottom of borehole at 6.10 m, Elevation 421.48 m.





BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

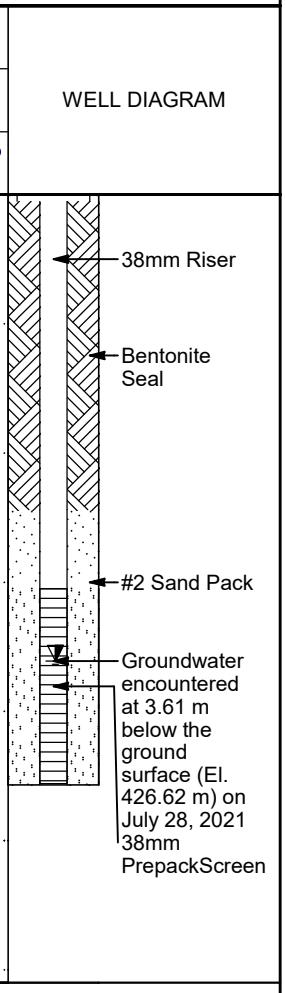
CMT Engineering Inc.
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BOREHOLE NUMBER BH3

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT LOCATION: Fergus, ON
PROJECT NUMBER: 21-279
DRILLING DATE: 21-5-20
GROUND ELEVATION: 430.23 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
1	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (450 mm)	0.00, 430.23	MC5 1	62	11.1
	SAND FILL: Compact, dark brown, sand fill, moist	0.45, 429.78			
2	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (150 mm)	1.52, 428.71	MC5 2	85	6.6
	SAND: Compact, brown, sand, trace silt and clay, moist	1.68, 428.55			
3	**SILT:** Compact, brown, silt, trace clay, sand and gravel, saturated	2.54, 427.69			
4	**SAND:** Compact, brown, sand, trace silt and clay, saturated	3.05, 427.18	MC5 3	90	16.6
	SILT: Compact, grey, silt, trace clay, sand and gravel, wet	3.81, 426.42			
5	**SANDY SILT TILL:** Compact, grey, sandy silt till, some clay, trace gravel, moist	4.57, 425.66	MC5 4	85	7.4
6					

Bottom of borehole at 6.10 m, Elevation 424.13 m.



BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

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Telephone: 519-699-5775
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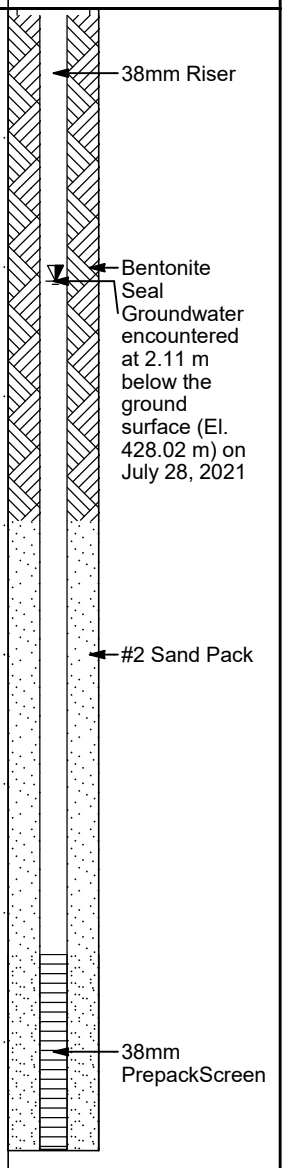
BOREHOLE NUMBER BH4

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT NUMBER: 21-279
PROJECT LOCATION: Fergus, ON
DRILLING DATE: 21-5-20
GROUND ELEVATION: 430.13 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (275 mm)	0.00, 430.13			
		0.28, 429.85			
	SANDY SILT TILL: Compact, grey, sandy silt till, some clay, trace gravel, moist		MC5 1	87	10.2
2			MC5 2	93	11
3					
4			MC5 3	90	7.2
5			MC5 4	20	7.6
6	becoming grey	6.40, 423.73			
7	becoming wet	7.62, 422.51			
8					
9	Bottom of borehole at 9.14 m, Elevation 420.99 m.				

SPT N VALUE: 10 20 30 40
POCKET PEN. (kPa): 90 180 270 360
MOISTURE CONTENT (%): 12 24 36 48

WELL DIAGRAM



BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

CMT Engineering Inc.
1011 Industrial Crescent
St. Clements, Ontario, N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH5

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT LOCATION: Fergus, ON
PROJECT NUMBER: 21-279
DRILLING DATE: 21-5-20
GROUND ELEVATION: 428.15 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	SPT N VALUE / POCKET PEN. (kPa) / MOISTURE CONTENT (%)	WELL DIAGRAM
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (400 mm)	0.00, 428.15					
	SAND: Compact, brown, sand, trace silt and clay, wet	0.40, 427.75	MC5 1	35		17.6	38mm Riser
1							
2	**SILTY SAND TILL:** Compact, brown, silty sand till, some clay, trace gravel, moist	1.88, 426.27	MC5 2	43		8.2	
	becoming dense	2.13, 426.02					Groundwater encountered at 2.54 m below the ground surface (El. 425.61 m) on July 28, 2021
3							
4	becoming very dense	3.96, 424.19	MC5 3	100		8.2	Bentonite Seal
	becoming grey	4.57, 423.58	MC5 4	95		7.4	
5							
6							#2 Sand Pack
	SAND AND SILT: Compact, grey, sand and silt, some clay, trace gravel, saturated	6.10, 422.05	MC5 5	100		16.9	38mm PrepackScreen
7							
	SANDY SILT TILL: Compact, grey, sandy silt till, some clay, trace gravel, moist	7.37, 420.78					
	Bottom of borehole at 7.62 m, Elevation 420.53 m.						

SPT N VALUE: 10 20 30 40
POCKET PEN. (kPa): 90 180 270 360
MOISTURE CONTENT (%): 12 24 36 48

BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

CMT Engineering Inc.
1011 Industrial Crescent
St. Clements, Ontario, N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH6

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT LOCATION: Fergus, ON
PROJECT NUMBER: 21-279
DRILLING DATE: 21-5-19
GROUND ELEVATION: 433.05 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: SPT/MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	SPT N VALUE / POCKET PEN. (kPa) / MOISTURE CONTENT (%)	WELL DIAGRAM
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (375 mm)	0.00, 433.05	SPT 1	62	1-1-1-1 (2)	2, 17	
	SANDY SILT: Very loose, brown, sandy silt, some clay, trace gravel, moist becoming compact	0.38, 432.68 0.76, 432.29	SPT 2	152	3-4-6-8 (10)	10, 10.7	
2			SPT 3	100	2-5-7-8 (12)	12, 9.7	
	SANDY SILT TILL: Dense to very dense, brown, sandy silt till, some clay, trace gravel, moist	2.29, 430.76	SPT 4	408	50/0.13	7.9, >>	
3			SPT 5	92	25-38-29-34 (67)	8.2, >>	
4			MC5 6	100		7.2	
5			SPT 7	62	50/0.13	7.1, >>	

Caving was encountered upon completion of the borehole at a depth of approximately 4.27 m (El. 428.78 m) below ground surface. Accumulated groundwater was encountered in the borehole.

Bottom of borehole at 5.18 m, Elevation 427.87 m.

BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

CMT Engineering Inc.
1011 Industrial Crescent
St. Clements, Ontario, N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH7

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT NUMBER: 21-279
PROJECT LOCATION: Fergus, ON
DRILLING DATE: 21-5-19
GROUND ELEVATION: 428.29 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: SPT/MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (225 mm)	0.00, 428.29	SPT 1	41	1-1-1-1 (2)
	SANDY SILT: Very loose, brown, sandy silt, some clay, trace gravel, moist	0.23, 428.07			
1	**SILT:** Compact, brown, silt, trace clay, sand and gravel, saturated	0.76, 427.53	SPT 2	100	4-9-7-8 (16)
	becoming grey and wet	1.50, 426.79	SPT 3	87	6-8-10-8 (18)
2					
	SANDY SILT TILL: Dense, grey, sandy silt till, some clay, trace gravel, moist	2.29, 426.00	SPT 4	92	7-37-12-12 (49)
3			SPT 5	100	21-12-19-14 (31)
4			MC5 6	100	
			SPT 7	79	21-23-33-34 (56)
5					

GRAPHIC LOG

SPT N VALUE
10 20 30 40
POCKET PEN. (kPa)
90 180 270 360
MOISTURE CONTENT (%)
12 24 36 48

2
16
23.3
18
9.4
40
8.8
31
9.1
8.9
>>
7.4

WELL DIAGRAM

Caving was encountered upon completion of the borehole at a depth of approximately 5.13 m (El. 423.16 m) below ground surface. Accumulated groundwater was encountered in the borehole.

Bottom of borehole at 5.18 m, Elevation 423.11 m.

CMT Engineering Inc.
1011 Industrial Crescent
St. Clements, Ontario, N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH8

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT NUMBER: 21-279
PROJECT LOCATION: Fergus, ON
DRILLING DATE: 21-5-19
GROUND ELEVATION: 431.16 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: SPT/MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	SPT N VALUE / POCKET PEN. (kPa) / MOISTURE CONTENT (%)	WELL DIAGRAM
	TOPSOIL: Very loose, dark brown, silty organic topsoil, moist (225 mm)	0.00, 431.16					
	SANDY SILT: Very loose, brown, sandy silt, some clay, trace gravel, moist	0.23, 430.94	SPT 1	70	1-1-1-1 (2)	2, 14.5	
1	**SAND:** Loose, brown, sand, trace silt and clay, moist	0.76, 430.40	SPT 2	75	4-3-6-6 (9)	9, 13.1	
	becoming compact	1.52, 429.64	SPT 3	100	4-4-7-7 (11)	11, 4.8	
2			SPT 4	92	7-8-10-11 (18)	18, 4.4	
3			SPT 5	100	7-9-13-16 (22)	22, 3.4	
4			MC5 6	100		3	
	becoming wet	4.57, 426.59	SPT 7	100	3-7-14-14 (21)	21, 20	
5							

Caving was encountered upon completion of the borehole at a depth of approximately 4.72 m (El. 426.44 m) below ground surface. Accumulated groundwater was encountered in the borehole.

Bottom of borehole at 5.18 m, Elevation 425.98 m.

BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

CMT Engineering Inc.
1011 Industrial Crescent
St. Clements, Ontario, N0B 2M0
Telephone: 519-699-5775
Fax: 519-699-4664

BOREHOLE NUMBER BH9

PROJECT: Dickson Drive Extension (M6468C)
PROJECT ADDRESS: Dickson Drive,
PROJECT NUMBER: 21-279
PROJECT LOCATION: Fergus, ON
DRILLING DATE: 21-5-20
GROUND ELEVATION: 429.92 m
DRILLING CONTRACTOR: CMT Drilling Inc.
LOGGED BY: BRF
DRILLING EQUIPMENT: Geoprobe 7822DT
SAMPLING METHOD: SPT/MC5

DEPTH (m)	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	SPT N VALUE / POCKET PEN. (kPa) / MOISTURE CONTENT (%)	WELL DIAGRAM
0	**TOPSOIL:** Very loose, dark brown, silty organic topsoil, moist (200 mm)	0.00, 429.92	SPT 1	46	1-1-1-1 (2)	2, 20.7	
		0.20, 429.72					
1	**SANDY SILT:** Very loose, dark brown, sandy silt, some clay, trace gravel, moist		SPT 2	46	1-1-1-1 (2)	2, 17.3	
2	**SAND:** Compact, brown, sand, trace silt and clay, moist	1.52, 428.40	SPT 3	100	5-7-7-5 (14)	14, 4.5	
3			SPT 4	87	6-7-9-11 (16)	16, 5.3	
			SPT 5	92	7-9-14-17 (23)	23, 4.7	
4	becoming saturated	4.09, 425.83	MC5 6	81		17.9	
5			SPT 7	95	6-9-9-11 (18)	18, 20.2	

Caving was encountered upon completion of the borehole at a depth of approximately 4.57 m (El. 425.35 m) below ground surface. Accumulated groundwater was encountered in the borehole.

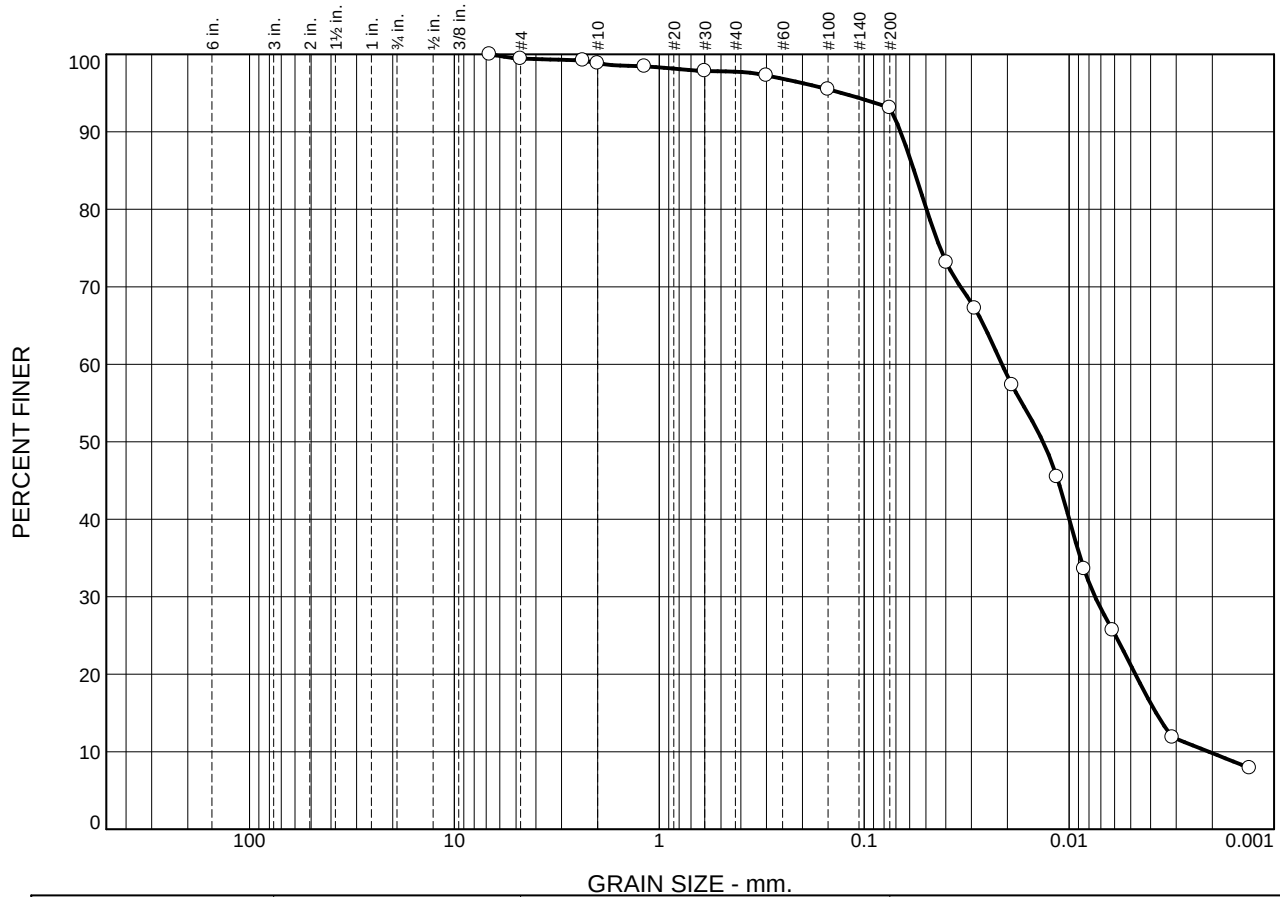
Bottom of borehole at 5.18 m, Elevation 424.74 m.

BOREHOLE LOG WITH WELL2 21-279 BH LOGS.GPJ CMT_TEMPLATE_2020-05-15.GDT 21-10-5

APPENDIX B

GRAIN SIZE ANALYSES

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.6	0.6	1.0	4.7	83.3	9.8

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH1	3	3.05-4.57m	silt, trace clay, sand and gravel	ML
				Sampled by BF of CMT Engineering Inc., May 20, 2021	
				Tested by JM of CMT Engineering Inc., May 28, 2021	

CMT Engineering Inc.

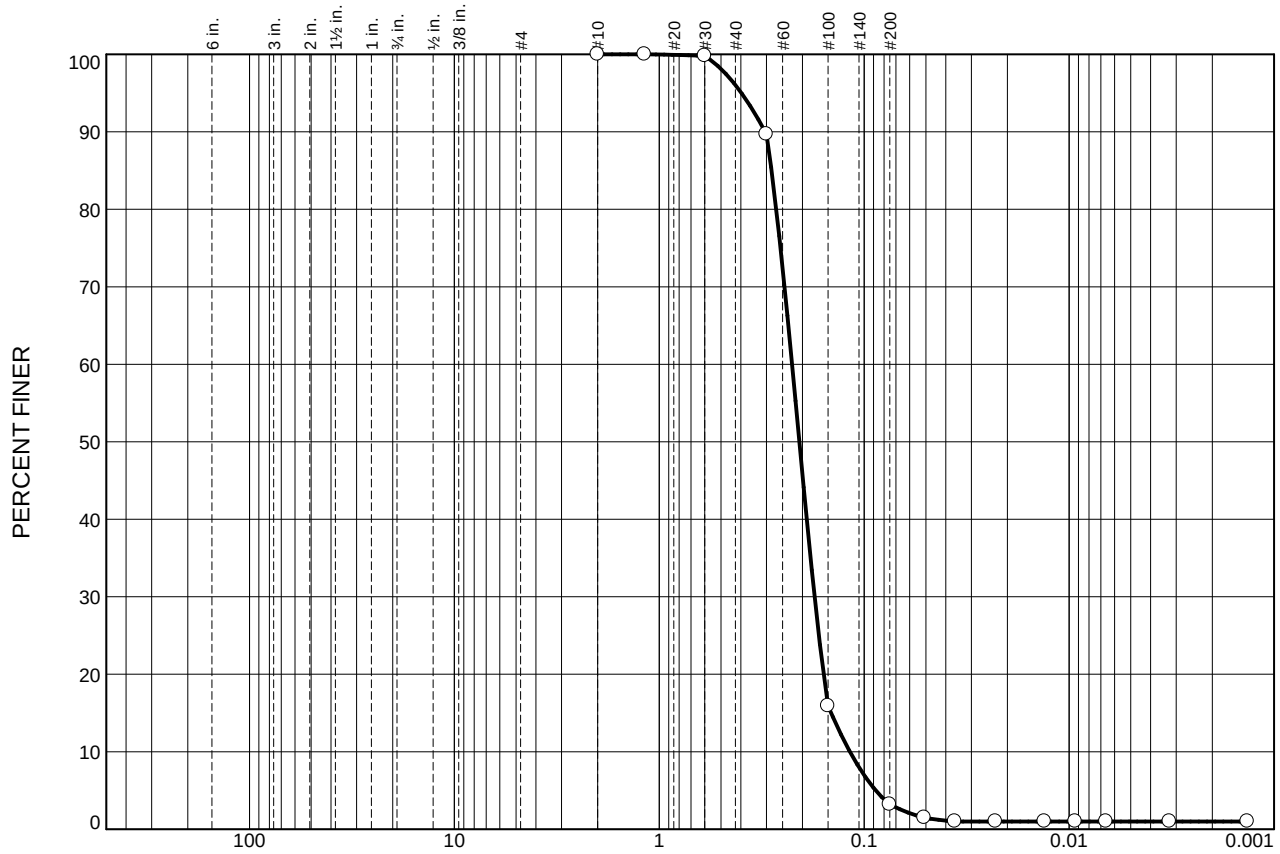
St. Clements, ON

Client: Township of Centre Wellington c/o Triton Engineering Services Limited

Project: Dickson Drive Extension (Reference M6468C)
Fergus, Ontario

Project No.: 21-279 **Figure** 1

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	4.0	92.8	2.2	1.0

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH2	4	4.57-6.10m	sand, trace silt and clay	SP
				Sampled by BF of CMT Engineering Inc., May 20, 2021	
				Tested by JM of CMT Engineering Inc., May 28, 2021	

CMT Engineering Inc.

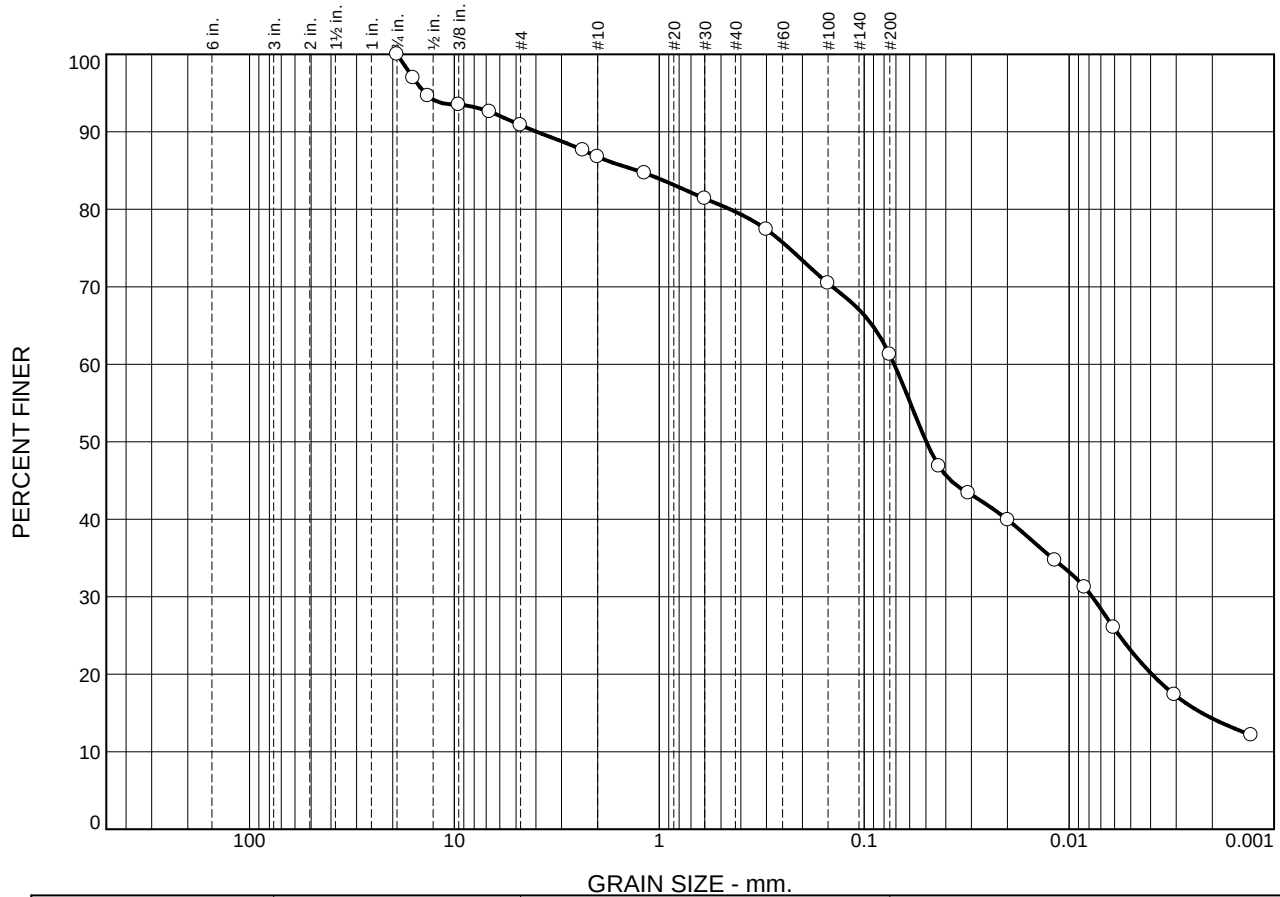
St. Clements, ON

Client: Township of Centre Wellington c/o Triton Engineering Services Limited

Project: Dickson Drive Extension (Reference M6468C)
Fergus, Ontario

Project No.: 21-279 **Figure** 2

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	9.1	4.1	7.1	18.4	47.0	14.3

SOIL DATA					
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH3	4	4.57-6.10m	sandy silt, some clay, trace gravel	ML
				Sampled by BF of CMT Engineering Inc., May 20, 2021	
				Tested by JM of CMT Engineering Inc., May 28, 2021	

CMT Engineering Inc.

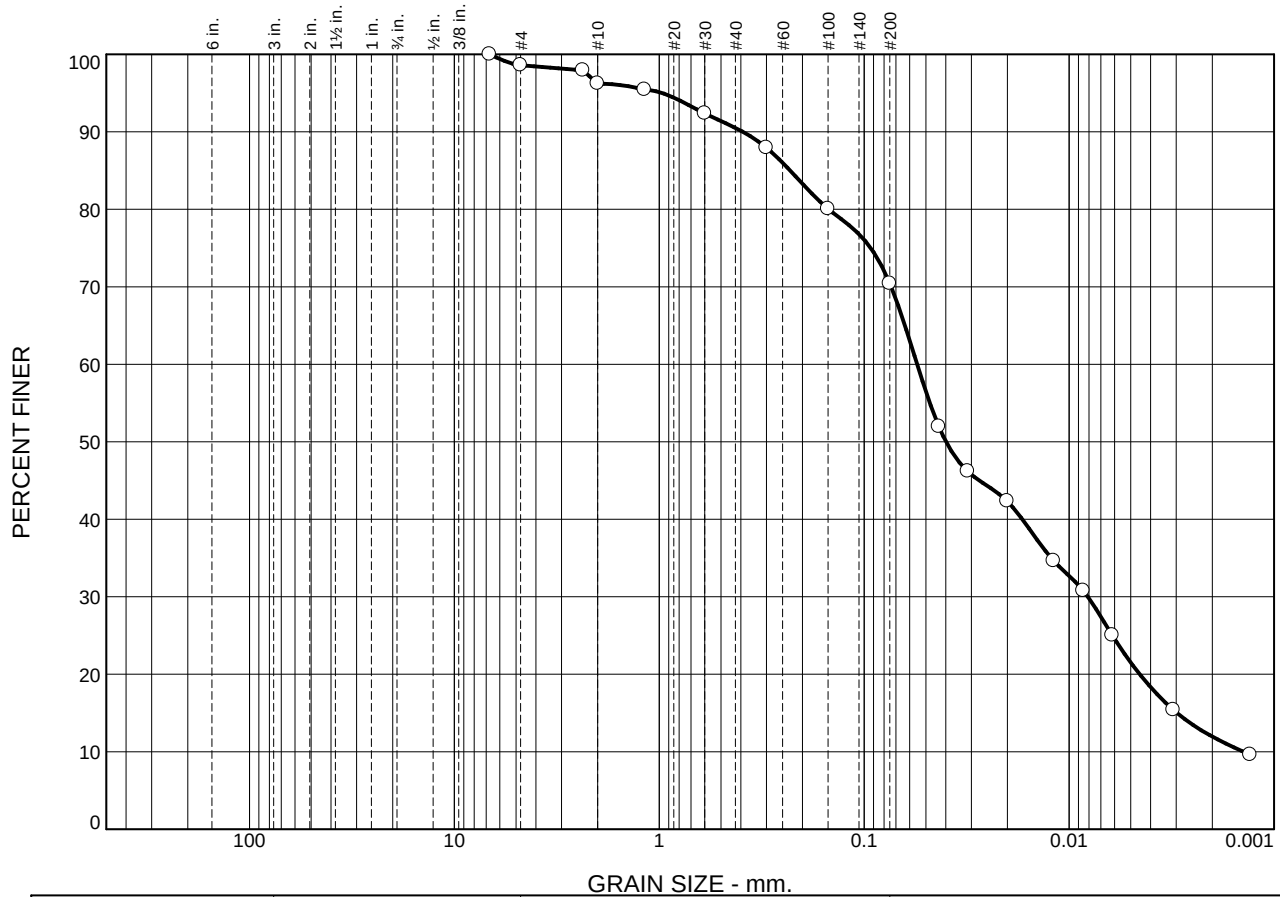
St. Clements, ON

Client: Township of Centre Wellington c/o Triton Engineering Services Limited

Project: Dickson Drive Extension (Reference M6468C)
Fergus, Ontario

Project No.: 21-279 **Figure** 3

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.4	2.4	5.7	20.1	58.4	12.0

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH4	1	0.28-1.52m	sandy silt, some clay, trace gravel	ML
				Sampled by BF of CMT Engineering Inc., May 20, 2021	
				Tested by JM of CMT Engineering Inc., May 28, 2021	

CMT Engineering Inc.

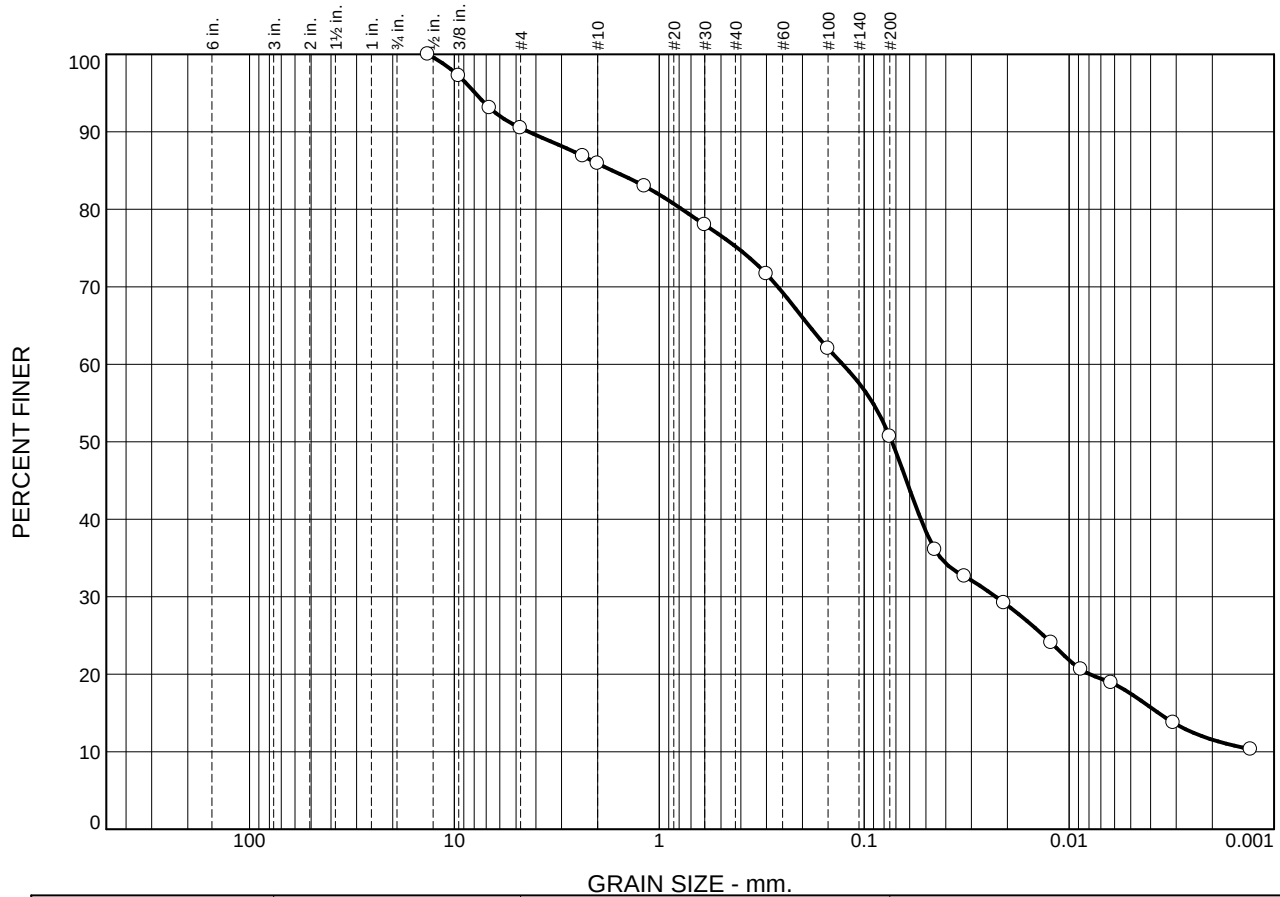
St. Clements, ON

Client: Township of Centre Wellington c/o Triton Engineering Services Limited

Project: Dickson Drive Extension (Reference M6468C)
Fergus, Ontario

Project No.: 21-279 **Figure** 4

Particle Size Distribution Report



	% Cobbles	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	9.5	4.6	10.7	24.5	39.1	11.6

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	BH5	5	6.10-7.36m	sand and silt, some clay, trace gravel	ML
				Sampled by BF of CMT Engineering Inc., May 20, 2021	
				Tested by JM of CMT Engineering Inc., May 28, 2021	

CMT Engineering Inc.

St. Clements, ON

Client: Township of Centre Wellington c/o Triton Engineering Services Limited

Project: Dickson Drive Extension (Reference M6468C)
Fergus, Ontario

Project No.: 21-279 **Figure** 5

APPENDIX C

WELL RECORDS

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 333576

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
TOWNSHIP OF CENTRE WELLINGTON	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	1	MACDONALD SQ	ELORA

Country	Province	Postal Code	Telephone Number
CAN	ON	N0B 1S0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
IN	FIELD	NORTH OF DICKSON DR	

Lot	Concession	County/District/Municipality

City/Town	Province	Postal Code
FERGUS	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	550657	4841699	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 25 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Sand	Gravel		0	10
Brown	Silt	Till	Dense	10	25

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	18	3/8 HOLEPLUG	0.61
18	25	#2 SAND	0.2

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
1.5	Plastic	0.25	-3	20

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
1.75	Plastic	10	20	25

10. Water Details

Water found at Depth (ft)	☐ Gas	Kind of water ☐ Fresh	☐ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	25	4

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

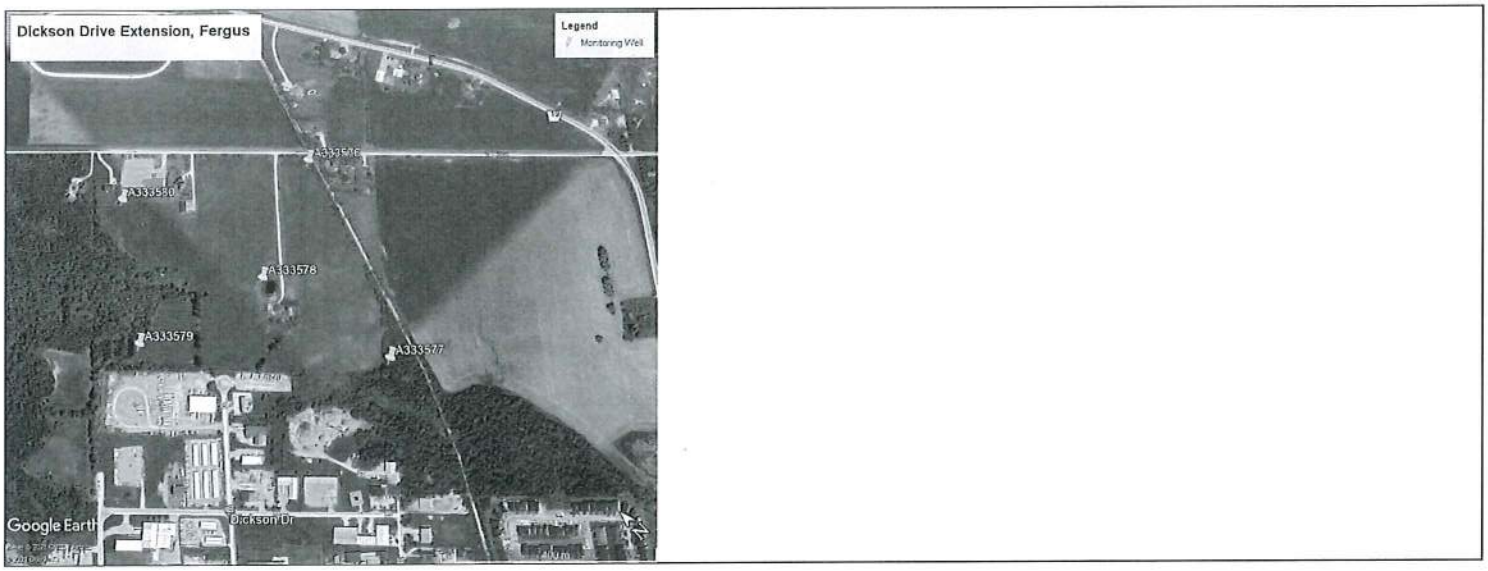
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? * ☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/05/20

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
CMT DRILLING INC	7366

Business Address

Unit Number	Street Number	Street Name *
1	1011	INDUSTRIAL CRES

City/Town/Village *	Province	Postal Code *
ST CLEMENTS	ON	N0B 2M0

Business Telephone Number	Business Email Address
519-699-5775	info@cmtinc.net

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
BLACK	CHRIS	3711

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
BLACK	CHRIS	cblack@cmtinc.net

Signature		Date Submitted (yyyy/mm/dd)
Chris Black	Digitally signed by Chris Black Date: 2021.06.25 08:29:35 -04'00'	2021/06/25

17. Ministry Use Only

Audit Number

ACD4 AGXS

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the *Ontario Water Resources Act* and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 333577

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
TOWNSHIP OF CENTRE WELLINGTON	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	1	MACDONALD SQ	ELORA

Country	Province	Postal Code	Telephone Number
CAN	ON	N0B 1S0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
IN	FIELD	NORTH OF DICKSON DR	

Lot	Concession	County/District/Municipality

City/Town	Province	Postal Code
FERGUS	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	550488	4841268	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 20 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Sand			0	20

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	9	3/8 HOLEPLUG	0.2

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☑ Direct Push
☐ Other (specify)

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
1.5	Plastic	0.25	-3	15

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
1.75	Plastic	10	15	20

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	20	3.5

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

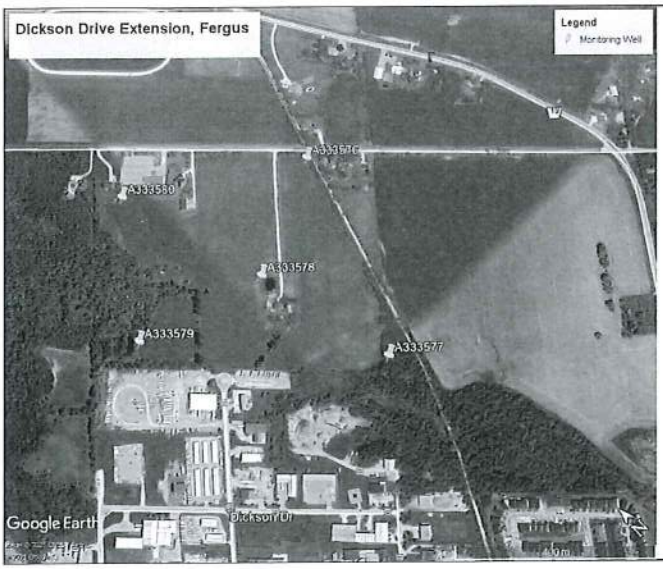
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/05/20

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
CMT DRILLING INC	7366

Business Address

Unit Number	Street Number	Street Name *
1	1011	INDUSTRIAL CRES

City/Town/Village *	Province	Postal Code *
ST CLEMENTS	ON	N0B 2M0

Business Telephone Number	Business Email Address
519-699-5775	info@cmtinc.net

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
BLACK	CHRIS	3711

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
BLACK	CHRIS	cblack@cmtinc.net

Signature		Date Submitted (yyyy/mm/dd)
Chris Black	Digitally signed by Chris Black Date: 2021.06.25 08:38:11 -04'00'	2021/06/25

17. Ministry Use Only

Audit Number

7RVV 7FD4

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

Notice of Collection of Personal Information

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 333578

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
TOWNSHIP OF CENTRE WELLINGTON	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	1	MACDONALD SQ	ELORA

Country	Province	Postal Code	Telephone Number
CAN	ON	N0B1S0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
IN	FIELD	NORTH OF DICKSON DR	

Lot	Concession	County/District/Municipality

City/Town	Province	Postal Code
FERGUS	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	550488	4841578	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 15 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Sand			0	15

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	8	3/8 HOLEPLUG	0.2

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☑ Direct Push
☐ Other (specify)

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
1.5	Plastic	0.25	-3	10

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
1.75	Plastic	10	10	15

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	15	3.5

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

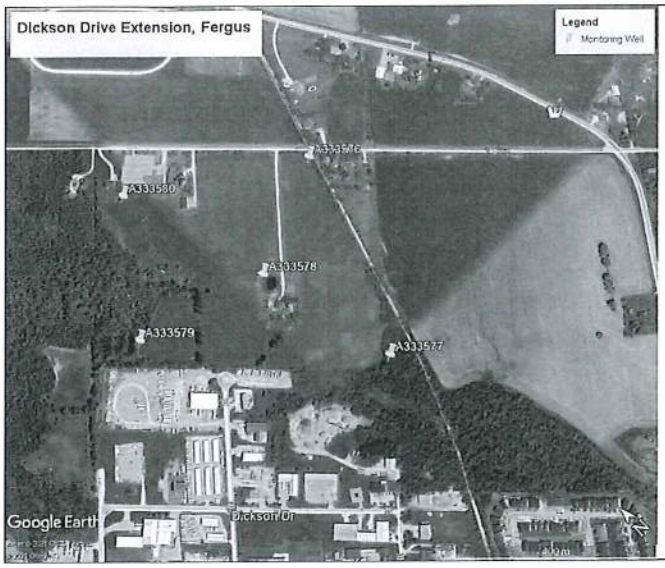
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/05/20

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
CMT DRILLING INC	7366

Business Address

Unit Number	Street Number	Street Name *
1	1011	INDUSTRIAL CRES

City/Town/Village *	Province	Postal Code *
ST CLEMENTS	ON	N0B 2M0

Business Telephone Number	Business Email Address
519-699-5775	info@cmtinc.net

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
BLACK	CHRIS	3711

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
BLACK	CHRIS	cblack@cmtinc.net

Signature		Date Submitted (yyyy/mm/dd)
Chris Black	Digitally signed by Chris Black Date: 2021.06.25 09:54:52 -04'00'	2021/06/25

17. Ministry Use Only

Audit Number

MZ9V ONHU

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 333579

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
TOWNSHIP OF CENTRE WELLINGTON	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	1	MACDONALD SQ	ELORA

Country	Province	Postal Code	Telephone Number
CAN	ON	N0B 1S0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
IN	FIELD	NORTH OF DICKSON DR	

Lot	Concession	County/District/Municipality

City/Town	Province	Postal Code
FERGUS	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	550129	4841646	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 20 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Sand			0	20

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	8	3/8 HOLEPLUG	0.2

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☐ Augering ☑ Direct Push
☐ Other (specify)

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify)

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify)
☐ Other (specify)

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
1.5	Plastic	0.25	-3	15

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
1.75	Plastic	10	15	20

10. Water Details

Water found at Depth (ft) ☐ Gas Kind of water ☐ Fresh ☐ Untested ☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	20	3.5

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

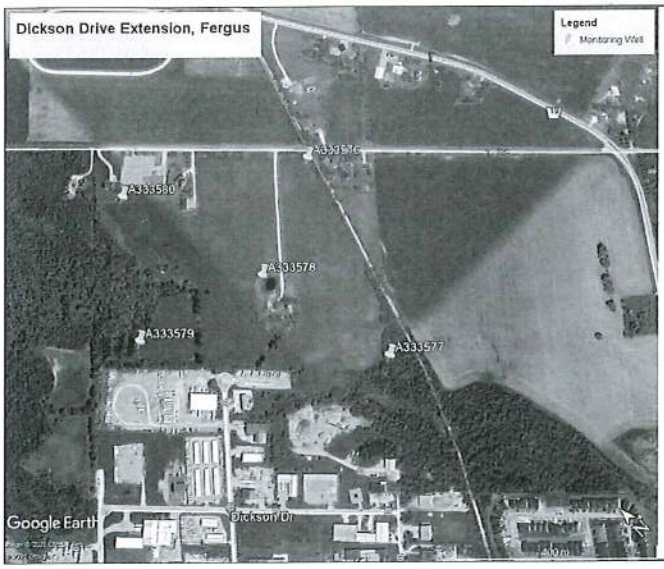
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/05/20

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
CMT DRILLING INC	7366

Business Address

Unit Number	Street Number	Street Name *
1	1011	INDUSTRIAL CRES

City/Town/Village *	Province	Postal Code *
ST CLEMENTS	ON	N0B 2M0

Business Telephone Number	Business Email Address
519-699-5775	info@cmtinc.net

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
BLACK	CHRIS	3711

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
BLACK	CHRIS	cblack@cmtinc.net

Signature		Date Submitted (yyyy/mm/dd)
Chris Black	Digitally signed by Chris Black Date: 2021.06.25 10:00:28 -04'00'	2021/06/25

17. Ministry Use Only

Audit Number

TTOM MYGY

Ontario

Ministry of the Environment, Conservation and Parks

Well Record - Regulation 903

Ontario Water Resources Act

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Fields marked with an asterisk (*) are mandatory.

Well Tag Number *
A 333580

Type *

☑ Construction ☐ Abandonment

Measurement recorded in: *

☐ Metric ☑ Imperial

1. Well Owner's Information

Last Name and First Name, or Organization is mandatory. *

Last Name	First Name

Organization	Email Address
TOWNSHIP OF CENTRE WELLINGTON	

Current Address

Unit Number	Street Number *	Street Name *	City/Town/Village
	1	NORTH OF DICKSON DR	ELORA

Country	Province	Postal Code	Telephone Number
CAN	ON	N0B 1S0	

2. Well Location

Address of Well Location

Unit Number	Street Number *	Street Name *	Township
IN	FIELD	NORTH OF DICKSON DR	

Lot	Concession	County/District/Municipality

City/Town	Province	Postal Code
FERGUS	Ontario	

UTM Coordinates	Zone *	Easting *	Northing *		Municipal Plan and Sublot Number
NAD 83	17	550304	4841910	Test UTM in Map	

Other

3. Overburden and Bedrock Material *

Well Depth * 29 (ft)

General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To

				(ft)	(ft)
Brown	Sand	Gravel		0	10
Brown	Silt	Till	Dense	10	29

4. Annular Space *

Depth From (ft)	Depth To (ft)	Type of Sealant Used (Material and Type)	Volume Placed (cubic feet)
0	13	3/8 HOLEPLUG	0.28
13	29	#2 SAND	0.35

5. Method of Construction *

☐ Cable Tool ☐ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Diamond
☐ Jetting ☐ Driving ☐ Digging ☐ Rotary (Air) ☑ Augering ☐ Direct Push
☐ Other (specify) _____

6. Well Use *

☐ Public ☐ Industrial ☐ Cooling & Air Conditioning
☐ Domestic ☐ Commercial ☐ Not Used
☐ Livestock ☐ Municipal ☑ Monitoring
☐ Irrigation ☐ Test Hole ☐ Dewatering
☐ Other (specify) _____

7. Status of Well *

☐ Water Supply ☐ Replacement Well ☐ Test Hole
☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality
☐ Abandoned, other (specify) _____
☐ Other (specify) _____

8. Construction Record - Casing * (use negative number(s) to indicate depth above ground surface)

Inside Diameter (in)	Open Hole **or** Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness	Depth From (ft)	Depth To (ft)
1.5	Plastic	0.25	-3	24

9. Construction Record - Screen

Outside Diameter (in)	Material (Plastic, Galvanized, Steel)	Slot Number	Depth From (ft)	Depth To (ft)
1.75	Plastic	10	25	29

10. Water Details

Water found at Depth (ft)	☐ Gas	Kind of water ☐ Fresh	☐ Untested	☐ Other

11. Hole Diameter

Depth From (ft)	Depth To (ft)	Diameter (in)
0	29	4

12. Results of Well Yield Testing

☐ Pumping Discontinued

Explain _____

If flowing give rate

☐ Flowing _____ (GPM)

Draw down

Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														

Recovery

Time (min)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)													

After test of well yield, water was

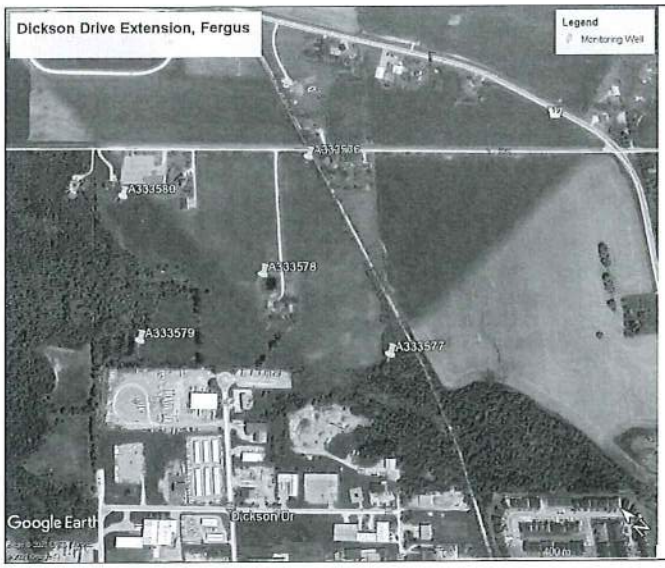
☐ Clear and sand free ☐ Other (specify)

Pump intake set at (ft)	Pumping rate (GPM)	Duration of pumping hrs + min	Final water level end of pumping (ft)	Disinfected? *
				☐ Yes ☑ No

Recommended pump depth (ft)	Recommended pump rate (GPM)	Well production (GPM)

13. Map of Well Location *

Map 1. Please Click the map area below to import an image file to use as the map. ☐ Make map area bigger



14. Information

Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) *
☐ Yes ☐ No		2021/05/20

Comments

15. Well Contractor and Well Technician Information

Business Name of Well Contractor *	Well Contractor's License Number *
CMT DRILLING INC	7366

Business Address

Unit Number	Street Number	Street Name *
1	1011	INDUSTRIAL CRES

City/Town/Village *	Province	Postal Code *
ST CLEMENTS	ON	N0B 2M0

Business Telephone Number	Business Email Address
519-699-5775	info@cmtinc.net

Last Name of Well Technician *	First Name of Well Technician *	Well Technician's License Number *
BLACK	CHRIS	3711

16. Declaration *

☑ I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate.

Last Name	First Name	Email Address
BLACK	CHRIS	cblack@cmtinc.net

Signature		Date Submitted (yyyy/mm/dd)
Chris Black	Digitally signed by Chris Black Date: 2021.06.25 10:09:16 -04'00'	2021/06/25

17. Ministry Use Only

Audit Number

JBUX IOTX

Section 9

Hydrogeological Assessment

Technical Memorandum

Banks Groundwater Engineering Limited
940 Watson Road South, RR 1 Puslinch, Ontario N0B 2J0
519.829.4808 banksgroundwater.ca

5 November 2021

To: Dustin Lyttle, P.Eng., Triton Engineering Services Limited

Copies: Brandon Figg, C.Tech., CMT Engineering Inc.

From: William Banks, P.Eng., Principal Hydrogeologist

Re: Hydrogeological Assessment, Dickson Drive Extension Municipal Class EA
Fergus, Township of Centre Wellington

The following presents a brief summery of the groundwater monitoring conducted to-date at the above-referenced site. Banks Groundwater Engineering (BGE) staff were onsite during the drilling, sampling, and monitoring well installation on 20 May 2021, completed by CMT Engineering. The following day, data loggers were installed in each of the five monitoring wells. A shallow piezometer was also installed in the wetland on the north boundary of the site and a data logger was installed to begin recording groundwater levels. The locations of the monitoring wells and the piezometer are shown in the attached Figure 1. The installation details are presented in the borehole logs for each monitoring well in the CMT Engineering report, dated 5 October 2021.

With the installation of data loggers in the five monitors and one piezometer, recording of groundwater levels on an hourly basis began 21 May 2021. The occurrence of groundwater in all but one monitor (i.e. BH5-MW-21) was confirmed on this date. Geodetic ground surface elevations at each monitoring well, provided by Triton Engineering Services, were used to establish the elevation of groundwater levels in each monitor. The results of manual measurements and data logger recordings are presented in hydrographs in Figures 2 to 7. It is noted that in some graphs, the data logger recordings are not continuous as we experienced interruptions in data logger operation. All data loggers have since been replaced.

The observed increases in groundwater levels in four of the locations are attributed to precipitation events and resulting recharge to the shallow groundwater system. For reference, the daily total precipitation recorded at the Elora climate station, is presented in Figure 8. Events of more than 15 mm will typically cause a rise in levels in shallow groundwater systems, where the local overburden is granular in nature.

As planned, groundwater levels will continue to be recorded at this site through the coming months, and updated graphs will be provided in the spring of 2022, and as required.



Satellite Imagery June 2019
Not to Scale

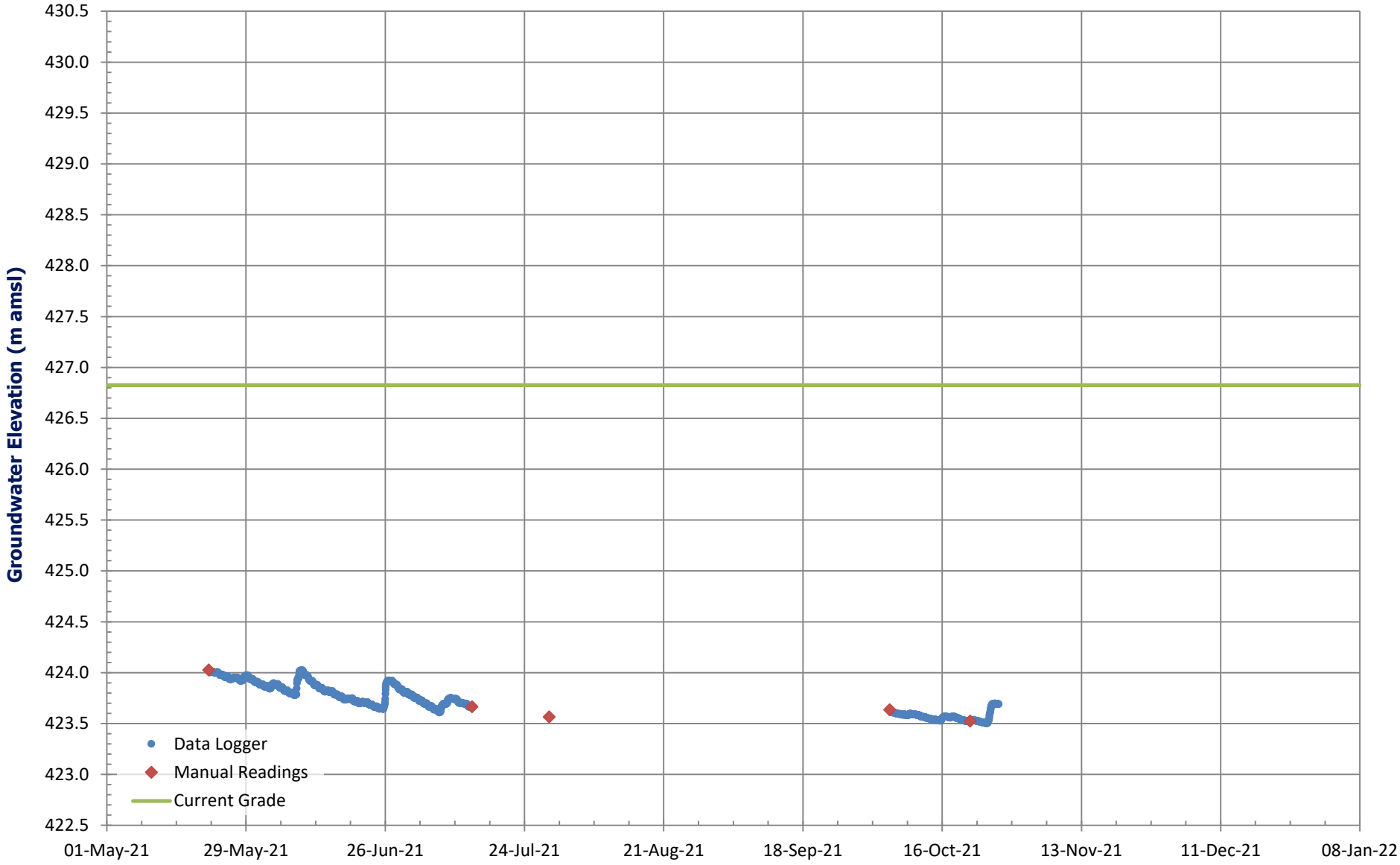
Banks Groundwater Engineering Limited
940 Watson Road South, RR 1 Puslinch, Ontario N0B 2J0
519.829.4808 banksgroundwater.ca

Hydrogeological Assessment
Dickson Drive Extension Municipal Class EA
Fergus, Township of Centre Wellington

Monitoring Well & Piezometer Locations

Figure 1

Groundwater Elevation - BH1-MW-21

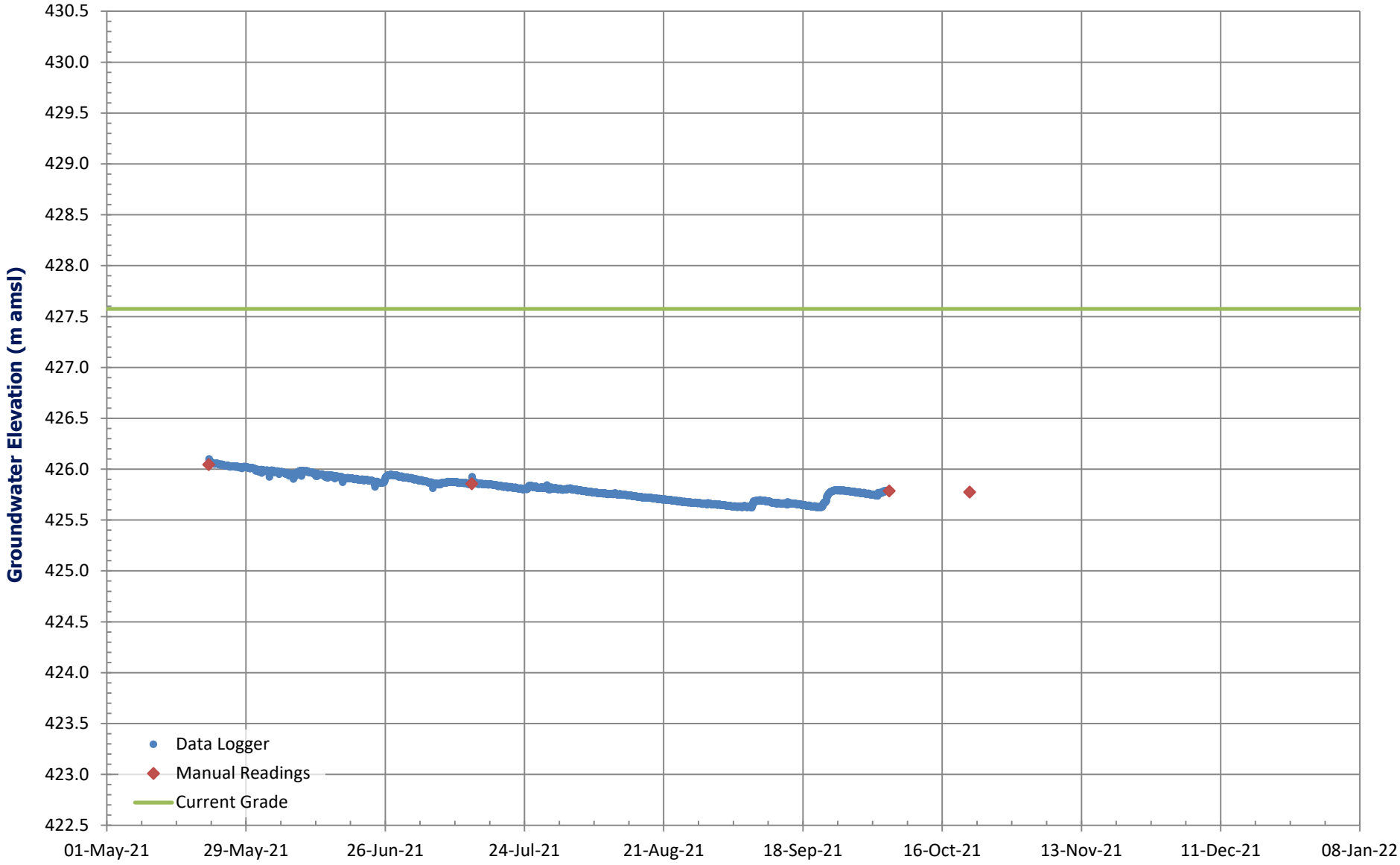


Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 2

Groundwater Elevation - BH2-MW-21

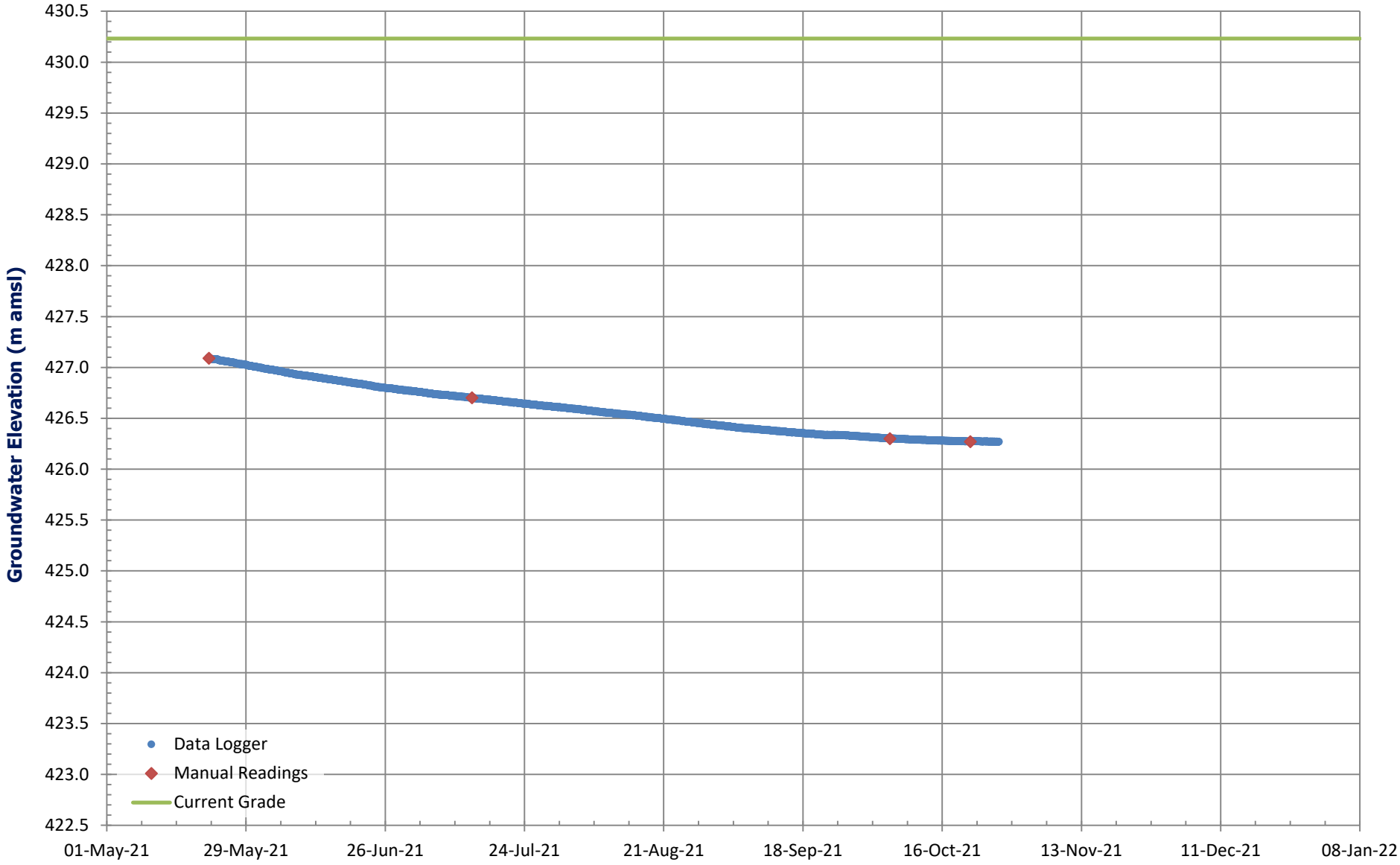


Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 3

Groundwater Elevation - BH3-MW-21

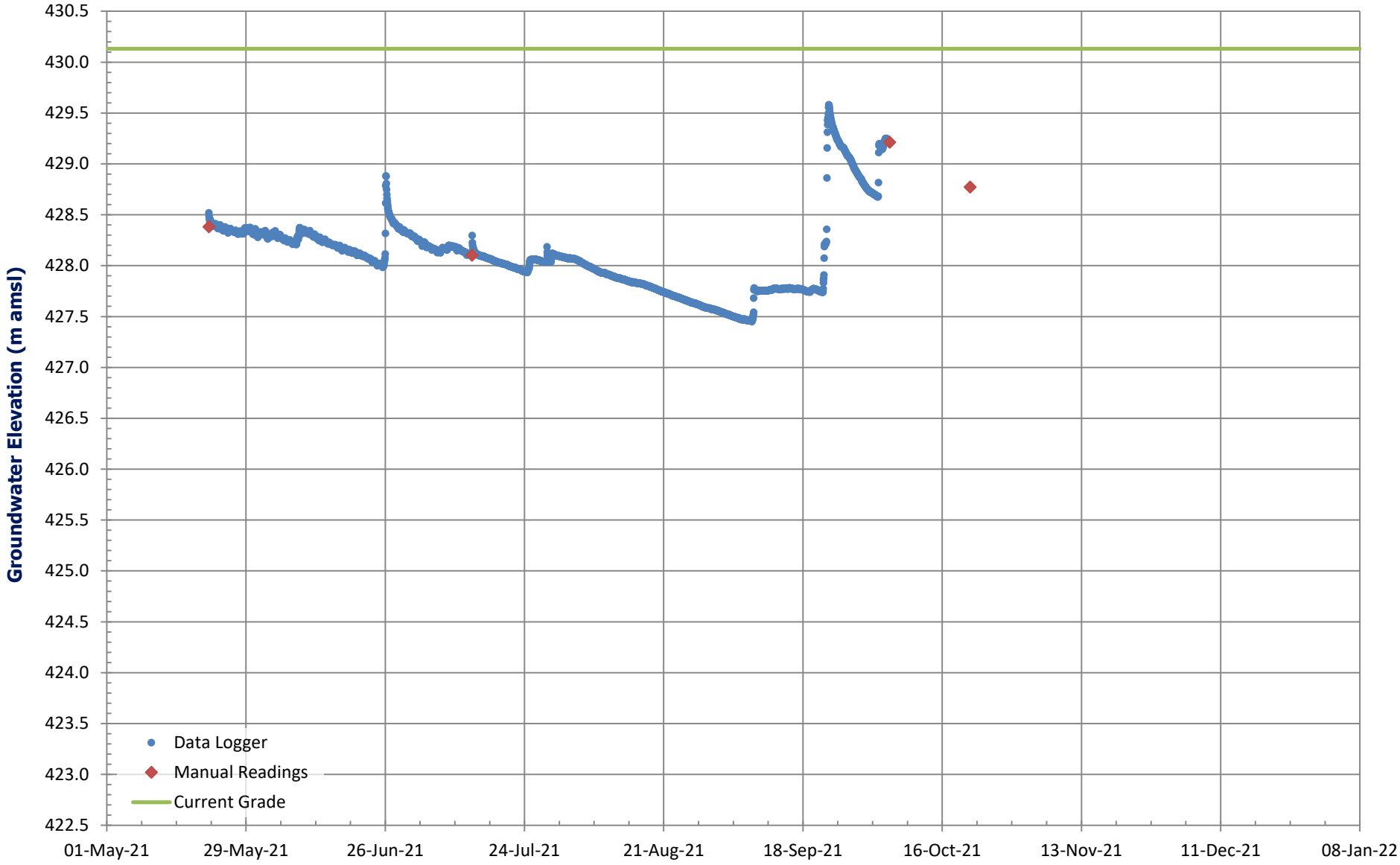


Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 4

Groundwater Elevation - BH4-MW-21

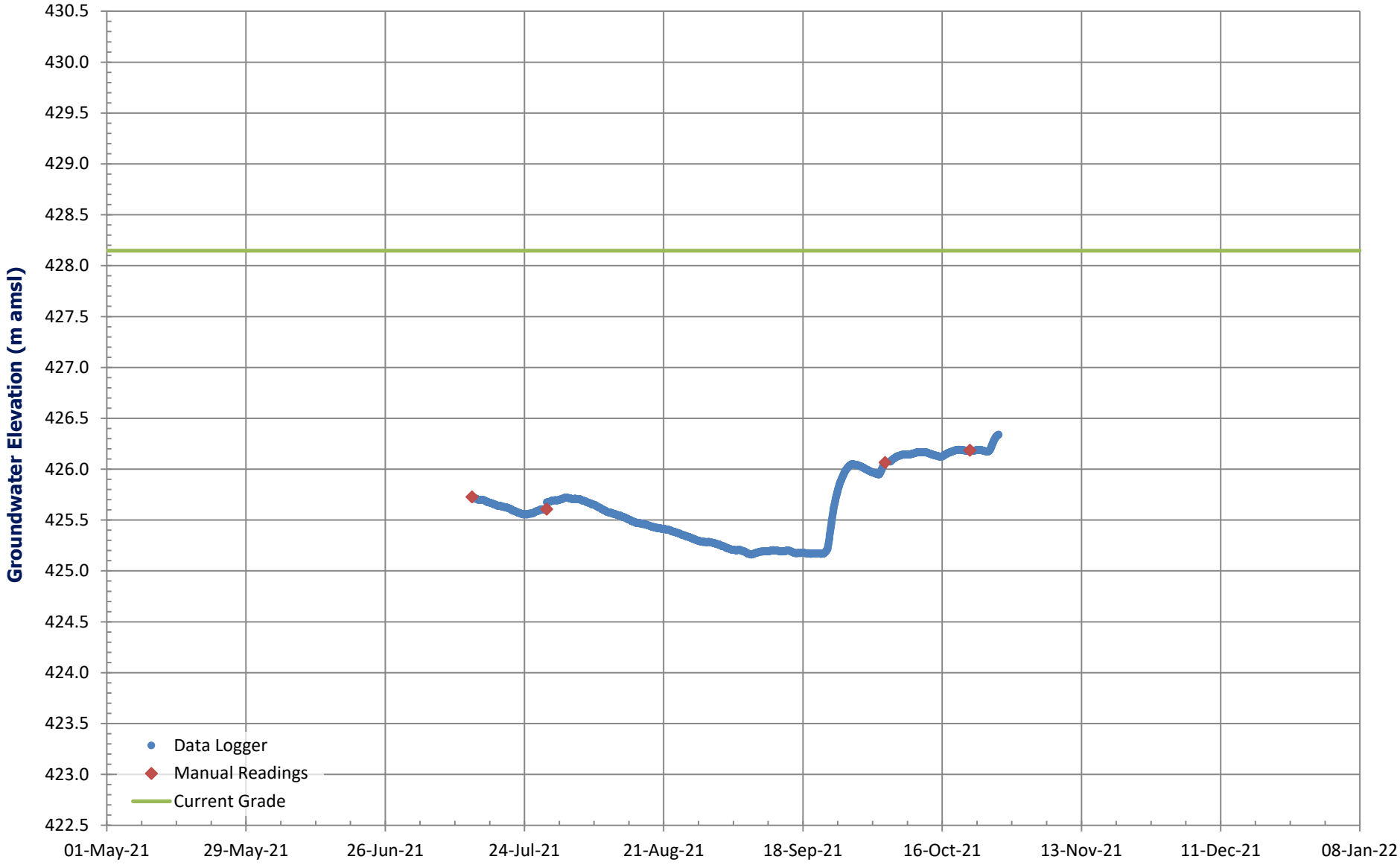


Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 5

Groundwater Elevation - BH5-MW-21

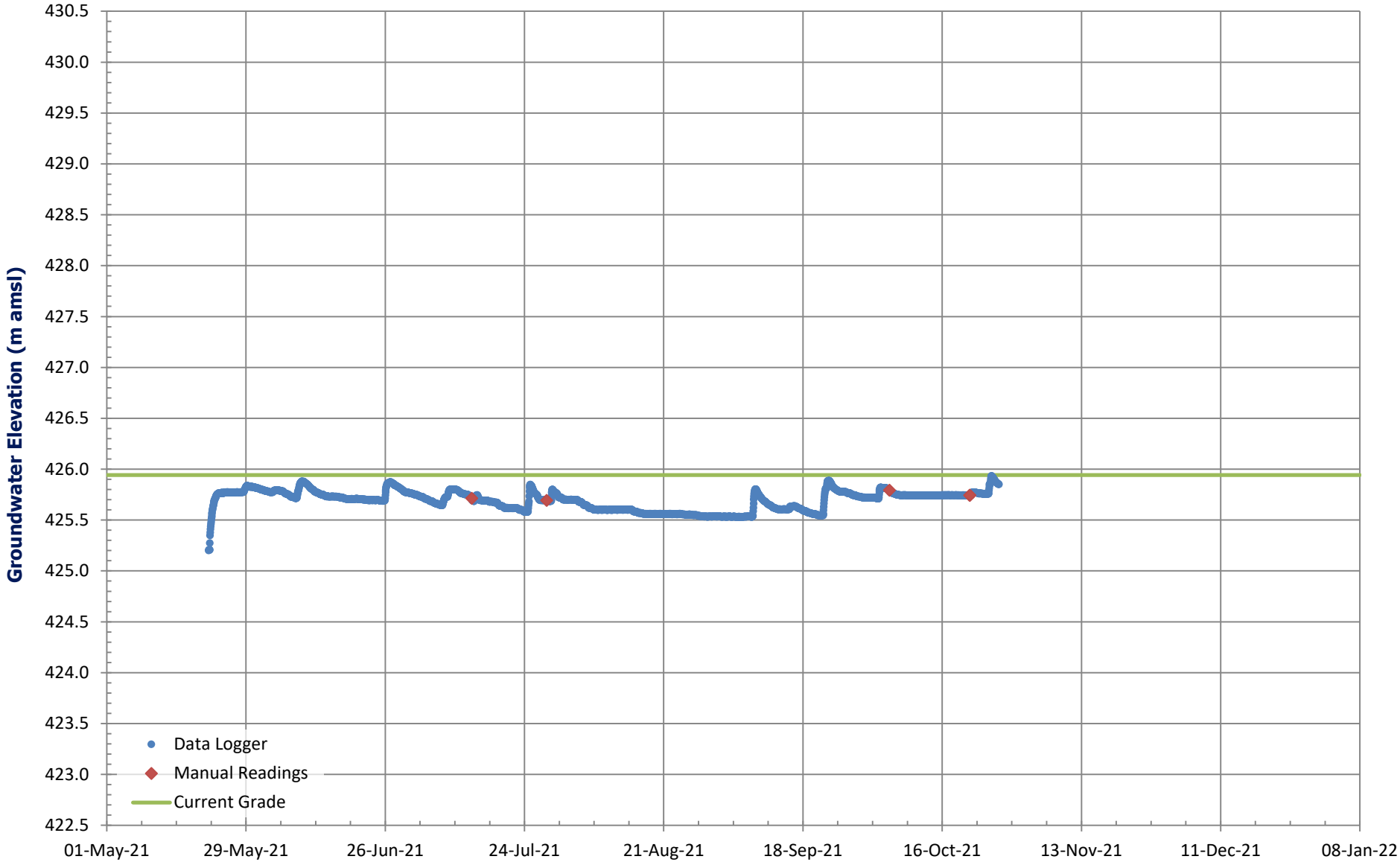


Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 6

Groundwater Elevation (Estimated) - PZ1-21

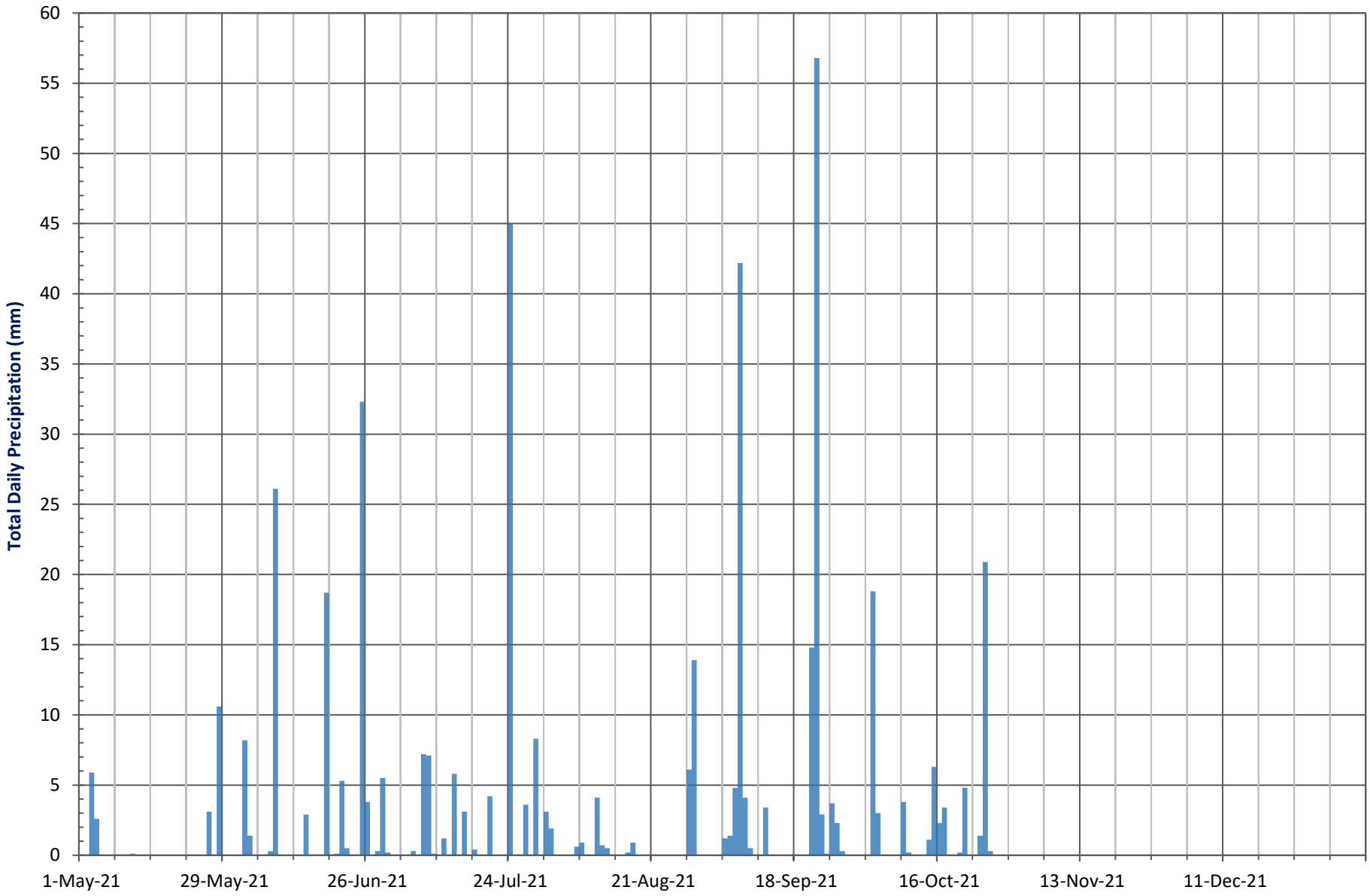


Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 7

Total Daily Precipitation (mm) - Elora RCS



Banks Groundwater Engineering Limited

Dickson Drive Extension EA - Groundwater Monitoring Program

Figure 8

Section 10

Environmental Impact Study

Dickson Drive Extension & Multi-use Pathway

Township of Centre Wellington

Environmental Assessment – Environmental Impact Study

Prepared for:

Township of Centre Wellington

Prepared by:

Shannon Davison

Ecologist

Aboud & Associates Inc.

Reviewed by:

Cheryl-Anne Ross

Lead Ecologist

Aboud & Associates Inc.

Project Number:

AA21-085A

Date:

February 8, 2022

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1.0 Introduction

Aboud & Associates Incorporated (AA) was retained by Triton Engineering Services Limited (Triton) on behalf of the Township of Centre Wellington to complete a Scoped Environmental Impact Study for a Schedule B Municipal Class Environmental Assessment (EA). The EA is being completed to extend the existing Dickson Drive to 1st line, with an option to connect the Fergus Dog Park to the Elora-Cataract Trail through the installation of a multi-use pathway, with due consideration for the natural environment, transportation, socio-economic impacts, constructability, and cost. The Scoped Environmental Impact Study focuses on characterizing the existing natural features within the study area, mapping significant natural features and identifying potential constraints.

1.1 Study Area

The study area is 51.79 ha and located in the Township of Centre Wellington-Wellington County (*Figure 2*). It consists of the area west of 1 Line and east of the current termination of Dickson Drive. The study area is entirely within the jurisdiction of the Grand River Conservation Authority (GRCA) and is partially within the GRCA Regulation Limit. Natural features within the study area include wetlands, meadows, forests and a watercourse.

1.2 Existing Land Use

The majority of the study area is agriculture, but also includes a portion of the Provincially Significant Irvine Creek Wetland Complex, Significant Woodlands, and a reach of an unnamed watercourse (*Figures 1a-1d*).

Within or adjacent the study area are several private residential properties comprised of dwellings, driveways and associated landscaping and yard maintenance. Residential areas were not included in the Ecological Land Classification (ELC) surveys and flora species within residential gardens and yards are not included in flora species lists.

1.3 Existing Regulations

1.3.1 Provincial Policy Statement

The *Provincial Policy Statement* ([PPS] OMMHA 2020) provides policy direction on matters of provincial interest related to land use planning and development.

The PPS states that:

"Natural features and areas shall be protected for the long term."

And that:
"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."

"Development and site alteration shall not be permitted in:
a) Significant wetlands in Ecoregions 5E, 6E and 7E; and
b) Significant coastal wetlands.

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 valley lands 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)"

The PPS (2020) also states that:

- *"Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."*
- *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."*
- *"Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 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."*
- *"Development and site alteration shall be restructured in or near sensitive surface water features and sensitive groundwater features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approached may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions."*

Under Section 1.6.8.6, these significant resources shall be given consideration in the planning of significant transportation infrastructure.

The proposed road extension and multi-use pathway are considered infrastructure and therefore, are not prohibited on lands containing significant resources. However, natural features must be documented and considered when evaluating potential impacts of the proposed works.

1.3.2 Endangered Species Act, 2007

The provincial Endangered Species Act, 2007 (ESA) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MNRF 2015a). The habitat of species at risk is also generally protected under the ESA. Protected habitat is habitat identified as essential for life processes including breeding, rearing, feeding, hibernation, and migration.

The ESA (Subsection 9(1)) states that:

"No person shall,

- *(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;*
- *(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,*
  - *(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,*
  - *(ii) any part of a living or dead member of a species referred to in subclause (i),*
  - *(iii) anything derived from a living or dead member of a species referred to in subclause (i); or*
- *(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).*

Clause 10(1)(a) of the ESA also states that:

"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

An authorization or permit between the proponent and the Minister of Natural Resources and Forestry is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

1.3.3 Fisheries Act, 1985

The study area contains fish bearing waters in the form of an unnamed watercourse. This area and the fish within are protected under the Federal Fisheries Act, 1985. The Fisheries Act provides protection for the sustainability and ongoing productivity of Canada's recreational, commercial and Aboriginal fisheries.

Section 35 (1) of the Fisheries Act States that:
"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat."

The Fisheries Act requires that projects and activities avoid causing serious harm to fish and fish habitat unless authorized to do so by the Department of Fisheries and Oceans Canada (DFO). This applies to work conducted in or near waterbodies that support fish and fish habitat. Within the context of the Dickson Drive Municipal EA, any proposed actions that could impact fish or fish habitat would need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause serious harm to fish that cannot be mitigated, then a Fisheries Act Authorization would be required.

1.3.4 Growth Plan for the Greater Golden Horseshoe (2019)

The Growth Plan for the Greater Golden Horseshoe (GPGGH) (2019) builds upon the policy foundation provided by the PPS and provides additional and more specific land use planning policies to address issues facing specific geographic areas in Ontario. The GPGGH states:

"Municipalities will incorporate the Natural Heritage System for the Growth Plan as an overlay in official plans, and will apply appropriate policies to maintain, restore, or enhance the diversity and connectivity of the system…"

Section 3.2.5 states:
"In planning for the development, optimization, or expansion of existing and planned corridors and supporting facilities, the Province, other public agencies and upper- and single-tier municipalities will:

> *…d) where applicable, demonstrate through an environmental assessment, that any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrologic features and key hydrologic areas have been avoided or, if avoidance is not possible, minimized and to the extent feasible mitigated."*

1.3.5 Grand River Conservation Authority

The study area contains portions of the Irvine Creek PSW and is within the allowances of this feature. Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a PSW as being 120 metres. Section 8.4.9 states:

"Development within an area of interference less than or equal to 30 metres (100 feet) from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) there are no negative or adverse hydrological or ecological impacts on the wetland,
b) all development is located outside of the wetland and maintains as much setback as feasible,
c) development is located above the water table, except as specified in Section 8.4.11, and
d) septic systems are located a minimum of 15 metres (50 feet) from the wetland and 0.9 metres (3 feet) above the annual maximum water table."

1.3.6 Wellington County Official Plan (2021 Consolidation)

The Wellington County Official Plan (2021 consolidation) indicates that a portion of the subject lands are within the Natural Heritage System and contain Core Greenlands, which are identified as Provincially Significant Wetlands.

Section 5.6.1 states:

"Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements.

Where development is proposed in the Greenlands system or on adjacent lands, the County or local municipality shall require the developer to:

a) Identify the nature of the features potentially impacted by the development;
b) Prepare, where required, an environmental impact assessment to ensure that the requirements of this Plan will be met and consider enhancement of the natural area where appropriate and reasonable.
c) Address any other relevant requirements set out in Section 4.6.3 Environmental Impact Assessment."

1.3.7 Township of Centre Wellington Official Plan (2013 Consolidation)

The Township of Centre Wellington Official Plan mapping indicates the presence of Core Greenlands within the Study Area. Section D8.2 states:

"Upon lands designated Core Greenlands, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation…"

Section D8.4 states:

"The Core Greenlands designations on the schedules to this Plan are based on mapping provided by the County in consultation with the Grand River Conservation Authority. The limits of the Core Greenlands designated may need to be refined by more detailed mapping on individual sites, such as when an Environmental Impact Study is prepared regarding a proposed development within or abutting such lands. Where more detailed mapping is available, minor adjustments may be made within an amendment to this Plan and the land use policies of the adjacent designation will apply as determined by Council".

1.3.8 Township of Centre Wellington Zoning By-law 2009-045 (2018 Consolidation)

The Township of Centre Wellington Zoning By-law 2009-045 indicates that the lands are zoned as Industrial and Environmental Protection. Section 4.12.1 states:

"No buildings, structure, or private sewage treatment system shall be constructed closer than 30.0m (98.4 ft) from the limit of an EP Zone without the prior written approval of the Grand River Conservation Authority".

1.4 Terms of Reference

Based upon the above Acts, Policies and Regulations, Terms of Reference (ToR) for the Scoped EIS were developed and submitted to GRCA Resource Planner, Laura Warner, on May 4, 2021 and included submission to Meagan Ferris at the County of Wellington and Mariana Iglesias at the Township of Centre Wellington. The GRCA provided comments through email correspondence on May 20, 2021. The comments indicated that the ToR for the proposed scoped EIS were acceptable, however, a trail immediately adjacent to the PSW cannot be supported at this time. The GRCA recommended that the trail avoid the 30m buffer zone adjacent to the PSW and/or that the trail be shifted away from the wetland to the greatest extent possible.

Responses from Wellington County and the Township of Centre Wellington have not yet been received. The ToR and agency correspondence are provided in *Appendix 1*.

2.0 Methods

2.1 Background Review

A background information review was conducted of both biological and physical features within the vicinity of the study area. The following resources were consulted as part of this review:

- Dickson Drive Extension East of Gartshore Street to First Line (Triton Engineering Services Limited, July 2021).
- GRCA mapping (accessed September 8, 2021) of natural heritage features (e.g. regulation limit, GRCA and MNRF wetlands, ANSI's and MNRF woodlands),
- Grand River Information Network (GRCA, 2021),
- Wellington County Draft Natural Heritage System Mapping,
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. 2019,
- Ontario Mammal Atlas (Dobbyn, 1994),
- eBird. Cornell Lab of Ornithology. Accessed May 2021,
- iNaturalist. Accessed May 2021,
- Ontario Butterfly Atlas Online. Toronto Entomologists' Association, 2011. Accessed May, 2021,
- Natural Heritage Information Centre (NHIC) database, 2021,
- Wellington County Official Plan, May 6, 1999 (2021 revision),
- Township of Wellington Zoning By-law 2009-045 (2018 consolidation),
- Wellington County Significant Species List (Dougan & Associates, 2009).

2.2 Wetland Boundary Delineation

The study area contains a portion of the Irvine Creek PSW near the northern limit of the study area as well as a smaller unevaluated GRCA wetland in the south-west corner of the study area. Shannon Davison, Certified Ontario Wetland Evaluator, AA, performed an initial staking of the boundaries of the two wetland communities on August 26, 2021, with verification by the GRCA completed the same day. Boundaries were determined using the vegetation species present and soil probes to depths of up to 60 cm for water and hydric soil detection, as per the *Ontario Wetland Evaluation System* (OWES, 2013). The wetland boundary was established where vegetation was comprised of 50% wetland and 50% upland species, and where soils displayed hydric conditions (e.g., presence of mottles and/or gleys), per the *Ontario Wetland Evaluation System* (OWES, 2013). Due to property access restrictions, it was not possible to confirm the accuracy of

the entire wetland boundary on adjacent lands outside of the study area. Detailed survey dates and weather information are provided in *Appendix 10*.

2.2.1 Buffer Recommendations and Setbacks

Recommended buffers and setbacks for wetland boundaries were determined through a variety of resources, including the GRCA's Wetland Policy Appendix – Interim Wetland Buffer Policy (2003); The City of London- Guidelines for Determining Setbacks and Ecological Buffers (2004); and the Ecological Buffer Guideline Review (Beacon, 2012).

2.3 Vegetation

2.3.1 Ecological Land Classification

Ecological Land Classification (ELC) field investigations were completed on May 18 & September 1, 2021. Detailed survey dates and weather information are provided in *Appendix 10*. Surveys were completed by qualified ecologists, Shannon Davison, OMNRF Certified in Ecological Land Classification and Kelly Skaug. Vegetation communities within the study area were characterized and delineated through field investigation, following the Ecological Land Classification (ELC) system for Southern Ontario 1st approximation; community codes used generally follow the 2nd approximation (Lee, et al., 1998, 2008). Boundaries of ELC communities were mapped using aerial images and field observations (*Figure 3*). Digitized ELC data sheets are provided in *Appendix 3*.

Identified ELC communities were cross-referenced with the NHIC Ontario Plant Community List (NHIC 2015) to determine the presence of rare plant communities (S1-S3). The Subnational, or Provincial, Ranks (S Rank) are assigned by the Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) in order to help assign protection priorities.

2.3.2 Botanical Inventory

The study area was inventoried where access was permitted, and from the property limits and roadside, to provide a comprehensive two season botanical inventory. Detailed survey dates and weather information are provided in *Appendix 10*.

Identified vascular plant species were compared to provincial and federal SAR lists (COSSARO, SARA), provincial ranks (NHIC 2021), global ranks, Wellington County Significant Plant List (Dougan & Associates, 2009), and the Distribution and Status of the Vascular Plants of Southwestern Ontario (Oldham, 1993) to assess federal, provincial, regional and local conservation status of each species. English colloquial

names and scientific binomials of plant species generally follow the Database of Vascular Plants of Canada (VASCAN) (VASCAN 2015).

Identification of environmentally sensitive plant species was completed based on the assignment of a coefficient of conservatism value (CC) for each native species (Oldham et al., 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to specific natural habitat parameters. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. These species may be more sensitive to environmental changes (Mortarello et al., 2010).

A list of all identified plant species is provided in *Appendix 4*. The list provides botanical name, common name, provincial rarity rank (S-Rank), global rarity rank (G-Rank), provincial SAR status, federal SAR status, coefficient of conservatism (CC) and coefficient of wetness (CW). Plant species that could only be identified to genus were not assigned the above information.

2.3.3 Tree Inventory

A total of 137 trees with a diameter at breast height (DBH) of 10cm of greater were inventoried in the study area by Dan Bechard, ISA Certified Arborist. DBH, species, overall condition and estimated crown reserve were collected for each tree. The locations of individual trees were surveyed by Dan Bechard on August 31, 2021.

2.4 Wildlife

2.4.1 Amphibians (Anurans)

Evening point count surveys to detect breeding calls of anurans (frogs and toads) were conducted by Shannon Davison, Ecologist, Kelly Skaug, Ecologist & Cheryl-Anne Ross, Wildlife Ecologist, Aboud & Associates, in accordance with the *Marsh Monitoring Program Participants Handbook for Surveying Amphibians* (Bird Studies Canada 2008). Three surveys were completed, in accordance with the recommended windows for the spring and early summer in order to maximize the chances of detecting all potential species. Surveys coincided with optimum weather conditions for anuran breeding activity and detection of calls, i.e., suitable temperature relative to each survey window, humid or damp but not raining, and low wind. Call Level Codes were applied to each species detected per area of suitable habitat, and numbers of individuals were counted or estimated, where applicable. The surveys took place on April 29, May 18 and June 24, 2021. The point count locations are illustrated on *Figure 3*; Survey results and call level code descriptions are provided in *Appendix 7.* Detailed survey dates and weather information are provided in *Appendix 10*.

2.4.2 Breeding Birds

Breeding Bird surveys were conducted in 2021 by Cheryl-Anne Ross, Wildlife Ecologist (AA), to determine if significant breeding bird habitat occurs within, or adjacent to, the study area. Two surveys were conducted, comprised of 10-minute point counts positioned at pre-determined locations. Surveys followed the Ontario Breeding Bird Atlas: Guide for Participants (Bird Studies Canada, 2001). The highest observed level of breeding evidence was used to assign breeding status (i.e., confirmed, possible, probably or observed) to each species.

Surveys were performed during the peak breeding season for the bulk of species in southern Ontario (last week of May through early July) and were spaced at least 10 days apart in order to determine presumed permanent territories through territorial singing males. The two surveys took place on the mornings of June 1 & June 22, 2021, between 30 minutes before dawn and 5 hours after dawn. The Point Count locations are illustrated on *Figure 3*; Survey results and breeding evidence code descriptions are provided in *Appendix 8*. Detailed survey dates and weather information are provided in *Appendix 10*.

2.4.2.1 Grassland Breeding Bird Surveys

Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) are listed as Threatened provincially as a result of widespread population declines throughout Canada due to several factors, including habitat loss and mortality (McCracken et al., 2013). Bobolink, Eastern Meadowlark and their habitat are protected under the Endangered Species Act (2007).

On June 1 & June 22, 2021, a Grassland Breeding Bird study was completed by Cheryl-Anne Ross, Wildlife Ecologist (AA) following the MNRF grassland breeding bird survey protocols. A third survey was not completed per the protocols as the existing hay field was cut, and therefore the habitat was no longer suitable. The surveys completed included point count locations every 250m along transects set 250m apart throughout the candidate habitat. The locations of birds in candidate habitat, breeding evidence and probable nest locations were identified. All other species observed incidentally were also recorded. The Point Count and transect locations are illustrated on *Figure 3*. Detailed survey dates and weather information are provided in *Appendix 10*.

2.4.3 Incidental Wildlife Observations

Incidental observations of insects, mammals, birds, and reptiles were recorded during all visits. Detailed survey dates and weather information are provided in *Appendix 9*.

2.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (MNRF, 2000) and the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the study area was considered for the presence of Significant Wildlife Habitat (e.g., specialized habitats for wildlife, and habitat for species of conservation concern). An assessment of the study area for all SWH is provided in *Appendix 5*.

2.6 SAR Habitat Assessment

A thorough review of all background documents was conducted to compile a master list of all Species at Risk, and species with conservation designation that may occur in the study area. A review of the site, along with habitat requirements for each species was conducted; the site was then evaluated for potential habitat using Ecological Land Classification, guidance from MNRF documents, and on-site knowledge acquired through field surveys. Detailed survey dates and weather information are provided in *Appendix 9*. An assessment of the study area of candidate habitat for SAR is provided in *Appendix 6.*

3.0 Existing Conditions

Information that characterizes the existing conditions of the study area came from several sources, including, but not limited to, background review of existing documents, public information sources, and field reconnaissance.

3.1 Background Review

3.1.1 Natural Heritage Information Centre - Species at Risk

Preliminary investigation through the Natural Heritage Information Centre (NHIC) identified three (3) provincial Species at Risk (SAR) records in the 1km x 1km squares (17NJ4942, 17NJ5141, 17NJ5140, 17NJ4941, 17NJ4940, 17NJ5042, 17NJ5041, 17NJ5040, 17NJ5142) containing the study area. Candidate habitat for Bobolink and Eastern Meadowlark was identified as occurring in the study area. Species and habitat requirements are summarized in *Table 1*.

Table 1. NHIC Species at Risk Records

Scientific Name	Common Name	(COSEWIC) Status[1]	(SARO) Status[2]	Habitat Requirements
Dolichonyx oryzivorus	Bobolink	Threatened	Threatened	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)
Sturnella magna	Eastern Meadowlark	Threatened	Threatened	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).
Hirundo rustica	Barn Swallow	Threatened	Threatened	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC, 2011)

3.1.2 Ministry of Natural Resources and Forestry

A request for information was sent to the MNRF on May 10, 2021, to inquire whether any information is available pertaining to the natural features within the study area. A response was provided on June 21, 2021 that contained the wetland evaluation for the Irvine Creek PSW and also indicated that the watercourse within the study area is a warm water system with the restricted in-water timing window being from March 15 to June 30. The correspondence in its entirety is provided in *Appendix 11.*

3.1.3 Ministry of Environment, Conservation and Parks

A request for information was sent to the Ministry of Environment, Conservation and Parks (MECP) on May 10, 2021, to inquire whether there were any additional records of Species at Risk noted for the study area. A response was provided on May 26, 2021 and indicated that the MECP had records of Silver Shiner, Chimney Swift, Gypsy Cuckoo Bumble Bee and Redside Dace within or near the study area. The correspondence in its entirety is provided in *Appendix 11*.

3.1.4 Ontario Breeding Bird Atlas

A list of birds determined to be breeding (Possible, Probable or Confirmed) in the 10km x 10km squares containing the study area (17NJ54 & 17NJ44) during the 2001-2005 Ontario Breeding Bird Atlas was compiled. This list includes 120 species; nine are considered Species at Risk under the ESA and SARA, respectively (Northern Bobwhite (*Colinus virginianus*) (END, END), Eastern Wood-pewee (*Contopus virens*) (SC, SC), Bank Swallow (*Riparia riparia*) (THR, THR), Barn Swallow (*Hirundo rustica*) (THR, THR), Wood Thrush (*Hylocichla mustelina*) (SC, SC), Canada Warbler (*Wilsonia canadensis*) (SC, THR), Grasshopper Sparrow (*Ammodramus savannarum*) (SC, SC), Bobolink (*Dolichonyx orizivorus*) (THR, THR) and Eastern Meadowlark (*Sturnella magna*) (THR, THR). Potential breeding habitat was identified in the study area for three of these species (Eastern Wood-pewee (*Contopus virens*), Barn Swallow (*Hirundo rustica*), and Canada Warbler (*Cardellina Canadensis*)). Sixty-nine (69) of the species identified are considered Conservation Priority species by GRCA and sixty-three (63) are considered significant species in Wellington County (Dougan & Associates 2009). The findings of this review are presented in *Appendix 2*.

3.1.5 Ontario Reptile and Amphibian Atlas

Review of the Ontario Reptile and Amphibian Atlas (Ontario Nature, 2019) identified 13 species that are known to occur within the 10km x 10km squares containing the study area. This list includes one species at risk under the ESA; Common Snapping Turtle ((*Chelydra serpentina*) (SC, SC)), with one federally listed Species at Risk. Western Chorus Frog ((*Pseudacris triseriata*) (THR)), and one species listed under COSEWIC, Midland Painted Turtle ((*Chrysemys picta marginata*) (SC)). Two (2) of the species known to occur in the squares containing the study area are considered significant in Wellington County (Dougan & Associates, 2009). The findings of this review are presented in *Appendix 2*.

3.1.6 Atlas of the Mammals of Ontario

Review of the Atlas of the Mammals of Ontario (Dobbyn, 1994) identified 19 species that are known to occur within the 10km x 10km squares containing of the study area.

This list does not include any Species at Risk under the ESA or SARA. The findings of this review are presented in *Appendix 2*.

3.1.7 Ontario Butterfly Atlas

Review of the Ontario Butterfly Atlas online database (Toronto Entomologists' Association, 2019) identified 24 species that are known to occur within the 10km x 10km squares containing the study area. This list includes one Species at Risk under the ESA and SARA, respectively (Monarch (*Danaus plexippus*) (SC, SC)). The findings of this review are presented in *Appendix 2*.

3.1.8 eBird

eBird is on online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the study area. The closest reporting station is the Fergus Dog Park which is within the western corner of the study area. Fifteen (15) species have been observed at this site, all of which were noted within the Ontario Breeding Bird Atlas observations. It should be noted that eBird observations occur year-round, and may include non-breeding, wintering and migratory individuals. This list includes one Species at Risk listed under the ESA and SARA, respectively (Barn Swallow (*Hirundo rustica*) (THR, THR)). The findings of this review are presented in *Appendix 2*.

3.1.9 iNaturalist

iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to 1km from the study area and only research-grade reports, which are confirmed independently, were used to compile the list. Six research-grade reports were confirmed including three bird species, two vascular plant species and one insect species. One of the species observed is listed as a Species at Risk under the ESA, Bald Eagle ((*Haliaeetus leucocephalus*) (SC)). The findings of this review are presented in *Appendix 2.*

3.2 Wetland Boundary Delineation

3.2.1 Boundary Survey

Following confirmation of the PSW boundary by the GRCA on August 26, 2021, it was surveyed by Triton Engineering Services Limited (*Figure 1*).

3.2.2 Wetland Characteristics

The GRCA's online mapping (Grand River Information Network, 2021) shows part of the Provincially Significant Irvine Creek Wetland Complex, and an unevaluated GRCA wetland within the study area. A total of four wetland communities were identified within

the study area. The portion of the Irvine Creek PSW within the study area is comprised of a White Cedar- Conifer Mineral Swamp, a Conifer-Hardwood Mineral Mixed Swamp and a Mixed Mineral Meadow Marsh. The unevaluated GRCA wetland within the south-western corner of the study area consists of a Bebb's Willow Mineral Deciduous Thicket Swamp.

3.3 Vegetation

3.3.1 Ecological Land Classification & Botanical Inventory

The community polygons identified during the ELC survey are summarized in *Table 2* below. Field forms and a comprehensive vascular plant list for the entire study area are presented in *Appendices 3* and *4*, respectively.

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
Coniferous Swamp (SWC)		
SWCM 1-2	White Cedar- Conifer Mineral Swamp	This community occurs within the Irvine Creek PSW and is immediately adjacent existing agriculture. The Canopy and subcanopy are dominated by Eastern White Cedar (*Thuja occidentalis*) with Balsam Fir (*Abies balsamea*) and Yellow Birch (*Betula allegheniensis*) as secondary species. No understorey species are present however, the ground layer contains Common Oak Fern (*Gymnocarpium dryopteris*), Dewberry (*Rubus pubescens*), Sensitive Fern (*Onoclea sensibilis*) and Heart-leaved Foamflower (*Tiarella cordifolia*).
Mixed Swamp (SWM)		
SWMM 5	Conifer- Hardwood Mineral Mixed Swamp	This community occurs within the Irvine Creek PSW and continues north-west of the study area. The canopy contains Yellow Birch, Eastern White Cedar, Balsam Fir and Paper Birch (*Betula papyrifera*), with the subcanopy consisting of Eastern White Cedar and Balsam Fir. The understorey is comprised primarily of Smooth Gooseberry (R*ibes hirtellum*), with the ground layer including Colt's-foot (*Tussilago farfara*), Horsetail species (*Equisetum sp.*), Sensitive Fern and Common Oak Fern.
Thicket Swamp (SWT)		
SWTM 3-2	Bebb's Willow Mineral Deciduous Thicket Swamp	This community comprises the portion of the unevaluated GRCA wetland present within the south-western corner of the study area. The canopy is comprised of Eastern White Cedar, Yellow Birch, Black Ash (*Fraxinus nigra*) and Sugar Maple, while the subcanopy is dominated by Bebb's Willow (*Salix bebbiana*) with Red-osier Dogwood and Eastern White Cedar as secondary species. The understorey includes Red-osier Dogwood, Common Buckthorn, Alternate-leaved Dogwood and Prickly Gooseberry (*Ribes cynosbati*) with the ground layer including Reed Canary Grass (*Phalaris arundinacea*), Sensitive Fern (*Onoclea sensibilis*), Lesser Clearweed (*Pilea fontana*) and Swamp Aster (*Symphyotrichum puniceum*).
Shallow Marsh (MAS)		
MASM 1-1	Cattail Mineral Shallow Marsh	This community is within the Irvine Creek PSW and is immediately adjacent existing agriculture and a footpath from the Fergus Dog Park. The canopy and subcanopy are present around the edges of the community and contain Trembling Aspen, a Willow species (*Salix sp.*) and Balsam Poplar (*Populus balsamifera*). The understorey is dominated by Narrow-leaved Cattail (*Typha angustifolia*) and is

		accompanied by Red-osier Dogwood. No ground layer is present in this community.
Meadow Marsh (MAM)		
MAMM 3-1	Mixed Mineral Meadow Marsh	This community is within the Irvine Creek PSW and borders two private properties, one being residential, with the other being recently developed with a religious establishment. The canopy and subcanopy layers are sparse and contain Balsam Poplar. The understorey includes Reed Canary Grass, Grass-leaved Goldenrod (*Euthamia graminifolia*), Common Boneset (*Eupatorium perfoliatum*) and Spotted Joe-pye-weed (*Eutrochium maculatum*), with the ground layer consisting of Colt's-foot, Common Timothy (*Phleum pratense*), Common Teasel (*Dipsacus fullonum*) and Devil's Beggarticks (*Bidens frondosa*).
Deciduous Forest (FOD)		
FODM 4	Dry- Fresh Upland Deciduous Forest	Two polygons classified as Dry- Fresh Upland Deciduous Forest occur within the Study Area. The first polygon (Polygon 3) is located between the eastern portion of the Fergus Dog Park and the Irvine Creek PSW. The canopy is comprised of Trembling Aspen (*Populus tremuloides*), Sugar Maple (*Acer saccharum*), Paper Birch and Balsam Fir, while the subcanopy includes Black Cherry (*Prunus serotina*), Red Maple (*Acer rubrum*), White Ash (*Fraxinus americana*) and Yellow Birch. The understorey consists of Red Raspberry (*Rubus idaeus*), Black Raspberry (*Rubus occidentalis*) and Alleghany Blackberry (*Rubus allegheniensis*), with the ground layer consisting of Wild Strawberry (*Fragaria virginiana*), Wild Lily-of-the-valley (*Maianthemum canadense*), Canada Goldenrod (*Solidago canadensis*) and Field Horsetail (*Equisetum arvense*). The second polygon (Polygon 8) is located between the Elora-Cataract Trail and existing agriculture. The canopy includes Trembling Aspen, Black Cherry, Sugar Maple and Silver Maple (*Acer saccharinum*) with the subcanopy containing White Ash, Alternate-leaved Dogwood (*Cornus alternifolia*), Common Buckthorn (*Rhamnus cathartica*) and Common Apple (*Malus pumila*). The understorey consists of Common Buckthorn, Riverbank Grape (*Vitis riparia*), Red Raspberry and Prickly Gooseberry (*Ribes cynosbati*), while the ground layer is comprised of Yellow Trout-lily (*Erythronium americanum*), Ostrich Fern (*Matteuccia struthiopteris*), Wild Strawberry and Violet species (*Viola sp.*)
Mixed Forest (FOM)		
FOMM 4-2	Dry- Fresh White Cedar-Poplar Mixed Forest	This community occurs in the south-west corner of the study area, immediately adjacent the unevaluated GRCA wetland. The canopy and subcanopy contain Eastern White Cedar and Trembling Aspen, with Yellow Birch, Sugar Maple and Basswood (*Tilia americana*) as secondary species. The understorey includes Common Buckthorn and Alternate-leaved Dogwood, with the ground layer consisting of Yellow Trout-lily, Wild Strawberry, Wild Lily-of-the-valley and Rough Avens (*Geum lacinatum*).
Deciduous Woodland (WOD)		
WODM 4	Dry- Fresh Deciduous Woodland	This community surrounds the majority of the Elora-Cataract Trail within the study area. The canopy and subcanopy consists of White Ash and Red Maple with White Spruce (*Picea glauca*), Black Cherry, Common Apple and American Elm (*Ulmus americana*) as secondary species. The understorey includes Red Raspberry, Riverbank Grape, Prickly Gooseberry and Tartarian Honeysuckle (*Lonicera tatarica*), while the ground layer is comprised of Garlic Mustard (*Alliaria petiolata*), Goldenrod species (*Solidago sp.*), Yellow Trout-lily and Smooth Bedstraw (*Galium mollugo*).

Forb Meadow (MEF)		
MEFM 1-1	Goldenrod Forb Meadow	Two polygons classified as Goldenrod Forb Meadow are present in the study area. One is located between the Irvine Creek PSW and existing agriculture, with the other adjacent the unevaluated GRCA wetland and light industrial development. The canopy is sparse but consists of Eastern White Pine (*Pinus strobus*). The understorey includes Red-osier Dogwood, Common Buckthorn, Staghorn Sumac (*Rhus typhina*) and Manitoba Maple, with the ground layer being comprised of Canada Goldenrod, Tall Goldenrod (*Solidago altissima*), Wild Strawberry and Wild Carrot (*Daucus carota*).
Treed Agriculture (TAG)		
TAGM 5	Fencerow	This community located between the Fergus Dog Park and the Light Industrial development along the south-western edge of the study area. It is evident that the majority of the species have been planted, with some additional herbaceous and shrub species establishing in the understorey and ground layers. The canopy consists of Black Cherry and Sugar Maple, with the subcanopy including Manitoba Maple (*Acer negundo*), White Ash, European Mountain-ash (*Sorbus aucuparia*) and Common Apple. The understorey includes Red-osier Dogwood (*Cornus sericea*), Riverbank Grape, Common Buckthorn and Red Raspberry with the ground layer being comprised of Wild Strawberry, Meadow Brome (*Bromus erectus*), Canada Thistle (*Cirsium arvense*) and Virginia Creeper (*Parthenocissus quinquefolia*).
Green Lands (CGL)		
CGL 4	Recreational	Two small polygons containing a portion of the Fergus Dog Park have been classified as Recreational communities.
Open Agriculture (OAG)		
OAGM 1	Annual Row Crops	A large portion of the study area consist of existing annual row crop agricultural communities. During field investigations these communities consisted of Cultivated Oats (*Avena sativa*) and Alfalfa (*Medicago sativa*).
Residential (CVR)		
CVR 4	Single Family Residential	Several private properties containing single-family residential dwellings are included within the Study Area. All of these properties front onto 1 Line.
Commercial and Institutional (CVC)		
CVC 2	Light Industry	The western edge of the study area contains light industrial and storage developments.

3.3.1.1 Species at Risk, Regional and Local Significance

No vegetation communities listed in *Table 2* are considered rare in the province.

Between the botanical inventories conducted in the spring and summer, 114 vascular plants were identified to species within the study area. Of the species identified, 80 species or 71% were native and 34 species or 29% were exotic. Most of the native species are ranked S5 (Secure in Ontario) or SNA (S-Rank not applicable) with four species, White Ash, Green Ash (*Fraxinus pennsylvanica*), Black Ash and Rough Avens ranking S4 (Apparently secure in Ontario), and one species, Virginia Creeper, ranked S4? indicating uncertainty in its ranking. No S1-S3 species were observed in the study area. Three species, Meadow Horsetail (*Equisetum pratense*), Rough Avens and Smooth Gooseberry, are considered significant in Wellington County (Dougan & Associates, 2009).

As of November 2018, Black Ash has been listed as Threatened by the COSEWIC. It is currently not listed under the ESA or SARA. No vascular plant species listed under the ESA or SARA were found.

3.3.2 Tree Inventory

The tree inventory collected information for 137 trees in the study area. The specific data for each individual tree is provided in *Appendix 13*, including overall condition, score and recommended actions based on condition and development. The locations and identification numbers of trees impacted are detailed in the Tree Protection Plan (*Appendix 13*). A total of 18 species were identified during the tree inventory, of those species Sugar Maple was the most abundant (25%), followed by Black Locust (19%) and Eastern Cottonwood (14%). Associate species include Norway Maple (6%), Manitoba Maple (5%) and Silver Maple (4%), with the remaining 27% comprised of eleven species with 1 to 4 individual trees.

A summary of each Option and the number of trees recommended to be preserved or removed based on the health and condition of trees or the development impact is detailed in *Table 3*. Further inventory may be required at the detailed design stage to ensure a thorough accounting of the trees that may be impacted.

Table 3. Summary of Tree Impacts

	Individual Trees				
Recommendation	Option 1	Option 2	Option 3	Option 4	Option 5
Remove (Development)	3	3	3	3	0
Remove (Development & Condition)	1	1	1	1	0
Total Preserved	130	130	130	130	137
Total Removed	4	4	4	4	0

3.4 Wildlife

3.4.1 Amphibians (Anurans)

The results of the Anuran Point Count Surveys are summarized in *Table 3*, and results are discussed below. The Point Count Locations are illustrated on *Figure 3*, and Call Level Code descriptions, along with the complete survey results, are provided in *Appendix 7*.

Table 4. Amphibian Survey Results

SPECIES	AMPHIBIAN HABITAT		
	A	**B**	**C**
American Bullfrog		1-1	
Spring Peeper	3*	3	
Green Frog		1-3	
Northern Leopard Frog			
Wood Frog		2-3	
American Toad	2-2*	1-1	
Significant Habitat*	***No***	***Yes***	***No***

*- Species identified outside of 100m radius
Significance: Y-Indicates Amphibian Habitat meets the criteria listed under the Ecoregion 6E SWH Criteria guide (2015). N-Indicates Amphibian Habitat did not meet the criteria listed under the Ecoregion 6E SWH Criteria guide (2015).

3.4.1.1 Amphibian Habitat A

Two anuran species were detected calling from Station A; however, they were outside of the 100m radius. This survey location targeted the western edge of the portion of the Irvine Creek PSW within the study area. Based on the Significant Wildlife Habitat Criteria Guide (MNRF, 2015), Amphibian Habitat A does not meet the criteria for Significant Wildlife Habitat- Amphibian Breeding Habitat (Wetland), as all species detected were outside of the 100m station radius.

3.4.1.2 Amphibian Habitat B

Five anuran species were detected calling from within Station B. This site targeted the Cattail Mineral Shallow Marsh and the edge of the White Cedar- Conifer Swamp. Based on the Significant Wildlife Habitat Criteria Guide (MNRF, 2015), Amphibian Habitat B does meet the criteria for Significant Wildlife Habitat- Amphibian Breeding Habitat (Wetland) as 20 or more individuals of the frog species listed were detected through all amphibian surveys.

3.4.1.3 Amphibian Habitat C

No anuran species were detected calling from within Station C. This site targeted the unevaluated GRCA wetland within the south-western corner of the study area. During field investigations it was noted that one of the industrial developments closest to the Station C location was quite noisy, which may have negatively impacted the potential for amphibian breeding. Based on the Significant Wildlife Habitat Criteria Guide (MNRF, 2015), Amphibian Habitat C does not meet the criteria for Significant Wildlife Habitat- Amphibian Breeding Habitat (Wetland) as no species were detected.

3.4.1.4 SAR, Regional and Local Significance

No species observed are considered federal or provincial Species at Risk. The subnational or provincial ranks (S-Rank) are assigned by the MNRF Natural Heritage Information Centre in order to help assign protection priorities. Most of the species

detected are ranked S5 (Secure in Ontario), with one species American Bullfrog (*Lithobates catesbeianus*) ranked S4 (Apparently Secure).

3.4.2 Breeding Birds

The results of the Breeding Bird Survey (BBS) are presented in *Tables 4 & 5*. During BBS visits, a total of 32 species were detected during point counts. During area search transects a total of 21 species were detected, three of which were not identified during point counts (Great Blue Heron (*Ardea herodias*), Ovenbird (*Seiurus aurocapilla*) and White-throated Sparrow (*Zonotrichia albicollis*).

Due to the contiguity with natural lands surrounding the study area, it is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the Breeding Bird Surveys. These species may have been foraging in these areas or, may have been wandering post-breeding dispersal. Therefore, the following nine species are those that can be presumed to have been breeding within the study area: American Crow (*Corvus brachyrhynchos*), House Wren (*Troglodytes aedon*), American Robin (*Turdus migratorius*), European Starling (*Sturnus vulgaris*), Indigo Bunting (*Passerina cyanea*), Savannah Sparrow (*Passerculus sandwichensis*), Song Sparrow (*Melospiza melodia*), Red-winged Blackbird (*Agelaius phoeniceus*) and American Goldfinch (*Carduelis tristis*). The Breeding Bird survey results in their entirety can be found in *Appendix 8*.

Table 5. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSARO	COSEWIC	S-RANK	G-RANK	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County (2009)	A		B		C		D		E		F		FINAL HBE
											TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	
Canada Goose	*Branta canadensis*			S5	G5				CP				5	FO									FO
Ring-billed Gull	*Larus delawarensis*			S5B,S4N	G5					✓					1	FO					1	FO	FO
Herring Gull	*Larus argentatus*			S5B,S5N	G5					✓					1	FO							
Mourning Dove	*Zenaida macroura*			S5	G5						1	S									2	FO	
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	G5			✓		✓	2	S			1	S							S
Eastern Phoebe	*Sayomis phoebe*			S5B	G5				CP						1	S*							S*
Great Crested Flycatcher	*Myiarchus crinitus*			S4B	G5														1	S		1	S
Blue Jay	*Cyanocitta cristata*			S5	G5						2	S											
American Crow	*Corvus brachyrhynchos*			S5B	G5												2	A	2	T	3	S	A
Black-capped Chickadee	*Poecile atricapillus*			S5	G5				CP						1	S*							S*
Red-breasted Nuthatch	*Sitta canadensis*			S5	G5	✓	>10ha		CP										1	S			S
House Wren	*Troglodytes aedon*			S5B	G5						2	S			1	S	1	S					S
American Robin	*Turdus migratorius*			S5B	G5						1	S	1	S			1	S					S
Gray Catbird	*Dumetella carolinensis*			S4B	G5				CP						1	S*							S*
Brown Thrasher	*Toxostoma rufum*			S4B	G5			✓	CP	✓					1	S*	1	S*					S*
Cedar Waxwing	*Bombycilla cedrorum*			S5B	G5						1	FO					2	S	2	H			H
European Starling	*Sturnus vulgaris*			SNA	G5										5	FY	1	S	1	FO	6	NY	FY
Warbling Vireo	*Vireo gilvus*			S5B	G5						1	S*	2	S									S
Red-eyed Vireo	*Vireo olivaceus*			S5B	G5						2	S	1	S	1	S*			1	S			S
Yellow Warbler	*Dendroica petechia*			S5B	G5														1	S			S

Table 5. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSARO	COSEWIC	S-RANK	G-RANK	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County (2009)	A		B		C		D		E		F		FINAL HBE
											TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	
American Redstart	*Setophaga ruticilla*			S5B	G5	✓	>100ha		CP	✓			2	S					1	S			S
Northern Cardinal	*Cardinalis cardinalis*			S5	G5								1	S			1	S*	1	S			S
Indigo Bunting	*Passerina cyanea*			S4B	G5						1	S			1	S*			2	S			S
Chipping Sparrow	*Spizella passerina*			S5B	G5										1	S							S
Savannah Sparrow	*Passerculus sandwichensis*			S4B	G5	✓	>50ha	✓	CP	✓					4	S	4	S	1	S*	2	S	S
Song Sparrow	*Melospiza melodia*			S5B	G5								1	A			2	S			2	S	A
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓					1	S	1	D					D
Red-winged Blackbird	*Agelaius phoeniceus*			S4	G5								5	A	3	S	4	S	2	S	5	S	A
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓									1	S*			S*
Brown-headed Cowbird	*Molothrus ater*			S4B	G5										1	FO							
American Goldfinch	*Carduelis tristis*			S5B	G5				CP		1	S			1	H	1	S	1	H	1	H	S
House Sparrow	*Passer domesticus*			SNA	G5																1	S*	S*

Table 6. Area Search Transects- Highest Breeding Evidence (HBE)

Common name	Scientific name	COSARO	COSEWIC	S RANK	G RANK	Area Sensitive (MNRF 2000)	Area Required (Ha)	PIF priority Species (BCR 13)	GRCA(web)	Wellington County (2009)	HBE
Great Blue Heron	*Ardea herodias*			S4	G5					✓	X
Mourning Dove	*Zenaida macroura*			S5	G5						S
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	G5			✓		✓	S
American Crow	*Corvus brachyrhynchos*			S5B	G5						H
Black-capped Chickadee	*Poecile atricapillus*			S5	G5				CP		S
House Wren	*Troglodytes aedon*			S5B	G5						S
American Robin	*Turdus migratorius*			S5B	G5						S
European Starling	*Sturnus vulgaris*			SNA	G5						S
Warbling Vireo	*Vireo gilvus*			S5B	G5						S
Red-eyed Vireo	*Vireo olivaceus*			S5B	G5						S
Yellow Warbler	*Dendroica petechia*			S5B	G5						S
American Redstart	*Setophaga ruticilla*			S5B	G5	✓	>100ha		CP	✓	S
Ovenbird	*Seiurus aurocapilla*			S4B	G5	✓	>70ha		CP	✓	S
Chipping Sparrow	*Spizella passerina*			S5B	G5						S
Savannah Sparrow	*Passerculus sandwhichensis*			S4B	G5	✓	>50ha	✓	CP	✓	S
White-throated Sparrow	*Zonotrichia albicollis*			S5B	G5				CP		S
Bobolink	*Dolichonyz oryzivorus*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	S
Red-winged Blackbird	*Agelaius phoeniceus*			S4	G5						S
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	S
American Goldfinch	*Carduelis tristis*			S5B	G5				CP		S

Legend (Table 4 and 5):
COSARO: Committee on the status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act
THR: Threatened SC: Special Concern
S-Rank:
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
G-Rank:
G5: Very common globally; demonstrably secure

Breeding Evidence:
Observed
FO-flyover
X- species observed In breeding season
Possible
H-suitable habitat
S-singing male
Probable
T- Presumed territory
A- Agitated behaviour
Confirmed
FY- Fledged Young

Grand River Conservation Authority:
CP: Conservation Priority

3.4.2.1 Breeding Bird Species at Risk

Three species observed are considered Species at Risk under the ESA. Eastern Meadowlark, and Bobolink are listed as Threatened provincially and federally and Eastern Wood-pewee is listed as Special Concern provincially and federally, locations of observations are shown on *Figure 3*.

Eastern Meadowlark and Bobolink are area sensitive, grassland species, often nesting in hay fields and pastures, as well as occasionally occurring in other types of grassed areas such as golf courses, and airfields. The grassland habitat requires a moderate thatch cover, low shrub and tree density, and moderate or limited forbs cover. Large tracts of grassland are typically preferred over smaller patches (McCracken et. al. 2013). A single male Eastern Meadowlark was observed singing from the agricultural community north-east of 1 Line during the first breeding bird survey (*Figure 3*). Three Bobolinks were observed singing within the agricultural community south-west of 1 Line during the first breeding bird survey (*Figure 3*). However, due to observations during only one of the surveys, the lack of confirmed breeding evidence, the total area of the agricultural fields (<30ha), and the high forb content, it was determined that the existing agricultural communities are not suitable habitat for Eastern Meadowlark or Bobolink.

Eastern Wood-pewee are associated with mid-age mixed and deciduous forest stands, often dominated by Maple (*Acer*), Elm (*Ulmus*) or Oak (*Quercus*), and include areas with clear-cuts, openings, or forest edges. Eastern Wood-pewee also prefers forest stands with little to no understory vegetation (COSEWIC 2012). Eastern Wood-pewee was observed singing during both breeding bird surveys in the Conifer- Hardwood Mineral Mixed Swamp, north of the study area, and along the edge of the Conifer-Hardwood Mineral Mixed Swamp and the Goldenrod Forb Meadow (*Figure 3*).

3.4.2.2 Breeding Bird Regional and Local Significance

All species detected in the study area are ranked as either S5 (Secure) or S4 (Apparently Secure) or in Ontario. The rank qualifier ‘B’ denotes the status of a migratory species during the breeding season.

The County of Wellington has identified a number of species considered significant (Dougan & Associates, 2009). Eleven regionally significant species were observed in the study area, one of which, Bobolink, showed probable breeding evidence.

3.4.2.3 Breeding Bird Regional Priority Species

The Ontario Landbird Conservation Plan (OLCP): Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13 (Ontario Partners in Flight, 2008) has identified a number of species that are considered conservation priorities for the region. Five priority species were observed in the study area, including Eastern Wood-pewee, Brown Thrasher, Savannah Sparrow, Bobolink and Eastern Meadowlark. The OLCP does not provide legislative protection of species or their habitat, but rather identifies species that should be conservation priorities on a regional level that were not designated Species at Risk at the time of writing.

3.4.3 Grassland Breeding Bird Survey (Transects)

The results of the Grassland Breeding Bird Survey (GBBS) transects are presented in *Table 6*. During GBBS visits a total of nine species were detected over two transect area searches. Species breeding evidence observed included eight assigned 'Possible' and one assigned 'Probable'. All were detected within the study area.

Due to the contiguity with natural lands surrounding the study area, it is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the surveys. These species may have been foraging in these areas or, may have been wandering during post-breeding dispersal. Therefore, the following species can be presumed to be breeding within or adjacent the grassland areas: Red-winged Blackbird (*Agelaius phoeniceus*). Grassland Breeding Bird survey results in their entirety can be found in *Appendix 9*.

Table 7. Grassland Breeding Bird Survey Results

Common name	Scientific name	COSARO	COSEWIC	S RANK	G RANK	Area Sensitive (MNRF 2000)	Area Required (Ha)	PIF priority Species (BCR 13)	GRCA(web)	Wellington County (2009)	June 1 HBE	June 22 HBE
Eastern Phoebe	*Sayomis phoebe*			S5B	G5				CP			S
American Robin	*Turdus migratorius*			S5B	G5						H	
European Starling	*Sturnus vulgaris*			SNA	G5						H	
American Crow	*Corvus brachyrhynchos*			S5B	G5							H
House Wren	*Troglodytes aedon*			S5B	G5							S
Song Sparrow	*Melospiza melodia*			S5B	G5							S
Savannah Sparrow	*Passerculus sandwhichensis*			S4B	G5	✓	>50ha	✓	CP	✓		S
Bobolink	*Dolichonyz oryzivorus*	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	H	
Red-winged Blackbird	*Agelaius phoeniceus*			S4	G5						S	S

Legend (Table 4 and 5):
COSARO: Committee on the status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act
THR: Threatened SC: Special Concern
S-Rank:
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
G-Rank:
G5: Very common globally; demonstrably secure

Breeding Evidence:
Possible
H-suitable habitat
S-singing male

Grand River Conservation Authority:
CP: Conservation Priority

3.4.3.1 Species at Risk, Regional and Local Significance

One species observed, Bobolink, is listed as Threatened under the ESA and SARA. It was detected during the first grassland breeding bird survey and was observed within the existing agricultural community.

The Subnational, or Provincial Ranks (SRank) are assigned by the Ontario Ministry of Natural Resources and Forestry Natural Heritage Information Centre in order to help assign protection priorities. All species detected during the GBBS within the study area are ranked as either S4 (common) or S5 (very common) in Ontario. The rank qualified 'B' denotes the status of a migratory species during the breeding season.

Within Wellington County, two species that are considered significant were observed during the GBBS. Savannah Sparrow and Bobolink both displayed 'Possible' breeding evidence in the form of a singing male or adult producing other sounds associated with breeding. Both species were observed from Transect 1.

3.4.4 Incidental Wildlife Observations

Incidental wildlife observations made outside of the above formal field surveys are presented in *Table 7*. All observations were of single individuals unless otherwise stated.

Table 8. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Location/Notes
Red-winged Blackbird	*Agelaius phoeniceus*	Bird	May 18, 2021	Calling within Cattail Shallow Marsh
Eastern Wood-pewee	*Contopus virens*	Bird	Sept. 1, 2021	Calling within the White Cedar- Conifer Swamp.
American Redstart	*Setophaga ruticilla*	Bird	May 18, 2021	Calling adjacent to the Bebb's Willow Thicket Swamp
Canada Goose	*Branta canadensis*	Bird	May 18, 2021	Flying over the Upland Deciduous Forest
Downy Woodpecker	*Picoides pubescens*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail
Black-capped Chickadee	*Poecile atricapillus*	Bird	May 18 & Sept 1, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail. Heard calling during amphibian surveys.
Blue Jay	*Cyanocitta cristata*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail
Northern Cardinal	*Cardinalis cardinalis*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail
Baltimore Oriole	*Icterus galbula*	Bird	May 18, 2021	Observed within the Deciduous Woodland along the Elora Cataract Trail

Table 8. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Location/Notes
Ruby-throated Hummingbird	*Archilochus colubris*	Bird	Sept. 1, 2021	Observed within the Goldenrod Forb Meadow
Eastern Chipmunk	*Tamias striatus*	Mammal	May 18, 2021	Observed within the Upland Deciduous Forest
White-tailed Deer	*Odocoileus virginianus*	Mammal	June 22, 2021	Observed in agricultural field during Breeding Bird surveys
Bat sp.	*Myotis sp.*	Mammal	May 18, 2021	Multiple individuals observed flying overhead during amphibian surveys.
Eastern Gartersnake	*Thamnophis sirtalis sirtalis*	Reptile	Sept. 1, 2021	Observed within the Conifer-Hardwood Mixed Swamp
American Toad	*Anaxyrus americanus*	Amphibian	Sept. 1, 2021	Observed within the Cattail Shallow Marsh.
Green Frog	*Lithobates clamitans*	Amphibian	June 22 & August 23, 2021	Observed within the Cattail Shallow Marsh during Breeding Bird survey and wetland delineation.
Northern Leopard Frog	*Lithobates pipiens*	Amphibian	August 23, 2021	Observed within the Cattail Shallow Marsh
Viceroy	*Limenitis archippus*	Insect	Sept. 1, 2021	Observed within the Goldenrod Forb Meadow.

3.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), we have determined that Significant Wildlife Habitat in the form of Deer Winter Congregation Areas, Seeps and Springs, Special Concern & Rare Wildlife Species and Deer Movement Corridor is present within the study area. In addition, candidate Significant Wildlife Habitat in the form of Bat Maternity Colony is also present within the study area.

3.5.1 Deer Winter Congregation Areas & Movement Corridors

Deer Winter Congregation Areas are defined as large woodlands greater than 100ha in area in which deer maintain trails leading from the cover to areas of woody browse, mast-producing trees or other food sources (OMNRF, 2014). Movement corridors require specific habitat features such as coniferous forest habitat with dense understorey containing a wealthy supply of shrubs of various species (OMNRF, 2014). Often, with movement corridors, these features will also exhibit terrain features such as ridges and valleys (OMNRF, 2014). Both Deer Winter Congregation Areas and Movement Corridors are defined by the OMNRF through their Land Information Ontario database. The portion of the Irvine Creek PSW within the northern portion of the study area, including the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities are designated as being part of a Deer Winter Congregation Area and a Movement Corridor.

It is the opinion of AA that the SWH will not be negatively impacted as no removal of either vegetation community is being proposed, and it is unlikely that individuals would use the existing agricultural field as movement corridor as the feature to the south is smaller and isolated from other natural features.

3.5.2 Seeps and Springs

Seepage areas and springs are groundwater discharge areas which can often be found within the headwater areas of forested habitats (OMNRF, 2014). They may also provide valuable wildlife habitat and food sources as in early spring seeps are one of the first areas where vegetation grows (OMNRF, 2014). Through field investigations, multiple seeps were observed throughout the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Mixed Swamp communities within the study area. Per the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the SWH consists of the area of ELC ecosite containing the seep/spring, therefore both the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities are classified as Significant

Wildlife Habitat for seeps and springs. It is the opinion of AA that the SWH will not be negatively impacted as no removal of either vegetation community is being proposed.

3.5.3 Special Concern & Rare Wildlife Species

Eastern Wood-pewee, listed as Special Concern under the ESA and SARA, was observed during field investigations. Per the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the SWH consists of the area of the habitat to the finest ELC scale that protects the habitat form and function. Since Eastern Wood-pewee was observed within both the Conifer-Hardwood Mixed Swamp and the White Cedar-Conifer Coniferous Swamp, which provide suitable habitat, both vegetation communities have been classified as Significant Wildlife Habitat. It is the opinion of AA that the SWH will not be negatively impacted, as no removal of either vegetation community is being proposed.

Monarch, listed as Special Concern under the ESA and SARA, was observed during field investigations. Per the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the SWH consists of the area of the habitat to the finest ELC scale that protects the habitat form and function. Since several Monarch individuals were observed within the Goldenrod Forb Meadow immediately adjacent the White Cedar-Conifer Coniferous Swamp, which provides suitable habitat, it has been classified as Significant Wildlife Habitat. It is the opinion of AA that the SWH will not be negatively impacted provided the mitigation and restoration recommendations provided in Sections 4.2 & 7.0, are implemented through all stages of construction.

3.5.4 Bat Maternity Colonies

Candidate Bat Maternity Colony habitat is present within the Fencerow communities, the Dry- Fresh Upland Forest and along the edge of the Agricultural community and the White Cedar-Conifer Coniferous Swamp. Investigations were completed to identify candidate maternity trees. A total of 24 trees that exhibited characteristics of potential colony trees were identified within the Study Area. All trees identified had a diameter at breast heigh greater than 10cm. The results of the candidate maternity tree investigations can be found in *Table 8*, with the locations of each tree being shown on *Figure 4*.

Table 9. Candidate Bat Maternity Habitat

Tree #	Tree Species	DBH (cm)	Height Class[1]	Snag Attributes						Easting	Northing
				Cavity [2]	Loose Bark	Crack	Knot Hole	Snag within 10m?	Decay Class 1-3[3]		
1	*Acer saccharinum*	84, 91	1	Y (15m)	Y	Y	Y	Y	2	550030.8	4841665.3
2	*Acer saccharinum*	72, 66.5	1	Y (10m)	Y	Y	Y	Y	2	550039.1	4841672.8
3	*Acer saccharinum*	74	1	Y (15m)	Y	N	Y	Y	2	550048.1	4841667.0
4	*Acer saccharinum*	62	2	Y (10m)	Y	Y	Y	Y	2	550052.0	4841662.5
5	*Acer saccharinum*	63	1	Y (10m)	Y	Y	Y	Y	2	550055.7	4841661.5
6	*Acer saccharinum*	81	1	Y (15m)	Y	Y	Y	Y	2	550061.6	4841651.9
7	*Acer saccharinum*	84	1	Y (15m)	Y	Y	Y	Y	2	550068.0	4841645.4
8	*Acer saccharinum*	68, 35	1	Y (10m)	Y	Y	Y	Y	2	550071.8	4841641.4
9	*Acer saccharum*	102	2	Y (15m)	N	Y	Y	Y	2	550076.7	4841640.1
10	*Acer saccharinum*	76, 52	1	Y (5m)	N	N	Y	Y	2	550081.7	4841637.0
11	*Prunus serotina*	41, 34	2	Y (10m)	Y	Y	N	Y	2	550155.2	4841576.3
12	*Prunus serotina*	60	3	Y (10m)	Y	Y	Y	Y	2	550173.7	4841556.4
13	*Acer saccharum*	97	1	Y (15m)	Y	Y	Y	Y	2	550292.7	4841442.6
14	*Acer saccharum*	79	1	Y (20m)	Y	N	Y	Y	2	550311.2	4841440.2
15	*Acer saccharum*	96	1	Y (15m)	Y	N	Y	Y	2	550342.6	4841449.6
16	*Acer saccharum*	92	2	Y (10m)	Y	Y	Y	Y	2	550355.5	4841453.9
17	*Prunus serotina*	57	1	Y (20m)	Y	Y	N	Y	2	550482.8	4841272.6
18	*Acer saccharum*	51, 52	1	Y (15m)	Y	N	Y	Y	2	550504.4	4841281.1
19	*Prunus serotina*	65	1	Y (15m)	Y	N	Y	Y	2	550506.9	4841278.6
20	*Prunus serotina*	49, 32	1	Y (10m)	Y	N	Y	Y	2	550513.7	4841285.9
21	*Prunus serotina*	32, 47	1	Y (15m)	Y	N	Y	Y	2	550513.4	4841292.9
22	*Prunus serotina*	59	2	Y (12m)	Y	N	Y	Y	2	550517.7	4841298.0
23	*Prunus serotina*	51, 72	1	Y (10m)	Y	N	Y	Y	2	550526.2	4841303.9
24	*Prunus serotina*	75	1	Y (10m)	Y	N	Y	N	2	550209.8	4841679.5

Studies to confirm Bat Maternity Habitat have not been completed in the study area. Following the MNRF Guelph District Protocol (2014), all Candidate Bat Maternity Habitat will be assumed significant. In the event that site activities will affect significant habitat, it is recommended that detailed studies of Candidate Bat Habitat which may be affected, occur pre-construction. As noted in the Tree Preservation Plan (*Appendix 13*) and per the alignments provided, none of the trees identified as candidate Bat Maternity Habitat are proposed for removal.

3.6 SAR Habitat Assessment

An assessment of all Species at Risk, and species with conservation designation, that have the potential to occur in the study area based on lists provided by several wildlife atlases, correspondence with MECP and MNRF Species Occurrence Mapping was completed and is provided in *Appendix 6*. Species assessed include all species with Provincial SARO status, Federal SARA status, or an S-rank of S1-S3. See *Appendix 6* for a detailed assessment of Species at Risk habitat.

3.6.1 Wetland Communities

Candidate habitat for Western Chorus Frog, West Virginia White, Canada Warbler and Blanding's Turtle was identified within the Mixed and Coniferous Swamp communities. No individuals were observed during field investigations. Candidate Species at Risk habitat within the Mixed and Coniferous swamp will not be negatively affected as all proposed development is located outside of these communities.

3.6.2 Meadow and Agricultural Communities

Candidate habitat for Gypsy Cuckoo Bumble Bee, Monarch, Rusty-patched Bumble Bee, Yellow-banded Bumble Bee, Bobolink and Eastern Meadowlark was identified within the Meadow and Agricultural communities. Monarch, Bobolink and Eastern Meadowlark were observed during field investigations.

3.6.2.1 Monarch

As noted in Section 3.5.3 several Monarch individuals were observed within the Goldenrod Forb Meadow immediately adjacent the White Cedar-Conifer Coniferous Swamp. Since Common Milkweed (*Ascelpias syriaca*) was noted as being present within this community, it contains suitable habitat for all Monarch life stages. Since Monarch is only listed as Special Concern, it does not receive general habitat protection through the ESA and SARA.

3.6.2.2 Bobolink and Eastern Meadowlark

As noted in Sections 3.4.2 and 3.4.3, Bobolink and Eastern Meadowlark were observed within the existing agricultural communities in the Study Area. Since Bobolink and Eastern Meadowlark are listed as Threatened provincially (ESA, 2007) and federally (Species at Risk Public Registry, 2021) individuals and their habitat are afforded protection under the ESA. Bobolink and Eastern Meadowlark have similar habitat requirements, although each species exhibits its own preferences for certain microhabitat characteristics. Generally, both species tend to occupy grassland >5 ha that contain a high grass to forb ration, with the presence of scattered woody shrubs or spalings, fence posts, poles or wires to be used as perches. On a microhabitat scale, Bobolink prefer larger fields (>10 ha), lower forb composition, tolerate wetter conditions, and are less tolerant of patches of bare ground. Meadowlark tolerate higher proportion of shrubs, bare ground, smaller field size and prefer drier sites (McCracken et al., 2013).

Although both species were observed during field investigations, neither Bobolink nor Eastern Meadowlark were confirmed to be breeding within the study area. Since observations of both species only occurred during the first Breeding Bird and Grassland Bird surveys, the high forb content within the agricultural communities and the lack of interior habitat (>200m from the edge), it is the opinion of AA that the study area does not contain suitable habitat for Bobolink or Eastern Meadowlark and that the individuals observed were scoping this location for suitability early in the breeding season. Therefore, the proposed road extension and multi-use path will not negatively impact the species or their habitat.

3.6.3 Fencerow and Edge Habitat

Candidate habitat for Milksnake, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-coloured Bat was identified within the fencerow and edge habitat of existing woodlands and forest communities. Myotis species were observed during the May Amphibian surveys; however, the species could not be accurately identified, per the Wildlife Acoustics software utilized. As the majority of edge habitat within the study area will not be impacted by the proposed road extension and multi-use pathway it is the opinion of AA that candidate habitat for Milksnake will not be negatively impacted. However, tree removals may be necessary to accommodate the proposed multi-use pathway. As studies to confirm Bat Species at Risk within the study area were not completed as part of the EIS, it is recommended that if removal of candidate bat habitat is proposed, detailed studies occur pre-construction and all tree removals, if required, occur between October 1 and April 1.

3.7 Geology and Soils

Per the Soil Map and Survey of Wellington County (Hoffman et al., 1963), the study area is comprised of three different soil types. The soils within portions of the Irvine Creek PSW in the study area is classified as Muck. Soils that have been classified as Muck consist of organic deposits that have accumulated in wet undrained depressions and are most likely to develop in areas that are water-saturated for the entire year (Hoffman et al., 1963). These soils differ from others described as they are derived from decayed plant remains.

Within the agricultural communities of the study area, the soils are classified as being Harriston Loam. Harriston soils have a moderately to gently rolling topography and are well drained (Hoffman et al., 1963). The parent material is a glacial till that has been derived from the soft limestones that form the underlying rock strata (Hoffman et al., 1963). Harriston soils are among the best agricultural soils in Southern Ontario.
The soils within the southern corner of the study area containing the unevaluated wetland are classified as Parkhill Loam (Hoffman et al., 1963). Compared to upland soils, Parkhill soils have a much darker and thicker surface soil that are produced through a mixture of organic material from decaying matter and mineral soils (Hoffman et al., 1963).

4.0 Impact Analysis, Mitigation and Restoration

Based on the results of the field investigations, the proposed road extension and multi-use pathway will result in impacts to the existing natural features. *Tables 9* and *10* evaluate the EA alternatives and provide mitigation and restoration recommendations, respectively.

4.1 Analysis and Comparison of Road Extension and Multi-use Pathway

Five options (1, 2, 3, 4 & 5), provided by Triton Engineering Services Limited, were considered in the evaluation of impacts to the Natural Environment. Options 1 through 4 consist of the extension of Dickson Drive to First Line with an additional cul-de-sac extended south, each option differing in regard to stormwater infrastructure and the installation of a multi-use pathway. The options are provided in detail below and are shown on *Figures 1a-1d*.

4.1.1 Option 1

The road will be constructed as a typical urban section with curb and gutters. The option also includes the installation of a multi-use pathway connecting the existing Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive. Stormwater management of this option will be provided by way of below grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s), below grade run-off storage (chambers and/or super pipes) and a low slope polishing swale.

4.1.2 Option 2

Similar to Option 2, the road will be constructed as typical urban section with curb and gutters and includes the installation of a multi-use pathway connecting the existing Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive. Stormwater management will be provided by way of both below and above grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s) with above grade run-off storage (ponds) and a low slope polishing swale.

4.1.3 Option 3

The road will be constructed as a typical rural section with ditches. Similar to Options 1 and 2, this option proposes the installation of a multi-use pathway connecting the existing Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive. Stormwater management will be provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale.

4.1.4 Option 4

Similar to Option 3 the road will be constructed as a typical rural section with ditches. Stormwater management will be provided by way of above grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale. Option 4 does not propose the installation of the multi-use pathway from the Fergus Dog Park to the Elora Cataract Trail south-east of Dickson Drive.

4.1.5 Option 5

Option 5 consists of doing nothing with the existing conditions remaining as they are presently.

In order to evaluate the EA Options provided, each option was assessed with respect to potential impacts to the significant features of the natural environment identified through background and field investigations. These are:

- Impacts to Trees;
- Impacts to Vegetation;
- Impacts to Significant Wildlife Habitat;
- Impacts to Species at Risk;
- Impacts to Wildlife & Wildlife Habitat, and;
- Impacts to Wetlands.

Table 10. Comparison & Rating of Natural Feature Impacts by EA Alternative

Factor/Criteria	Option 1	Option 2	Option 3	Option 4	Option 5
Trees	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	A total of 4 trees are recommended for removal. Three due to development and one due to development & condition.	No trees will be affected.
Vegetation	Majority of vegetation impacted is within existing Agricultural communities. Small portions of the Goldenrod Forb Meadow, Dry-Fresh Deciduous Woodland and Upland Deciduous Woodland is proposed for removal.	Majority of vegetation impacted is within existing Agricultural communities. Small portions of the Goldenrod Forb Meadow, Dry-Fresh Deciduous Woodland and Upland Deciduous Woodland is proposed for removal.	Majority of vegetation impacted is within existing Agricultural communities. Small portions of the Goldenrod Forb Meadow, Dry-Fresh Deciduous Woodland and Upland Deciduous Woodland is proposed for removal.	Majority of vegetation impacted is within existing Agricultural communities. A small portion of the Goldenrod Forb Meadow will be altered to accommodate a proposed ditch.	Vegetation will not be removed. No restoration or enhancement will occur.
Significant Wildlife Habitat	Removal of a portion of SC & Rare Species SWH within Goldenrod Forb Meadow to accommodate MUP is proposed.	Removal of a portion of SC & Rare species SWH within the Goldenrod Forb Meadow to accommodate MUP and the drainage pond is proposed.	Removal of a portion of SC & Rare species SWH within the Goldenrod Forb Meadow to accommodate MUP and the drainage pond is proposed.	Alteration/removal of a portion of SC & Rare species SWH within the Goldenrod Forb Meadow to accommodate the proposed ditch and drainage pond.	No impacts to SWH
Species at Risk	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated outside of Breeding Bird window.	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated outside of Breeding Bird window.	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated outside of Breeding Bird window.	Removal of Monarch habitat (Goldenrod Forb Meadow) proposed. Monarchs are listed as SC and are not afforded general habitat protection. No impacts to SAR anticipated	No impacts to SAR.

	No removal of any candidate bat maternity trees is proposed for this Option.	No removal of any candidate bat maternity trees is proposed for this Option.	No removal of any candidate bat maternity trees is proposed for this Option.	outside of Breeding Bird window. No removal of any candidate bat maternity trees is proposed for this Option.	
Wildlife & Wildlife Habitat	Potential impacts to amphibian habitat within the Shallow Cattail Marsh. ESC, mitigation and restoration measures recommended to provide improvements to existing habitat and general biodiversity.	Potential impacts to amphibian habitat within the Shallow Cattail Marsh. ESC, mitigation and restoration measures recommended to provide improvements to existing habitat and general biodiversity.	Potential impacts to amphibian habitat within the Shallow Cattail Marsh. ESC, mitigation and restoration measures recommended to provide improvements to existing habitat and general biodiversity.	No potential impacts to wildlife & wildlife habitat. No improvements to existing habitat.	No impacts to wildlife or wildlife habitat. No improvements to existing habitat.
Wetlands	Proposed MUP and ditch are within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar-Conifer Swamp and Cattail Mineral Shallow Marsh.	Proposed MUP and ditch are within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar-Conifer Swamp and Cattail Mineral Shallow Marsh.	Proposed MUP and ditch are within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar-Conifer Swamp and Cattail Mineral Shallow Marsh.	Proposed ditch is within the area of interference. Detailed ESC, mitigation and restoration measures are recommended to be implemented to minimize negative impacts to the White Cedar- Conifer Swamp.	No impacts to the surrounding wetlands.
Ranking	3	4	5	2	1

4.2 Generalized Impact Assessment and Mitigation

Options 1 through 4 will result in varying degrees of impact to the existing natural features. An assessment of the generalized impacts (potential and actual) and mitigation measures are provided in *Table 10*. A glossary of terms and impact ratings is found in *Appendix 12*.

Table 11. Impact Assessment, Mitigation and Recommendations

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing	Vegetation Removal – clearing & grubbing *upland areas*	• Loss of vegetation and wildlife habitat • Loss of rare plant species of communities	ST	P	SA	O	PD	H	N	Minor	• Avoid significant wildlife habitat • Design to avoid or minimize loss of vegetation and edge habitat • Revegetate areas with native species after works are completed • Establish and maintain buffers around wetland.	None	• Install native plantings suitable to existing soil and moisture conditions between MUP and wetland. Monitor appropriately to ensure proper establishment.
		• Disturbance of wildlife species	ST	P	SA	O	PD	M	N	Minor	• Avoid removal or destruction of animal movement corridors • Time activities to avoid wildlife disturbance during important life stages	None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Vegetation Removal – clearing & grubbing *upland areas (cont.)*	· Impacts to Nesting Birds Protected under the Migratory Bird Convention Act	ST	P	SA	O	PD	M	N	Severe	· Complete all vegetation removals outside the Environment Canada breeding bird nesting window (April 1- August 31). · If removals take place during the nesting window, conduct a bird nest survey to determine locations of active nests prior to construction works including installation of Erosion and Sediment Control (ESC) fence and any site clearing. · Create nest protection zones where active bird nests are found.	None	· Monitor nests (as needed, e.g. weekly) until inactive
	Grading	· Increased erosion	ST	P	SA	O	PD	M	Y	Moderate	· Develop & implement an ESC Plan per GGH Erosion and Sediment Guidelines (TRCA, 2019) · Maintain or restore vegetative buffers	Minor-None	· Monitor ESC fence weekly, and after a major storm event for any breaks, and repair.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Grading (cont.)	· Increase nutrient inputs and contaminants to wetlands	LT	P	SA	O	PD /U	M	Y	Moderate	· Develop & implement ESC plan · Designate area for safe equipment storage as far as possible from existing features. · Implement Clean Equipment protocols (Section 4.5)	Minor-None	· Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
		· Increased soil compaction	LT	P	SA	O	PD	H	N	Moderate	· Control access and movement of equipment and people	Minor	
		· Changes to drainage · Changes to surface runoff	LT	P	AA	O	PD	M	Y	Minor	· Schedule grading to avoid high runoff volumes · Minimize changes to land contours and natural drainage	Minor-None	
		· Changes in soil moisture, tree cover and vegetation	LT	R	SA	O	PD	M	Y	Minor	· Minimize the area and duration of soil exposure · Install native plantings suitable for the moisture and soil conditions where disturbance occurs	Minor-None	· Monitor plantings to ensure proper establishment.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Grading (cont.)	· Disturbance to wildlife · Alteration or destruction of wildlife Habitat	ST	R	SA	O	PD	L	N	Minor	· Time activities to avoid sensitive periods (Breeding birds) · Identify sensitive species prior to work and design grading to avoid disturbing sensitive species · Conduct work outside timing windows of sensitive species	None	
		· Wildlife Entering Construction Areas	ST	R	SA	O	PD	L	N	Minor	· Develop & implement ESC plan per GGH erosion and sediment guidelines to exclude wildlife.	None	· Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
	Installation of Services and utilities (sewer, hydro)	· Increased erosion	ST	P	SA	O	PD	L	N	Minor	· Maintain vegetated buffers · Develop and implement ESC plan per GGH erosion and sediment guidelines.	Minor-None	· Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
		· Disturbance to wildlife including sensitive species	ST	P	SA	O	PD	M	N	Minor	· Conduct work outside timing windows of sensitive species	None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Site Preparation and servicing (cont.)	Installation of Services and utilities (sewer, hydro, infrastructure, stormwater management facilities) (cont.)	• Hydrological changes	LT	P	SA	O	PD	L	Y	Minor	• Conduct appropriate studies to determine how to maintain existing hydrology • Design underground facilities to minimize impacts to groundwater	None	
		• Wildlife Entering Construction Areas	ST	P	SA	O	PD	M	N	Minor	• Develop & implement ESC Plan per erosion and sediment guidelines to exclude wildlife.	None	• Monitor ESC fence weekly, and after major storm events for any breaks, and repair.
Construction	Multi-use Path Construction	• Increased erosion	ST	P	SA	O	PD	M	N	Moderate	• Install native plantings suitable to the soil and moisture conditions between MUP and wetland limit. • Develop and implement ESC plan per GGH erosion and sediment guidelines.	Minor-None	• Monitor plantings to ensure proper establishment.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)	Multi-use Pathway Construction (cont.)	▪ Water contamination by oils, gasoline, grease and other materials	LT	P	SA	O	PD	M	Y	Moderate	▪ Control water contamination through good housekeeping practices, such as designating an equipment storage area as far as possible from existing wetland communities, and ensuring all materials are stored in appropriate containers.	Minor-None	
		▪ Increased impervious surfaces causing, Increased runoff, reduced infiltration and groundwater discharge	ST	P	SA	O	PD	L	N	Minor	▪ Maintain or provide vegetative buffers ▪ Implement infiltration techniques ▪ Control quantity and quality of stormwater discharge ▪ Select semi-pervious materials (i.e., limestone screening, gravel)	Minor-None	
		▪ Loss of vegetation at forest/wetland edges and removal of dead trees for public safety	ST	P	SA	O	PD	L	N	Minor	▪ Install native plantings suitable to soil and moisture conditions to maintain sufficient buffer between multi-use pathway and wetland limit.	Minor-None	▪ Monitor plantings to ensure proper establishment.

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)		· Disturbance to Wildlife from sounds and activity associated with public use.	ST	P	SA	S	PD	M	N	Minor	· Restrict access and buffer natural areas to discourage public encroachment and improper use · Provide appropriate signage at trail entrances.	None	
	Dickson Drive Extension & Street A Cul-de-sac	· Increased impervious surfaces	LT	P	SA	O	PD	H	N	Minor	· Minimize areas of paved surfaces	None	
		· Increased runoff	LT	P	SA	O	PD	H	N	Minor	· Control quantity and quality of stormwater using best management practices	Minor-None	
		· Reduced infiltration · Increased nutrient and contaminant inputs	LT	P	SA	O	PD	M	N	Moderate	· Design roads without curbs, gutters and sidewalks to promote infiltration galleries and other infiltration devices	Minor-None	
		· Increased erosion	ST	P	SA	O	PD	L	N	Minor	· Maintain or provide vegetative buffers	None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Construction (cont.)	Dickson Drive Extension & Street A Cul-de-sac	· Loss of wildlife habitat	ST	P	SA	O	PD	L	N	Minor	· Identify species sensitive to disturbance and time paving periods to avoid periods of wildlife habitat use · Ensure important corridors are not lost, develop alternate corridors and cover where possible	None	
		· Wildlife mortality on roads	LT	P	SA	S	PD	M	N	Moderate	· Design to reduce / prevent mortality	Minor	
		· Barriers to wildlife movement	LT	P	SA	O	PD	M	N	Moderate	· Avoid intersecting most likely wildlife migration routes wherever possible · Provide low barrier fencing or vertical walls to reduce amphibian mortality · Provide dry wildlife passage culverts under the roadway · Use traffic slowing/calming measures in areas with high wildlife use	Minor-None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Post-Construction	Recreation activities (e.g. use of all-terrain vehicles, walking, hunting, fishing, swimming)	· Trail development impacts including vegetation trampling, damage to root mat, soil disturbance	LT	P	SA	S	PD /U	H	N	Moderate	· Choose designs and materials that will minimize impacts	Minor-None	
		· Introduction of invasive & non-native plant species	LT	P	SA	C	PD /U	H	Y	Moderate	· Provide opportunities for people to report on natural areas · Educate the public through signage	Minor-None	
		· Trampling of vegetation and chasing of wildlife by off-leash dogs	LT	P	SA	S	PD /U	H	N	Moderate	· Enforce proper trail use · Provide off-leash areas, and enforce leash laws in sensitive areas · Close and install natural barriers to all unsanctioned trail entrances · Install signage identifying that the area is no longer an off-leash trail	Minor	
		· Disturbance to wildlife during critical life stages	LT	P	SA	S	PD /U	M	Y	Moderate	· Locate development away from sensitive features · Educate the public through signage	Minor-None	

PHASE	ACTIVITY	POTENTIAL IMPACTS	DURATION OF IMPACT	REVERSIBILITY	GEOGRAPHIC LEVEL OF INFLUENCE	FREQUENCY	ECOLOGICAL SITE CONTEXT	LIKELIHOOD OF OCCURRING	CUMULATIVE EFFECTS?	POTENTIAL IMPACT RATING[1]	MITIGATION RECOMMENDATIONS / COMMENTS	FINAL [2] IMPACT RATING	MONITORING / FOLLOW-UP RECOMMENDATION
Post-Construction (cont.)	Recreation activities (e.g., use of all-terrain vehicles, walking, hunting, fishing, swimming) (cont.)	▪ Attraction of some wildlife species and scavengers due to human activities, including garbage causing increased human wildlife interactions	LT	P	SA	S	PD /U	M	N	Moderate	▪ Educate the public about attracting nuisance species ▪ Provide appropriate garbage receptacles and service	Minor	
		▪ Increased access to sensitive sites, and destruction of sensitive features from trampling	LT	P	SA	S	PD /U	M	Y	Moderate	▪ Develop trails for walking and cycling that avoid sensitive habitat ▪ Enforce proper trail use ▪ Install buffer plantings to deter public from entering wetland communities. ▪ Close and install natural barriers on all un-sanctioned trail entrances into the sensitive feature.	Minor-None	▪ Monitor plantings to ensure proper establishment.

4.3 Buffers

4.3.1 Wetlands

A variable buffer ranging between 1m and 17m has been applied between the Irvine Creek PSW and proposed multi-use pathway for Options 1 through 3 (*Figures 1a-1c*). The total area of the variable buffer is 0.85ha, with an equidistant 10m buffer from the verified wetland limit also providing a total of 0.85ha. The alignment of the multi-use pathway is being proposed within the buffer to the Irvine Creek PSW to allow for potential development of the agricultural lands to the south-east. Per the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* Section 8.4.9, development is permitted within an area of interference less than or equal to 30 metres provided there are no negative or adverse hydrological or ecological impacts on the wetland and that all development is located outside of the wetland and maintains as much setback as feasible.

To avoid negative impacts to the PSW, it is recommended that a planting plan detailing restoration and enhancement within the variable buffer is provided at detailed design, which utilizes native trees, shrubs and seed mix that is suitable for the existing soil and moisture condition. This plan should include thorny native species, such as raspberry, to reduce and impede encroachment and the creation of side trails into the wetland. It is also recommended that the MUP be adjusted to provide as much distance as possible from the existing pond feature, to reduce the potential for encroachment into the pond by dog park users. Implementation of an appropriate planting plan will reduce potential impacts caused by increased run-off from the proposed multi-use path and public encroachment into the PSW feature.

A 30m buffer has been applied to the unevaluated wetland in the southern corner of the study area. No development is to occur within the 30m buffer to the unevaluated wetland. Since Option 4 does not include the multi-use pathway, a 30m buffer has been applied to the Irvine Creek PSW within the study area limits.

4.3.2 Development Limit

The entirety of the Dickson Drive Extension and Cul-de-sac are proposed within the existing agriculture and rural property communities. The multi-use path is primarily located within the existing agricultural communities; however, removal of portions of the Goldenrod Forb Meadow (Polygon 9), Upland Deciduous Forest (Polygon 3) and Deciduous Woodland (Polygon 13) in *Figure 2* are being proposed to accommodate the connection to the Dickson Drive extension and the existing Elora Cataract Trail.

4.4 Hydrological Function of the Wetland

A detailed hydrological study was not completed as part of the EIS. However, a general assessment of hydrological function and potential impacts to the wetland was completed using field observations and background resources. The lands in the study area north of the rural property that bisects the existing agricultural community gently slope towards the Irvine Creek PSW, while the lands south of the rural property gently slope south towards the Elora Cataract Trail, with surface run-off draining towards both features (Grand River Information Network, 2021).

Seeps were identified within the Conifer-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities.

Based on the current topography of the study area, it is anticipated that minimal grading will be required to complete site preparation and construction of the Dickson Drive extension, Cul-de-sac and multi-use pathway.

It is the opinion of AA that although the multi-use pathway is within 30m of the Irvine Creek PSW limit, minimal impact to the wetland hydrology is anticipated, provided the existing drainage pattern can be maintained with minimal grading and that the buffer area is enhanced with native plantings suitable for the soil and moisture conditions following completion of all works to help dissipate any increased run-off due to changes in surface materials. Additionally, closing any unsanctioned trails within and adjacent the PSW would limit public and canine encroachment providing an overall benefit to the wetland feature.

4.5 Clean Equipment Protocol for Industry

Due to the presence of the Irvine Creek PSW immediately adjacent the potential multi-use pathway alignment, and the nature of the proposed construction, the area of works will encroach within the existing area of interference of the Irvine Creek PSW. As the proposed works are in close proximity to the limit of the Irvine Creek PSW, it is recommended that the protocols presented within the Clean Equipment Protocol for Industry (Halloran et al., 2013) are followed to minimize the potential of any invasive species being brought into the PSW throughout the duration of site works. Based on field investigations completed, the existing PSW communities within the study area consist primarily of native species, therefore the implementation of the Clean Equipment Protocol is important for maintaining the existing species composition and ratio of native to exotic species. In addition, the implementation of buffer enhancements consisting of native species in the form of trees and shrubs as well as an herbaceous seed mix will help in preserving the existing conditions of the PSW and deter public encroachment.

5.0 Legislation and Policy Compliance

5.1 Provincial Policy Statement

The *Provincial Policy Statement* ([PPS] OMMHA, 2020) provides policy direction on matters of provincial interest related to land use planning and development. Section 2.1.5 of the PPS states that *"Development and site alteration shall not be permitted in: Significant Wetlands, south and east of the Canadian Shield; Significant Woodlands, Significant Valleylands, Significant Wildlife Habitat… unless it has been demonstrated that there will be no negative impacts on the natural features of their ecological function.".*

Section 1.6.8.6 states that "*When planning for corridors and rights-of-way for significant transportation, electricity transmission, and infrastructure facilities, consideration will be given to the significant resources in Section 2: Wise Use and Management of Resources."*

The proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway are considered essential transportation infrastructure and are, therefore, exempt from the constraints applied to development. It was determined that based on the proposed layout of the Dickson Drive extension and cul-de-sac, it would not negatively impact any of the existing natural features within the study area. The existing Irvine Creek PSW and unevaluated wetland feature are greater than 30m from the proposed extension, and all Significant Wildlife Habitat occurs outside of the existing Agricultural communities within which the extension is proposed.

The Multi-use Pathway is partially within the area of interference of the Irvine Creek PSW and may require removal of trees where the connection to the Elora Cataract Trail is proposed. Where the proposed multi-use pathway is adjacent to the Irvine Creek PSW, a variable buffer, equivalent to 10m, has been applied. It is the opinion of AA that provided an intensive restoration and planting plan, as well as the mitigation recommendations within Sections 4.2 & 7.0, are implemented between the proposed pathway and the PSW, the installation of the pathway will not negatively impact the portion of the Irvine Creek PSW within the study area.

Therefore, the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway comply with the Provincial Policy Statement (OMMHA, 2020).

5.2 Endangered Species Act (2007)

The provincial Endangered Species Act, 2007 (ESA) provides protection to species designated as Threatened or Endangered on the Species at Risk in Ontario list (MNRF,

2021). Bobolink and Eastern Meadowlark, both listed as Threatened under the ESA (2007) were observed within the study area, however, it was determined that breeding was not occurring and suitable habitat was not present due to the high forb content and lack of interior habitat.

Eastern Wood-pewee and Monarch were also observed within the study area; however, they are listed as Special Concern and are not afforded habitat protection under the ESA (2007).

Thus, the proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway are in compliance with the Endangered Species Act (2007).

5.3 GRCA Wetland Policies

Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interference of a Provincially Significant Wetland and an unevaluated wetland as being 120m and 30m, respectively.

Section 8.4.9 states:
"Development within an area of interference less than or equal to 30 metres (100 feet) from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) There are no negative or adverse hydrological or ecological impacts on the wetland,
b) All development is located outside of the wetland and maintains as much setback as feasible,
c) Development is located above the water table, except as specified in Section 8.4.11, and
d) Septic systems are located a minimum of 15 metres (50 feet) from the wetlands and 0.9 metres (3 feet) above the annual maximum water table."

The proposed Dickson Drive extension, cul-de-sac and portion of the potential multi-use pathway east of the Dickson Drive extension are greater than 30m from unevaluated wetland in the southern corner of the study area. The potential multi-use path west of the Dickson Drive extension is located within 30m of the limit of the Irvine Creek PSW. As noted in Section 4.3.1 a variable buffer between the PSW limit and the proposed multi-use pathway has been applied. Due to the proximity of the pathway to the PSW, it is recommended that a planting and restoration plan be developed and implemented within the buffer area to minimize any negative impacts from the development of the pathway and impacts of public use and encroachment.

It is the opinion of AA that the proposed Dickson Drive extension and multi-use pathway will not negatively impact the Irvine Creek PSW provided a planting plan suitable to the existing soil and moisture conditions and the mitigation recommendations detailed in Sections 4.2 & 7.0 are implemented. Post-construction measures including public education signage and the closure of unsanctioned trails to reduce public encroachment within the PSW. Therefore, the proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway comply with the GRCA wetland policies.

5.4 Wellington County Official Plan (2021 Update)

The Wellington County Official Plan indicates that a portion of the study area is designated as Core Greenlands, in the form of Provincially Significant Wetlands. Section 5.6.1 states:

"Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements.

Where development is proposed in the Greenlands system or on adjacent lands, the County or local municipality shall require the developer to:

a) *Identify the nature of the features potentially impacted by the development;*
b) *Prepare, where required, an environmental impact assessment to ensure that the requirements of this Plan will be met and consider enhancement of the natural area where appropriate and reasonable;*
c) *Address any other relevant requirements set out in Section 4.6.3 Environmental Impact Assessment."*

As shown in *Figure 1*, the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway are located outside of the Irvine Creek PSW. The western portion of the multi-use pathway is located adjacent to the limit of the PSW; however, a variable buffer has been applied to help minimize negative impacts to the wetland.

It is recommended that a planting plan with native species suitable to the existing moisture and soil conditions be implemented within the variable buffer to aid in dissipation of runoff from the multi-use pathway as well as limit public encroachment into the feature. Provided a planting plan is implemented along with the mitigation recommendations detailed in Sections 4.2 & 7.0, it is the opinion of AA that the proposed Dickson Drive extension and Multi-use Pathway will not result in negative impacts to the Irvine Creek PSW. Additionally, habitat of threatened or endangered species was determined not to be present within the study area. Therefore, the

proposed Dickson Drive extension and multi-use pathway comply with the Wellington County Official Plan (2021 update).

5.5 Township of Centre Wellington Official Plan (2013 Consolidation)

The Township of Centre Wellington Official Plan mapping indicates the presence of Core Greenlands in the form of the Irvine Creek PSW. Section D8.2 states:

"Upon lands designated Core Greenlands, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation. Such uses shall only be permitted where it can be demonstrated that:

1. *There are no negative impacts on provincially significant features and functions and no significant negative impacts on other natural heritage features and functions;*
2. *Any natural hazards present can be safely overcome;*
3. *The development confirms to policies of the applicable or underlying designation.*

Agriculture and other existing uses are permitted to continue"

As noted in Section 5.4, all proposed development is located outside of the limits of the Irvine Creek PSW. Due to a portion of the multi-use pathway being proposed within 30m of the limits of the Irvine Creek PSW, a variable buffer, within which a planting plan suitable to the existing moisture and soil conditions is recommended, has been applied. The installation of native species between the proposed multi-use pathway and the PSW will help to dissipate any increased run-off due to the installation of the trail as well as limit public and canine encroachment within the PSW. Additionally, habitat of threatened or endangered species was determined not to be present within the study area.

Provided a suitable planting plan is implemented along with the mitigation recommendations detailed in Section 4.2 & 7.0, it is the opinion of AA that the proposed Dickson Drive extension, cul-de-sac and potential multi-use pathway will result in no negative impacts to the Irvine Creek PSW. Thus, the proposed development complies with the Township of Centre Wellington Official Plan (2013 Consolidation).

6.0 Summary and Conclusion

It is the opinion of AA that by implementing the mitigation measures identified in Section 4.0, the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway will not result in any significant long-term negative impacts to the existing natural features identified, including the Irvine Creek Provincially Significant Wetland complex. The natural features within the study area will be protected and enhanced through mitigation measures. This will result in long-term positive effects on the natural heritage features within the study area. Below is a summary of the affected natural heritage features, constraints and impacts. Recommendations for associated mitigation and/or protection measures are also identified in Section 4.0.

6.1 Biological Studies and Site Constraints

1. Surveys were conducted for Ecological Land Classification and Vegetation Communities (ELC and Vascular Plant List), Breeding birds, amphibian breeding, Significant Wildlife Habitat and Species at Risk Habitat.

2. Species at Risk including, Bobolink, Eastern Meadowlark, Eastern Wood-pewee and Monarch were observed within the study area.
    a. No suitable habitat was determined to be present for Bobolink and Eastern Meadowlark due to the high forb content and lack of interior grassland habitat.
    b. Suitable habitat for Eastern Wood-pewee was identified within the Conifer-Hardwood Mixed Swamp and the White Cedar-Conifer Swamp, while suitable habitat for Monarch was identified within the Goldenrod Forb Meadow communities, respectively.

3. Significant Wildlife Habitat in the form of Deer Winter Congregation Areas & Movement Corridors, Seeps & Springs and Rare & Special Concern Species was identified within the study area. Candidate Bat Maternity habitat was also identified.
    a. Studies to confirm Bat Maternity Habitat have not been completed in the study area. In the event that site activities will affect significant habitat, it is recommended that detailed studies of Candidate Bat Habitat which may be affected, occur pre-construction.

4. The study area includes a portion of the Irvine Creek PSW, a reach of an unnamed watercourse, and a small unevaluated wetland as identified by the GRCA.

6.2 Impact Assessment

1. Generalized impacts due to the proposed Dickson Drive extension and Multi-use Pathway were assessed to determine their extent, and mitigation guidelines have been provided (*Section 4.0*).

2. Potential impacts primarily involve vegetation removal, site grading, impacts to the PSW through erosion, sedimentation and contamination, and wildlife disturbance.

3. There are opportunities in the study area for restoration through the implementation of a restoration planting plan which would involve planting native tree and shrub species and spreading native seed mix through the variable buffer and area of disturbance to enhance and restore the area between the PSW and multi-use pathway and disturbed areas.

4. There are opportunities to limit public encroachment into the existing natural features through the installation of educational signage, enforcement of proper trail use and the closure of unsanctioned trails.

6.3 Legislation and Policy Compliance

1. The proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway can occur in accordance with the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario 150/06) because it has been demonstrated that any impacts to the hydrologic or ecological functions can be minimized through the recommended mitigation measures and implementation of an appropriate planting plan. The mitigation measures and implementation of an appropriate planting plan will ensure restoration and enhancement of the variable buffer and disturbed areas.

2. The proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway can occur in accordance with the Wellington County Official Plan and Township of Centre Wellington Official Plan as the findings of the EIS concluded that the proposed development will not negatively impact the existing features or their ecological and hydrologic functions provided the recommended mitigation measures and appropriate planting plan are implemented.

7.0 Avoidance, Mitigation and Compensation Recommendations

The following recommendations are provided to ensure protection and maintenance of the natural heritage features and functions adjacent the proposed Dickson Drive extension, cul-de-sac and potential Multi-use Pathway. Through the implementation of the proposed mitigation, restoration, and compensation, no negative impacts to the natural heritage features are expected.

1. Re-align the portion of the multi-use pathway adjacent the Cattail Mineral Shallow Marsh (Polygon 6, Figure 2) closer to the existing hedgerow to allow the variable buffer to be expanded and restoration plantings to be installed between the multi-use path and PSW.
    a. If tree removals within the hedgerow are required as a result of re-alignment, MECP communication should occur regarding potential bat maternity habitat.

2. If a multi-use pathway is not established, it is recommended that any unsanctioned access east of the Fergus Dog Park be closed, and that restoration of the 30m buffer to the Irvine Creek PSW be implemented to prevent public encroachment.

3. Prepare and implement an Erosion and Sediment Control Plan (ESC), per GGH Erosion and Sediment Guidelines, as part of detailed design, for protection of the Irvine Creek PSW.

4. Install and monitor a silt and sediment control barrier
    a. Silt fencing to be inspected weekly during construction and following a storm event of 25mm within 24 hours;

5. ESC measures to be kept in place until all works are completed, and disturbed soils have been vegetated;

6. The area of construction disturbance shall be kept to a minimum;

7. Control the access and movement of equipment and people;
    a. Implement appropriate protocols outlined in the Clean Equipment Protocol for Industry (Halloran et al., 2013);

8. Minimize the use of heavy equipment within close proximity to the Irvine Creek PSW

a. Equipment is to be limited to the construction allowance area and is not to encroach within the adjacent natural communities;

9. Works and equipment storage are to be located as far as possible from the existing natural features as possible;

10. Accumulated sediment and debris to be removed prior to the removal of the silt fence;

11. All disturbed areas should be re-vegetated or restored with site appropriate indigenous plants.
    a. Implementation of an appropriate planting plan within the variable buffer between the multi-use pathway and Irvine Creek PSW is recommended. Plantings should be monitored to ensure proper establishment.
    b. The planting plan should include species that are a deterrent to encroachment, such as raspberries, due to the current level of encroachment and off trail use within the PSW.

12. Time activities to avoid wildlife disturbance during critical life stages;
    a. Avoid removal of trees and vegetation during the generalized breeding bird nesting period from April 1 to August 31. If removal of vegetation is to occur during the general nesting period, a nest search should be completed by a skilled and experience Biologist.

    b. In the event that site activities require removal of an identified Candidate Bat Habitat tree, it is recommended that detailed studies occur pre-construction.

13. Choose designs and materials that will minimize impacts.

14. Establish educational signage pertaining to encroachment within the Irvine Creek PSW along the proposed multi-use pathway.

15. Close all unsanctioned trail entrances within and adjacent the Irvine Creek PSW.

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Agency Correspondence

Ferris, Meagan. Senior Planner. Wellington County. Email correspondence.

Iglesias, Mariana. Senior Planner. Township of Centre Wellington. Email correspondence.

McShane, Lisa. Management Biologist. Ministry of Environment, Conservation & Parks. Email correspondence.

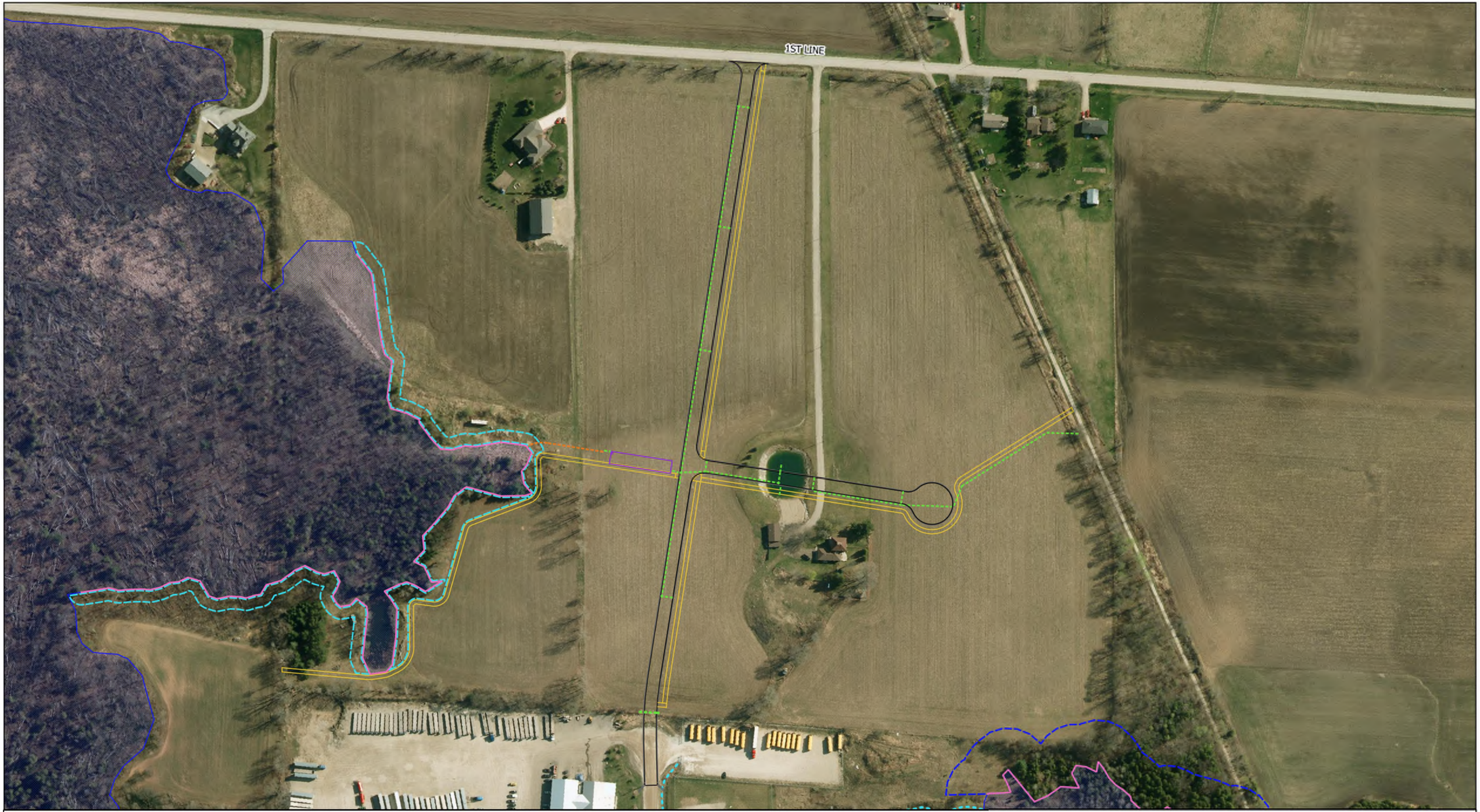
Ungar, Darren. Management Biologist. Ministry of Natural Resources & Forestry, Guelph District. Email correspondence.

Warner, Laura. Resource Planner. Grand River Conservation Authority. Email correspondence.

- Urban Forestry
- Ecological Restoration
- Landscape Architecture
- Environmental Studies
- Expert Opinion

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FIGURES



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- VARIABLE WETLAND BUFFER
- 30M WETLAND BUFFER
- WATERCOURSE
- PROPOSED ROAD
- PROPOSED DITCH
- PROPOSED MULTI-USE PATH
- PROPOSED STORMTECH CHAMBER
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland limit provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 1 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 1

Project:

DICKSON DRIVE
FERGUS ON

Date: FEBRUARY 2022
Project: AA21-085A
Scale: 1 : 2500

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Figure No: 1a



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- VARIABLE WETLAND BUFFER
- 30M WETLAND BUFFER
- WATERCOURSE
- PROPOSED ROAD
- PROPOSED DITCH
- PROPOSED DRAINAGE POND
- PROPOSED MULTI-USE PATH
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland liimt provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 2 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 2

Project:

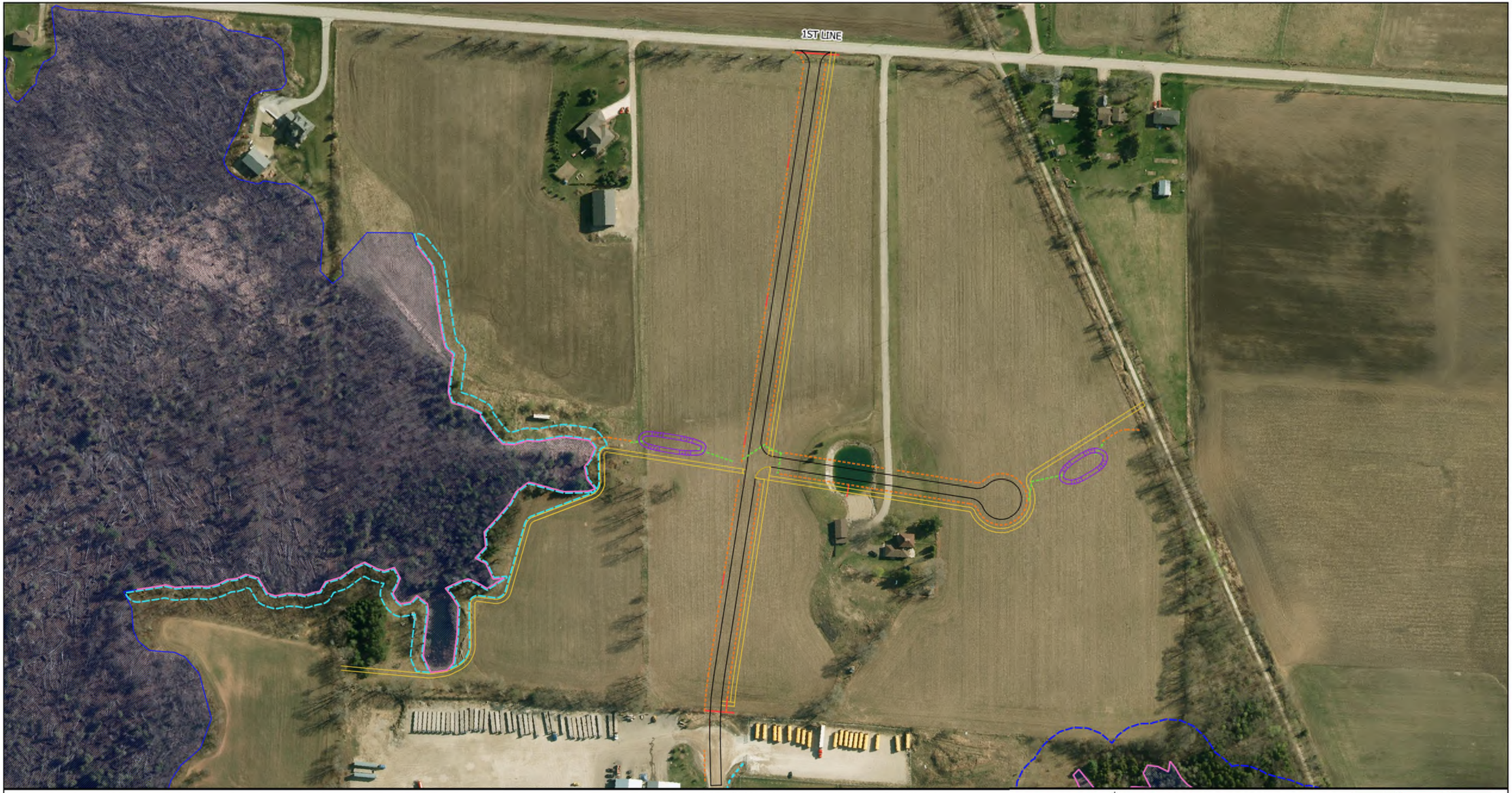
DICKSON DRIVE
FERGUS ON

Date: FEBRUARY 2022
Project: AA21-08SA
Scale: 1 : 2500

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Figure No:

1b



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- VARIABLE WETLAND BUFFER
- 30M WETLAND BUFFER
- WATERCOURSE
- PROPOSED DITCH
- PROPOSED DRAINAGE CULVERT
- PROPOSED DRAINAGE POND
- PROPOSED ROAD
- PROPOSED MULTI-USE PATH
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland limit provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 3 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 3

Project:

DICKSON DRIVE
FERGUS ON

Date: FEBRUARY 2022

Project: AA21-085A

Scale: 1 : 2500

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Figure No: 1c



LEGEND

- VERIFIED WETLAND LIMIT
- WETLAND
- PROPOSED DRAINAGE POND
- 30M WETLAND BUFFER
- PROPOSED DITCH
- PROPOSED ROAD
- WATERCOURSE
- PROPOSED DRAINAGE CULVERT
- PROPOSED STORM SEWER

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed January, 2022.
2. Wetlands and watercourse provided by Grand River Conservation Authority
3. Verified Wetland limit provided by Triton Engineering Services Limited, September 2021
4. Proposed site plan provided by Triton Engineering Services Limited, dated October, 2021

*Proposed site plan provided for context only. Please refer to Triton Engineering Services Limited Drawing M6468 Option 4 October, 2021

Title:

PROPOSED SITE PLAN
OPTION 4

Project:

DICKSON DRIVE
FERGUS ON

Date: FEBRUARY 2022

Project: AA21-085A

Scale: 1 : 2500

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Figure No:

1d

POLYGON	ELC CODE	COMMUNITY DESCRIPTION
1	SWCM 1-2	White Cedar- Conifer Mineral Coniferous Swamp
2	SWMM 5	Conifer- Hardwood Mineral Mixed Swamp
3	FODM 4	Dry- Fresh Upland Deciduous Forest
4	TAGM 5	Fencerow
5	FOMM 4-2	Dry- Fresh White Cedar- Poplar Mixed Forest
6	MASM 1-1	Cattail Mineral Shallow Marsh
7	SWTM 3-2	Bebb's Willow Mineral Deciduous Thicket Swamp
8	FODM 4	Dry- Fresh Upland Deciduous Forest
9	MEFM 1-1	Goldenrod Forb Meadow
10	CVC 2	Light Industry
11	OAGM 1	Annual Row Crops
12	CVR 4	Single Family Residential
13	WODM 4	Dry- Fresh Deciduous Woodland
14	CGL 4	Recreational
15	MAMM 3-1	Mixed Mineral Meadow Marsh

1ST LINE

LEGEND

STUDY AREA

ECOLOGICAL LAND CLASSIFICATION

WETLAND

WATERCOURSE

Information Sources:
1. Orthophotography provided by First Base Solutions Accessed September, 2021.
2. Ecological Land Classification provided by Aboud & Associates, 2021
3. Watercourse and wetlands provided by Grand River Conservation Authority, verified on site with AA

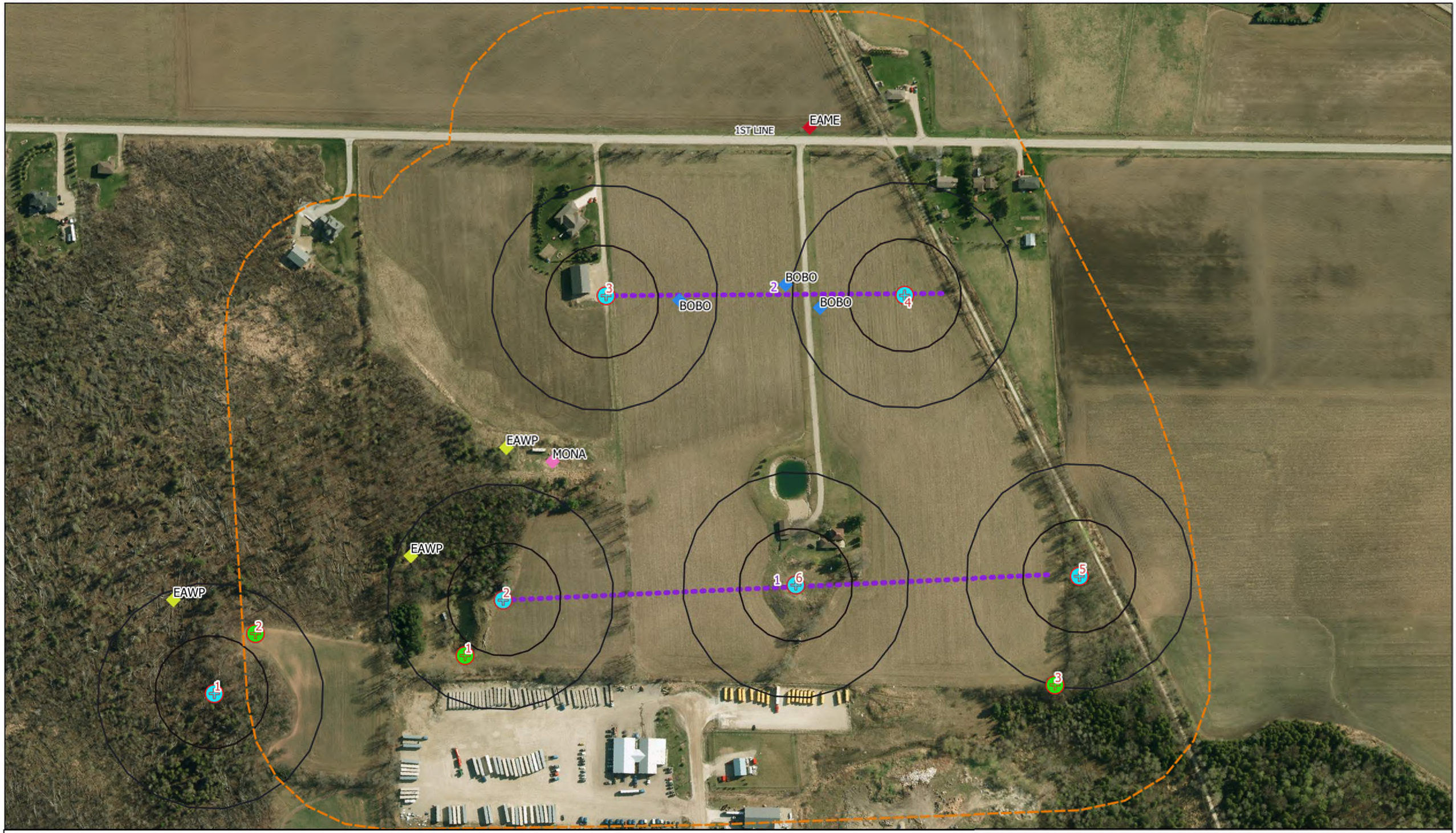
Title: EXISTING CONDITIONS

Project: DICKSON DRIVE FERGUS ON

Date: SEPTEMBER 2021
Project: AA21-085A
Scale: 1 : 3000

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Figure No: 2



LEGEND

- STUDY AREA
- BREEDING BIRD SURVEY LOCATION
- AMPHIBIAN SURVEY LOCATION
- GRASSLAND BIRD TRANSECT
- BOBOLINK
- EASTERN MEADOWLARK
- EASTERN WOOD-PEWEE
- MONARCH

Information Sources:
1. Orthophotography provided by First Base Solutions Accessed September, 2021.
2. Locations of significant species provided by Aboud & Associates, 2021

Title:
SURVEY LOCATIONS & SIGNIFICANT SPECIES OBSERVATIONS

Project:
DICKSON DRIVE
FERGUS ON

Date: SEPTEMBER 2021
Project: AA21-085A
Scale: 1 : 3000

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Figure No: 3



LEGEND

- STUDY AREA
- DEER WINTERING AREA
- CANDIDATE BAT MATERNITY TREES
- SPECIAL CONCERN & RARE SPECIES HABITAT
- SEEPS & SPRINGS HABITAT

Information Sources:
1. Orthophotography provided by First Base Solutions Accessed September, 2021.
2. Locations of Significant Wildlife Habitat provided by Aboud & Associates, 2021

Title:
SIGNIFICANT WILDIFE HABITAT

Project:
DICKSON DRIVE
FERGUS ON

Date: SEPTEMBER 2021
Project: AA21-085A
Scale: 1 : 3000

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Figure No: 4

APPENDIX 1
Terms of Reference & Agency Communication

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WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

May 4, 2021

Our Project No.: AA21-085A
Sent by Email: lwarner@grandriver.ca

Laura Warner
Resource Planner
Grand River Conservation Authority
400 Clyde Road PO Box 729
Cambridge, Ontario N1R 5W6

Re: Dickson Drive Extension Municipal Class EA
Township of Centre Wellington, Wellington County
Terms of Reference - Scoped Environmental Impact Study

Dear Ms. Warner:

This document outlines the Terms of Reference (ToR) of the scoped Environmental Impact Study (EIS) for a proposed road extension of Dickson Drive and Multi-use Pathway connecting the Fergus dog park to the Elora Cataract Trailway. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The preparation of an EIS is required as part of a Municipal Class EA for a proposed road extension of Dickson Drive and Multi-use Pathway connecting the Fergus dog park to the Elora Cataract Trailway. The site is entirely within the urban boundary of Fergus, and includes provincially significant wetlands, woodlands, agriculture and residential lands.

The subject lands include Core Greenlands as designated by the County of Wellington Official Plan. Core Greenlands on the subject lands consist of Provincially Significant Wetlands (PSW).

The subject lands are mapped within the urban boundary of the Township of Centre Wellington and are identified as Industrial and Environmental Protection under Schedule A-1 Land Use Plan of the Municipal Official Plan of the Township of Centre Wellington.

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site,
- Dickson Drive Extension- Road Layout Figures (provided by Triton Engineering Services Limited, April 13, 2021)
- Wellington County Official Plan (2021) and Schedules,
- Wellington County GIS mapping (Explore Wellington, accessed April 14, 2021) of natural heritage features (e.g., wooded areas, MNRF wetlands, watercourses).
- GRCA mapping (accessed April 14, 2021) of natural heritage features (e.g., regulation limit, GRCA and OMNR wetlands, ANSI's, and MNR Woodlands),
- Natural Heritage Information Center, Make-a-map, accessed April 14, 2021.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Accessed April 15, 2021.
- Ontario Breeding Bird Atlas. Bird Studies Canada, 2008.
- Atlas of the Mammals of Ontario. Dobbyn, 1994.
- iNaturalist. Accessed April 15, 2021
- eBird. Cornell Lab of Ornithology. Accessed April 15, 2021.
- Ontario Butterfly Atlas. Toronto Entomologists' Association. Accessed April 26, 2021.

STUDY AREA

The study area includes the subject lands and up to 120m beyond the proposed development, where permission to access property is granted (*Figure 1*).

As needed, the lands adjacent to the proposed development may require further access to assist with understanding the characteristics and functions of natural heritage features. Where access is restricted, information will be acquired through existing background information and what can be observed from the edge of the accessible lands.

Lands outside of the field study area, or where access is not provided, will be reviewed from existing background information (e.g., Wellington County Official Plan).

PLANNING CONTEXT

Growth Plan for the Greater Golden Horseshoe (2019)

The Growth Plan for the Greater Golden Horseshoe (GPGGH) (2019) builds upon the policy foundation provided by the PPS and provides additional and more specific land

use planning policies to address issues facing specific geographic areas in Ontario. The GPGGH states:

"*Municipalities will incorporate the Natural Heritage System for the Growth Plan as an overlay in official plans, and will apply appropriate policies to maintain, restore, or enhance the diversity and connectivity of the system…"*

Section 3.2.5 states:
"In planning for the development, optimization, or expansion of existing and planned corridors and supporting facilities, the Province, other public agencies and upper- and single-tier municipalities will:

… d) Where applicable, demonstrate through an environmental assessment, that any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrologic features and key hydrologic areas have been avoided or, if avoidance is not possible, minimized and to the extent feasible mitigated"

Grand River Conservation Authority
The subject lands contain portions of a PSW and GRCA wetlands and are within the allowances of these features. Section 8.4 of the GRCA's *Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation* (Ontario Regulation 150/06, 2015) identifies the area of interferences of a PSW as being 120 metres. Section 8.4.9 states:

"Development within an area of interference less than or equal to 30 metres (100 feet) from a wetland may be permitted in accordance with the policies in Section 7.1.2-7.1.3-General Policies, and where an Environmental Impact Study demonstrates that:

a) *There are no negative or adverse hydrological or ecological impacts on the wetland,*
b) *All development is located outside of the wetland and maintains as much setback as feasible,*
c) *Development is located above the water table, except as specified in Section 8.4.11, and*
d) *Septic systems are located a minimum of 15 metres (50 feet) from the wetlands and 0.9 metres (3 feet) above the annual maximum water table."*

Wellington County Official Plan (2021 Consolidation)
The Wellington County Official Plan indicates that a portion of the subject lands are within the Natural Heritage System and contain Core Greenlands, which are identified as Provincially Significant Wetlands. Section 5.6.1 states:

"Within the Core Greenlands designation, development and site alteration shall not be permitted within Provincially Significant Wetlands or in significant habitat of threatened or endangered species, except in accordance with provincial and federal requirements.

Where development is proposed in the Greenlands system or on adjacent lands, the County or local municipality shall require the developer to:

a) *Identify the nature of the features potentially impacted by the development;*
b) *Prepare, where required, an environmental impact assessment to ensure that the requirements of this Plan will be met and consider enhancement of the natural area where appropriate and reasonable.*
c) *Address any other relevant requirements set out in Section 4.6.3 Environmental Impact Assessment."*

Township of Centre Wellington Official Plan (2013 Consolidation)

The Township of Centre Wellington Official Plan mapping indicates the presence of Core Greenlands on the subject lands. Section D8.2 states:

"Upon lands designated Core Greenlands, no development or site alteration is permitted within Provincially Significant Wetlands, in provincially significant portions of the habitat of threatened or endangered species, or in the floodway. Uses shall be limited to conservation and resource management, open space and passive recreation…"

Section D8.4 states:
"The Core Greenlands designations on the schedules to this Plan are based on mapping provided by the County in consultation with the Grand River Conservation Authority. The limits of the Core Greenlands designated may need to be refined by more detailed mapping on individual sites, such as when an Environmental Impact Study is prepared regarding a proposed development within or abutting such lands. Where more detailed mapping is available, minor adjustments may be made within an amendment to this Plan and the land use policies of the adjacent designation will apply as determined by Council."

The policies and land use plans of the County Official Plan apply to those lands within the Urban Boundary, as it relates to the Greenlands System.

Township of Centre Wellington Zoning By-law 2009-045 (2018 Consolidation)

The Township of Centre Wellington Zoning By-law indicates that the lands are zoned as Industrial and Environmental Protection. Section 4.12.1 states:

"No buildings, structure, or private sewage treatment system shall be constructed closer than 30.0m (98.4 ft) from the limit of an EP zone within the prior written approval of the Grand River Conservation Authority."

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. The Ontario Reptile and Amphibian Atlas shows within the two 10 km squares containing the subject lands, the recent and historical presence of 13 species (including complexes) of reptiles and amphibians (accessed April 15, 2021), including three species of Conservation Concern (Snapping Turtle, Western Chorus Frog and Midland Painted Turtle).

2. The Natural Heritage Information Center indicates the presence of Eastern Meadowlark, Barn Swallow and Bobolink within the nine 1km squares containing the subject lands. It also identifies that portions of the Irvine Creek Wetland Complex and a colonial waterbird nesting area are present in the vicinity of the study area.

3. The Ontario Breeding Bird Atlas shows within the two 10 km squares containing the subject lands, the recent and historical presence of 120 species of birds, including eight species of Conservation Concern (Northern Bobwhite, Eastern Wood-pewee, Bank Swallow, Barn Swallow, Wood Thrush, Canada Warbler, Grasshopper Sparrow, Bobolink and Eastern Meadowlark).

4. The Ontario Mammal Atlas indicates the presence of 21 species within the two 10km squares containing the subject lands. No species of Conservation Concern were indicated.

5. eBird records from the nearby Fergus Dog Park (~350 m from the subject lands) indicates the recent and historical presence of 15 species, including one species of Conservation Concern (Barn Swallow).

6. iNaturalist research-grade observations within 1km of the subject lands indicate the recent presence of two vascular plant species, one insect species and three bird species. One of the species observed, Bald Eagle, is considered a species of Conservation Concern.

7. The Ontario Butterfly Atlas shows within the two 10 km squares containing the subject lands, the recent and historical presence of 24 species of butterflies, including one species of Conservation Concern (Monarch).

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

To fulfill the requirements of this study, we will:

1. Review background information, (e.g. proposed activity, relevant sections of natural heritage system components of the Wellington County OP, Township of Centre Wellington Zoning By-law, investigation of wildlife atlases and NHIC).
2. Complete a MECP Information Request, to determine the potential presence of SAR or other significant natural features in the study area.
3. Complete an MNRF Request for Information to acquire information pertaining to the adjacent wetlands.
4. Conduct two site visits to characterize vegetation communities using the ELC system (MNRF) and complete a two-season (spring and late-summer) botanical inventory of the Study Area. During this study, we will look for informal trails in the forest and opportunities/constraints for placement of the trail.
5. Conduct an amphibian (frogs and toads) call survey as pe the Marsh Monitoring Program (2003), by Bird Studies Canada. This requires 3 surveys conducted between 0.5 hours after sunset and before midnight within specific periods and minimum temperatures: 15-30 April, 15-30 May, and 15-30 June.
6. Woodland Limit: Pre-stake the woodland dripline within the Study Area, and coordinate with the County to field-verify the woodland limit.
7. Conduct a breeding bird survey of the Study Area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both points counts and area searches. The breeding bird survey requires two, focused, early morning site visit during the period between late May and early July. Should grassland bird habitat occur on site, a 3rd site visit will be completed, and the MNRF grassland bird protocol will be employed for any candidate habitat on site.
8. Bat Habitat Assessment, as the wetland features within 30m of any proposed work have the potential for suitable bat maternity trees. All trees greater than 10cm DBH,

exhibiting characteristics that would provide suitable habitat, will be marked with a GPS and recorded in the field.

9. Investigate the study area for the presence of Significant Wildlife Habitat.

10. Investigate the study area for presence of Species at Risk and Species at Risk habitat.

11. Record observations of incidental wildlife during site visits.

12. Analyze findings and prepare a map that shows:

    a. Identified natural heritage features, and functions and landscape level features (e.g., linkages, wetlands).
    b. The proposed development.
    c. ELC vegetation communities.
    d. Wetland boundary delineation.
    e. Woodland dripline.
    f. Locations of amphibian surveys
    g. Locations of Breeding Bird surveys
    h. Locations of significant species.
    i. Other noteworthy features as needed.
    j. Locations of other natural heritage features from background literature searches (e.g., mammal atlas, herpetofaunal atlas, Wellington County OP, Township Zoning Bylaw.

13. Conduct an impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features. Provide an opinion about the location and options of the proposed infrastructure to reduce/avoid impacts to natural heritage features. Show the configuration of the proposed infrastructure and assess for minimizing impacts to ecological features and functions. This will involve discussions with the Township, project engineers and AA.

14. Provide policy rationale for expected impacts to natural heritage features (e.g. removal of trees and grading to accommodate the proposed development).

15. Edge Management Guidelines and Compensation: Provide general recommendations of where and why naturalization treatments may be needed to protect vegetation features (e.g., woodlands, wetlands) adjacent to the development activity. Provide rationale and recommendations for tree compensation (e.g., where, why and how much).

16. Prepare a report of the EIS that includes background information, methods, existing conditions, proposed development, impact assessment and mitigation measures, and appendices of field studies (e.g., flora and ELC data sheets).

Yours truly,

ABOUD & ASSOCIATES INC.



Shannon Davison B. Env., Eco. Rest. Cert.
Ecologist
MNRF Certified Ecological Land Classification
MNRF Certified Wetland Evaluation
CERPIT #0499

Cc: Meagan Ferris, Wellington County (email)
Mariana Iglesias, Township of Centre Wellington (email)
Dustin Lyttle, Triton Engineering Services Limited (email)

S:\A+A Projects\2021\Proposals\21-085A Dickson Drive Extension & Muti-use Path Municipal Class EA\Approvals, Comments\AA21-085A Dickson Drive Extension Municipal Class EA Terms of Reference.docx

LEGEND

- PROPERTY ACCESS
- STUDY AREA
- DEER WINTERING AREA
- GRCA WATERCOURSE
- GRCA WETLAND
- LIO WOODLANDS
- GRCA REGULATION LIMIT
- PROPOSED ROAD
- PROPOSED SECONDARY ROAD
- PROPOSED TRAIL ALIGNMENT

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed April, 2021.
2. Woodlands and Wetland provided by Land Information Ontario

Title:

ENVIRONMENTAL STUDY AREA & CONSTRAINTS

Project:

DICKSON ROAD
FERGUS ON

Date: APRIL 2021

Project: AA21-085A

Scale: 1 : 5000

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Figure No: 1

Shannon Davison

From: Laura Warner <lwarner@grandriver.ca>
Sent: May-20-21 10:11 AM
To: Shannon Davison
Cc: dlyttle@tritoneng.on.ca; Cheryl-Anne Ross; Meagan Ferris; miglesias@centrewellington.ca
Subject: RE: AA21-085 Dickson Drive Extension Municipal Class EA Scoped EIS Terms of Reference

External

HI Shannon,

The terms of reference for the proposed Scoped EIS are acceptable. It appears that a municipal trail is proposed between a section of the Irvine Creek PSW Complex and the GRCA's Elora-Cataract Trail. A trail immediately adjacent to the PSW cannot be supported at this time. We would recommend that the trail avoid the 30 m buffer zone adjacent to the PSW and/or that the trail be shifted away from the wetland to the greatest possible extent.

We also note that the ToR makes reference to Dickson Road throughout but the legal name of this road is in fact Dickson Drive.

Kind regards,
Laura

Laura Warner | Resource Planner
Grand River Conservation Authority
400 Clyde Road, Cambridge ON N1R 5W6
P: (519) 621-2763 x 2231 | F: (519) 621-4844
lwarner@grandriver.ca | www.grandriver.ca

From: Shannon Davison <sdavison@aboudtng.com>
Sent: Tuesday, May 4, 2021 11:32 AM
To: Laura Warner <lwarner@grandriver.ca>
Cc: dlyttle@tritoneng.on.ca; Cheryl-Anne Ross <Cheryl@aboudtng.com>; Meagan Ferris <meaganf@wellington.ca>; miglesias@centrewellington.ca
Subject: AA21-085 Dickson Drive Extension Municipal Class EA Scoped EIS Terms of Reference

Good morning Laura,

Please find attached the proposed Terms of Reference for the scoped Environmental Impact Study for the Dickson Drive Extension Municipal Class EA. If you could please circulate to GRCA staff and provide comments at your earliest convenience that would be appreciated.

Regards,

Shannon Davison B.Env. Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner- In Training #0499
MNRF Certified Wetland Evaluation . MNRF Certified Ecological Land Classification
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C : 226.581.0707 www.aboudtng.com sdavison@aboudtng.com

APPENDIX 2
Background Wildlife List

SOURCE	COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	NRANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	Wellington County (Dougan & Associates,2009)
	BUTTERFLIES & MOTHS												
OBA (1968)	Dreamy Duskywing	Erynnis icelus				S5	G5	N5					
OBA (1980)	Arctic Skipper	Carterocephalus palaemon				S5	G5	N5					
OBA (1968)	Hobomok Skipper	Poanes hobomok				S5	G5	N5					
OBA (1981)	Dun Skipper	Euphyes vestris		THR	THR	S5	G5	N5					
OBA (1981)	Black Swallowtail	Papilio polyxenes				S5	G5	N5					
OBA (2017)	Cabbage White	Pieris rapae				SNA	G5	NNA					
OBA (2017)	Clouded Sulphur	Colias philodice				S5	G5	N5					
OBA (1970)	Bronze Copper	Lycaena hyllus				S5	G4G5	N5					
OBA (1973)	Acadian Hairstreak	Satyrium acadica				S4	G5	N5					
OBA (1973)	Banded Hairstreak	Satyrium calanus				S4	G5	N5					
OBA (1981)	Striped Hairstreak	Satyrium liparops				S5	G5	N5					
OBA (2015)	Eastern Tailed Blue	Cupido (Everes) comyntas				S5	G5	N5					
OBA (1981)	Great Spangled Fritillary	Speyeria cybele				S5	G5	N5					
OBA (1968)	Northern Crescent	Phyciodes cocyta				S5	G5	N5					
OBA (1973)	Baltimore Checkerspot	Euphydryas phaeton				S4	G4	N4					
OBA (1981)	Question Mark	Polygonia interrogationis				S5	G5	N5B					
OBA (1981)	Mourning Cloak	Nymphalis antiopa				S5	G5	N5					
OBA (2019)	American Lady	Vanessa virginiensis				S5	G5	N5					
OBA (2017)	Painted Lady	Vanessa cardui				S5	G5	N5					
OBA (1981)	Viceroy	Limenitis archippus				S5	G5	N5					
OBA (1959)	Eyed Brown	Lethe eurydice				S5	G4	N5					
OBA (1981)	Appalachian Brown	Lethe appalachia				S4	G4	N4					
OBA (1980)	Little Wood-Satyr	Megisto cymela				S5	G5	N5					
OBA (2019)	Monarch	Danaus plexippus	SC	END	SC	S2N,S4B	G5	N5B					

	DRAGONFLIES & DAMSELFLIES												
iNat (2020)	Lake Darner	Aeshna eremita				S5	G5	N5					
	AMPHIBANS												
ORAA (2018)	Red-spotted Newt	Notophthalmus viridescens viridescens				S5	G5						x
ORAA (1990)	American Toad	Anaxyrus americanus				S5	G5						
ORAA (2018)	Gray Treefrog	Hyla versicolor				S5	G5						
ORAA (2012)	Spring Peeper	Pseudacris crucifer				S5	G5						
ORAA (2008)	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	Pseudacris triseriata pop. 2	NAR	THR	THR	S3	G5TNR						
ORAA (2004)	Green Frog	Lithobates clamitans				S5	G5						
ORAA (2017)	Northern Leopard Frog	Lithobates pipiens	NAR	NAR		S5	G5						
ORAA (2013)	Wood Frog	Lithobates sylvaticus				S5	G5						
	SNAKES AND LIZARDS												
ORAA (2013)	Ring-necked Snake	Diadophis punctatus				S4	G5T5						
ORAA (2017)	Northern Red-bellied Snake	Storeria occipitomaculata occipitomaculata				S5	G5						x
ORAA (2019)	Eastern Gartersnake	Thamnophis sirtalis sirtalis				S5	G5T5						
	TURTLES												
ORAA (2019)	Snapping Turtle	Chelydra serpentina	SC	SC	SC	S3	G5T5						
ORAA (2013)	Midland Painted Turtle	Chrysemys picta marginata		SC		S5	G5T5						
	BIRDS												
OBBA (2007)	Common Loon	Gavia immer	NAR	NAR		S5B,S5N	G5	N5B,N5N	✓			CP	x
OBBA (2007)	Pied-billed Grebe	Podilymbus podiceps				S4B,S4N	G5	N5B				CP	x
OBBA (2007)	Double-crested Cormorant	Phalacrocorax auritus	NAR	NAR		S5B	G5	N5B					x
OBBA (2007)	American Bittern	Botaurus lentiginosus				S4B	G5	N5B, N3N	✓			CP	x
OBBA (2007)	Great Blue Heron	Ardea herodias				S4	G5	N5B					x
OBBA (2007)	Green Heron	Butorides virescens				S4B	G5	N4B				CP	x
OBBA (2007)	Canada Goose	Branta canadensis				S5	G5	N5B,N5N				CP	
OBBA (2007)	Wood Duck	Aix sponsa				S5	G5	N5B,N5N					
OBBA (2007)	Green-winged Teal	Anas crecca				S4	G5	N5B,N5N					x
OBBA (2007)	Mallard	Anas platyrhynchos				S5	G5	N5B,N5N					
OBBA (2007)	Blue-winged Teal	Anas discors				S4	G5	N5B				CP	x
iNat (2018)	American Wigeon	Anas americana				S4	G5	N5B,N5N				CP	x
OBBA (2007)	Hooded Merganser	Lophodytes cucullatus				S5B,S5N	G5	N5B				CP	x

OBBA (2007)	Common Merganser	Mergus merganser				S5B,S5N	G5	N5B,N5N	✓				x
eBird (2018) OBBA (2007)	Turkey Vulture	Cathartes aura				S5B	G5	N5B				CP	x
OBBA (2007)	Osprey	Pandion haliaetus				S5B	G5	N5B				CP	x
iNat (2020)	Bald Eagle	Haliaeetus leucocephalus	SC	NAR		S2N,S4B	G5	N5B,N5N	✓		✓		x
OBBA (2007)	Northern Harrier	Circus cyaneus	NAR	NAR		S4B	G5	N5B,N4N	✓	>30ha	✓	CP	x
OBBA (2007)	Sharp-shinned Hawk	Accipiter striatus	NAR			S5	G5	N5B,N5N	✓	>30ha		CP	x
OBBA (2007)	Cooper's Hawk	Accipiter cooperii	NAR	NAR		S4	G5	N5B,N4N	✓	>10ha		CP	x
OBBA (2007)	Northern Goshawk	Accipiter gentilis	NAR	NAR		S4	G5	N5	✓	>100ha		CP	x
OBBA (2007)	Red-shouldered Hawk	Buteo lineatus	NAR	NAR		S4B	G5	N4B	✓	>100ha	✓	CP	x
OBBA (2007)	Broad-winged Hawk	Buteo platypterus				S5B	G5	N5B	✓	>100ha		CP	x
eBird (2021) OBBA (2007)	Red-tailed Hawk	Buteo jamaicensis	NAR	NAR		S5	G5	N5B					
iNat (2020)	Rough-legged Hawk	Buteo lagopus	NAR	NAR		S1B,S4N	G5	N5B,N5N					
OBBA (2007)	American Kestrel	Falco sparverius				S4	G5	N5B			✓	CP	x
eBird (2021) OBBA (2007)	Ruffed Grouse	Bonasa umbellus				S4	G5	N5				CP	
OBBA (2007)	Wild Turkey	Meleagris gallopavo				S5	G5	N5					
OBBA (2007)	Northern Bobwhite	Colinus virginianus	END	END	END	S1	G4G5	N1			✓	CP	x
OBBA (2007)	Virginia Rail	Rallus limicola				S5B	G5	N5B				CP	
OBBA (2007)	Sora	Porzana carolina				S4B	G5	N5B				CP	x
OBBA (2007)	Killdeer	Charadrius vociferus				S5B,S5N	G5	N5B					
OBBA (2007)	Spotted Sandpiper	Actitis macularius				S5	G5	N5B				CP	
OBBA (2007)	Wilson's Snipe	Gallinago delicata				S5B	G5	N5B				CP	
OBBA (2007)	American Woodcock	Scolopax minor				S4B	G5	N5B				CP	
eBird (2018) OBBA (2007)	Ring-billed Gull	Larus delawarensis				S5B,S4N	G5	N5B,N5N					x
OBBA (2007)	Herring Gull	Larus argentatus				S5B,S5N	G5	N5B,N5N					x
eBird (2018) OBBA (2007)	Rock Pigeon	Columba livia				SNA	G5	NNA					
OBBA (2007)	Mourning Dove	Zenaida macroura				S5	G5	N5					
OBBA (2007)	Black-billed Cuckoo	Coccyzus erythropthalmus				S5B	G5	N5B			✓	CP	x
OBBA (2007)	Eastern Screech-Owl	Megascops asio	NAR	NAR		S4	G5	N4N5					
OBBA (2007)	Great Horned Owl	Bubo virginianus				S4	G5	N5					
OBBA (2007)	Ruby-throated Hummingbird	Archilochus colubris				S5B	G5	N5B				CP	
OBBA (2007)	Belted Kingfisher	Megaceryle alcyon				S4B	G5	N5B			✓		x
OBBA (2007)	Yellow-bellied Sapsucker	Sphyrapicus varius				S5B	G5	N5B	✓	2-5ha		CP	x

eBird (2021) OBBA (2007)	Downy Woodpecker	Picoides pubescens				S5	G5	N5					
OBBA (2007)	Hairy Woodpecker	Picoides villosus				S5	G5	N5	✓	4-8ha			x
OBBA (2007)	Northern Flicker	Colaptes auratus				S4B	G5	N5			✓		x
OBBA (2007)	Pileated Woodpecker	Dryocopus pileatus				S5	G5	N5	✓	>40ha		CP	x
OBBA (2007)	Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5	N4N5B			✓		x
OBBA (2007)	Alder Flycatcher	Empidonax alnorum				S5B	G5	N5B				CP	
OBBA (2007)	Willow Flycatcher	Empidonax traillii				S5B	G5	N5B			✓		x
OBBA (2007)	Least Flycatcher	Empidonax minimus				S4B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	Eastern Phoebe	Sayornis phoebe				S5B	G5	N5B				CP	
OBBA (2007)	Great Crested Flycatcher	Myiarchus crinitus				S4B	G5	N5B					
OBBA (2007)	Eastern Kingbird	Tyrannus tyrannus				S4B	G5	N5B			✓	CP	x
OBBA (2007)	Horned Lark	Eremophila alpestris				S5B	G5	N5B,N5N				CP	
OBBA (2007)	Purple Martin	Progne subis				S3S4B	G5	N5B				CP	x
OBBA (2007)	Tree Swallow	Tachycineta bicolor				S4B	G5	N5B					
OBBA (2007)	Northern Rough-winged Swallow	Stelgidopteryx serripennis				S4B	G5	N5B				CP	
OBBA (2007)	Bank Swallow	Riparia riparia	THR	THR	THT	S4B	G5	N5B			✓	CP	x
OBBA (2007)	Cliff Swallow	Petrochelidon pyrrhonota				S4B	G5	N5B				CP	x
eBird (2018) OBBA (2007) NHIC (n.d)	Barn Swallow	Hirundo rustica	THR	THR	THR	S4B	G5	N4N5B				CP	
eBird (2021) OBBA (2007)	Blue Jay	Cyanocitta cristata				S5	G5	N5					
eBird (2021) OBBA (2007)	American Crow	Corvus brachyrhynchos				S5B	G5	N5B,N5N					
eBird (2021) OBBA (2007)	Black-capped Chickadee	Poecile atricapillus				S5	G5	N5				CP	
OBBA (2007)	Red-breasted Nuthatch	Sitta canadensis				S5	G5	N5	✓	>10ha		CP	x
eBird (2018) OBBA (2007)	White-breasted Nuthatch	Sitta carolinensis				S5	G5	N5	✓	>10ha			
OBBA (2007)	Brown Creeper	Certhia americana				S5B	G5	N5B	✓	>30ha		CP	x
OBBA (2007)	House Wren	Troglodytes aedon				S5B	G5	N5B					
OBBA (2007)	Winter Wren	Troglodytes troglodytes				S5B	G5	N5B	✓	>30ha			x
OBBA (2007)	Marsh Wren	Cistothorus palustris				S4B	G5	N5B				CP	x
OBBA (2007)	Golden-crowned Kinglet	Regulus satrapa				S5B	G5	N5				CP	x
OBBA (2007)	Eastern Bluebird	Sialia sialis	NAR	NAR		S5B	G5	N5B				CP	
OBBA (2007)	Veery	Catharus fuscescens				S4B	G5	N5B	✓	>10ha		CP	x
OBBA (2007)	Wood Thrush	Hylocichla mustelina	SC	THR	THR	S4B	G4	N4B			✓		x

eBird (2018) OBBA (2007)	American Robin	Turdus migratorius				S5B	G5	N5B,N5N					
OBBA (2007)	Gray Catbird	Dumetella carolinensis				S4B	G5	N5B				CP	
OBBA (2007)	Brown Thrasher	Toxostoma rufum				S4B	G5	N5B			✓	CP	x
OBBA (2007)	Cedar Waxwing	Bombycilla cedrorum				S5B	G5	N5					
OBBA (2007)	European Starling	Sturnus vulgaris				SNA	G5	NNA					
OBBA (2007)	Blue-headed Vireo	Vireo solitarius				S5B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	Warbling Vireo	Vireo gilvus				S5B	G5	N5B					
OBBA (2007)	Red-eyed Vireo	Vireo olivaceus				S5B	G5	N5B					
OBBA (2007)	Nashville Warbler	Vermivora ruficapilla				S5B	G5	N5B				CP	
OBBA (2007)	Yellow Warbler	Dendroica petechia				S5B	G5	N5B					
OBBA (2007)	Chestnut-sided Warbler	Dendroica pensylvanica				S5B	G5	N5B				CP	
OBBA (2007)	Magnolia Warbler	Dendroica magnolia				S5B	G5	N5B	✓	>30ha		CP	x
OBBA (2007)	Yellow-rumped Warbler	Dendroica coronata				S5B	G5	N5B				CP	
OBBA (2007)	Black-throated Green Warbler	Dendroica virens				S5B	G5	N5B	✓	>30ha			x
OBBA (2007)	Pine Warbler	Dendroica pinus				S5B	G5	N5B	✓	15-30ha		CP	x
OBBA (2007)	Black-and-white Warbler	Mniotilta varia				S5B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	American Redstart	Setophaga ruticilla				S5B	G5	N5B	✓	>100ha		CP	x
OBBA (2007)	Ovenbird	Seiurus aurocapilla				S4B	G5	N5B	✓	>70ha		CP	x
OBBA (2007)	Northern Waterthrush	Seiurus noveboracensis				S5B	G5	N5B					
OBBA (2007)	Mourning Warbler	Oporornis philadelphia				S4B	G5	N5B				CP	
OBBA (2007)	Common Yellowthroat	Geothlypis trichas				S5B	G5	N5B					
OBBA (2007)	Canada Warbler	Wilsonia canadensis	SC	THR	THR	S4B	G5	N5B	✓	>30ha			x
OBBA (2007)	Scarlet Tanager	Piranga olivacea				S4B	G5	N5B	✓	>20ha		CP	x
OBBA (2007)	Northern Cardinal	Cardinalis cardinalis				S5	G5	N5					
OBBA (2007)	Rose-breasted Grosbeak	Pheucticus ludovicianus				S4B	G5	N5B			✓		x
OBBA (2007)	Indigo Bunting	Passerina cyanea				S4B	G5	N5B					
OBBA (2007)	Eastern Towhee	Pipilo erythrophthalmus				S4B	G5	N4N5B			✓	CP	x
OBBA (2007)	Chipping Sparrow	Spizella passerina				S5B	G5	N5B					
OBBA (2007)	Clay-colored Sparrow	Spizella pallida				S4B	G5	N5B				CP	x
OBBA (2007)	Field Sparrow	Spizella pusilla				S4B	G5	N4B			✓	CP	x
OBBA (2007)	Vesper Sparrow	Pooecetes gramineus				S4B	G5	N5B			✓	CP	x
OBBA (2007)	Savannah Sparrow	Passerculus sandwichensis				S4B	G5	N5B	✓	>50ha	✓	CP	x
OBBA (2007)	Grasshopper Sparrow	Ammodramus savannarum	SC	SC	SC	S4B	G5	N4B	✓	>10ha	✓	CP	x
eBird (2018) OBBA (2007)	Song Sparrow	Melospiza melodia				S5B	G5	N5B,N5N					
OBBA (2007)	Swamp Sparrow	Melospiza georgiana				S5B	G5	N5B				CP	
OBBA (2007)	White-throated Sparrow	Zonotrichia albicollis				S5B	G5	N5B				CP	

OBBA (2007) NHIC (n.d)	Bobolink	Dolichonyx oryzivorus	THR	THR	THR	S4B	G5	N4N5B	✓	>10ha	✓	CP	x
OBBA (2007)	Red-winged Blackbird	Agelaius phoeniceus				S4	G5	N5B,N5N					
OBBA (2007) NHIC (n.d)	Eastern Meadowlark	Sturnella magna	THR	THR	THR	S4B	G5	N4B	✓	>10ha	✓	CP	x
OBBA (2007)	Common Grackle	Quiscalus quiscula				S5B	G5	N5B					
OBBA (2007)	Brown-headed Cowbird	Molothrus ater				S4B	G5	N5B					
OBBA (2007)	Baltimore Oriole	Icterus galbula				S4B	G5	N5B			✓		x
OBBA (2007)	Purple Finch	Carpodacus purpureus				S4B	G5	N5B,N5N				CP	
OBBA (2007)	House Finch	Carpodacus mexicanus				SNA	G5	N5					
OBBA (2007)	Pine Siskin	Carduelis pinus				S4B	G5	N5					
eBird (2018) OBBA (2007)	American Goldfinch	Carduelis tristis				S5B	G5	N5B,N5N				CP	
eBird (2018) OBBA (2007)	House Sparrow	Passer domesticus				SNA	G5	NNA					
	MAMMALS												
OMA (1994)	Virginia Opossum	Didelphis virginiana				S4	G5	N4					
OMA (1994)	Big Brown Bat	Eptesicus fuscus				S5	G5	N5					
OMA (1994)	Hoary Bat	Lasiurus cinereus				S4	G4	N4					x
OMA (1994)	Eastern Cottontail	Sylvilagus floridanus				S5	G5	N5					
OMA (1994)	Snowshoe Hare	Lepus americanus				S5	G5	N5					x
OMA (1994)	Eastern Chipmunk	Tamias striatus				S5	G5	N5					
OMA (1994)	Woodchuck	Marmota monax				S5	G5	N5					
OMA (1994)	Eastern Gray Squirrel	Sciurus carolinensis				S5	G5	N5					
OMA (1994)	Beaver	Castor canadensis				S5	G5	N5					
OMA (1994)	Muskrat	Ondatra zibethicus				S5	G5	N5					
OMA (1994)	Norway Rat	Rattus norvegicus				SNA	G5	NNA					
OMA (1994)	Porcupine	Erethizon dorsatum				S5	G5	N5					
OMA (1994)	Red Fox	Vulpes vulpes				S5	G5	N5					
OMA (1994)	Northern Raccoon	Procyon lotor				S5	G5	N5					
OMA (1994)	Ermine	Mustela erminea				S5	G5	N5					
OMA (1994)	Long-tailed Weasel	Mustela frenata				S4	G5	N4					x
OMA (1994)	American Mink	Mustela vison				S4	G5	N4					
OMA (1994)	Striped Skunk	Mephitis mephitis				S5	G5	N5					
OMA (1994)	White-tailed Deer	Odocoileus virginianus				S5	G5	N5					
	VASCULAR PLANTS												

iNat (2020)	Winterberry Holly	Ilex verticillata											
iNat (2019)	Tansy	Tanacetum vulgare											

Legend:
COSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the status of endangered wildlife in Canada
SARA: Species at Risk Act
ESA: Endangered Species Act
END: Endangered
THR: Threatened
SC: special Concern
NAR: Not At Risk
NL: Not listed
DD: Data Deficient

S-Rank:
S1: Critically Imperiled—Critically imperiled in the province (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the province, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the province, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the province
SX: Presumed extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not applicable—A conservation status rank is not applicable because the species is not a suitable target for conservation activities
S#S#: Range Rank—A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species
S#B- Breeding status rank
S#N- Non Breeding status rank
?: Indicates uncertainty in the assigned rank

G-Rank:
G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Grand River Conservation Authority:
CP=Conservation Priority

Source codes
OBA: Ontario butterfly Atlas Online
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
iNat: iNaturalist

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APPENDIX 3
Ecological Land Classification Forms

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 1
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
SITE		■ TABLELAND	COVER	☐ LICHEN	■ SWAMP
☐ OPEN WATER	☐ BASIC BEDRK.	☐ ROLL. UPLAND	☐ OPEN	☐ BRYOPHYTE	☐ FEN
☐ SHALLOW WATER		☐ CLIFF	☐ SHRUB	☐ DECIDUOUS	☐ BOG
■ SURFICIAL DEP.	☐ CARB BEDRK.	☐ TALUS	■ TREED	☐ CONIFEROUS	☐ BARREN
☐ BEDROCK		☐ CREVICE/CAVE		■ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	THUJA OCCIDENTALIS >> BETULA ALLEGHENIENSIS
2	SUBCANOPY	3	3	THUJA OCCIDENTALIS >> ABIES BALSAMEA
3	UNDERSTOREY			
4	GRD. LAYER	7	4	GYMNOCARPIUM DRYOPTERIS > RUBUS PUBESCENS > ONOCLEA SENSIBILIS > TIARELLA CORDIFOLIA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	O	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	O	10-24	N	25-50	N	>50
DEADFALL/LOGS:	A	<10	O	10-24	R	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE: SILTY CLAY LOAM	DEPTH TO MOTTLES/GLEY	g= 15	G= 15
MOISTURE: MOIST- WET	DEPTH OF ORGANICS:	10	(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK	>100	(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: SWAMP		CODE: SW
COMMUNITY SERIES: CONIFEROUS SWAMP		CODE: SWC
ECOSITE: WHITE CEDAR MINERAL CONIFEROUS SWAMP		CODE: SWCM 1
VEGETATION TYPE: WHITE CEDAR - CONIFER MINERAL CONIFEROUS SWAMP		CODE: SWCM 1-2
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
BETULA ALLEGHENIENSIS	O			
THUJA OCCIDENTALIS	D	D		
ABIES BALSAMEA	O	O		

SPECIES	LAYER C	SC	U	GL
RUBUS PUBESCENS				O-R
MAIANTHEMUM CANADENSE				R
GYMNOCARPIUM DRYOPTERIS				A-O
ATHYRIUM FILIX-FEMINA				R
ARISAEMA TRIPHYLLUM				R
TARAXACUM OFFICINALE				R
OXALIS MONTANA				R
TIARELLA CORDIFOLIA				R
ONOCLEA SENSIBILIS				O-R
TRILLIUM ERECTUM				R
CARDAMINE DIPHYLLA				R
TRIENTALIS BOREALIS				R:

NOTES:

LITTLE TO NO DISTURBANCE

SEEPS PRESENT.

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

Representative Photographs of Vegetation Community:



ABOUD & ASSOCIATES INC.
Consulting Arborists+Ecologists+Landscape Architects

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 2
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		☐ FORB	☐ MARSH
	☐ ACIDIC BEDRK.	■ TABLELAND		☐ LICHEN	■ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
	☐ BASIC BEDRK.	☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		■	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
	☐ CARB BEDRK.	☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	BETULA ALLEGHENIENSIS > THUJA OCCIDENTALIS > ABIES BALSAMEA > BETULA PAPYRIFERA
2	SUBCANOPY	3	3	THUJA OCCIDENTALIS > ABIES BALSAMEA
3	UNDERSTOREY	5	2	RIBES HIRTELLUM
4	GRD. LAYER	7	4	TUSSILAGO FARFARA> EQUISETUM SP. > ONOCLEA SENSIBILIS >GYMNOCARPIUM DRYOPTERIS

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	O	10-24	N	25-50	N	>50
DEADFALL/LOGS:	A	<10	O	10-24	R	25-50	N	>50
COMM. AGE.	MATURE							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE: SILTY CLAY LOAM	DEPTH TO MOTTLES/GLEY	g= 20	G= 20
MOISTURE: MOIST	DEPTH OF ORGANICS:	5	(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK	>100	(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: SWAMP		CODE: SW
COMMUNITY SERIES: MIXED SWAMP		CODE: SWM
ECOSITE: CONIFER- HARDWOOD MINERAL MIXED SWAMP		CODE: SWMM 5
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
THUJA OCCIDENTALIS	R	O		
ABIES BALSAMEA	R	O-R		
BETULA ALLEGHENIENSIS	O			
BETULA PAPYRIFERA	R			
ACER SACCHARUM				R
FRAXINUS SP.				R
PRUNUS VIRGINIANA				R
RIBES HIRTEULLUM			R	

SPECIES	LAYER C	SC	U	GL
MAIANTHEMUM CANADENSE				R
TIARELLA CORDIFOLIA				O-R
GYMNOCARPIUM DRYOPTERIS				O
GALIUM PALUSTRE				R
EQUISETUM SP.				O
TRILLIUM ERECTUM				R
RANUNCULUS RECURVATUS				R
CARDAMINE DIPHYLLA				R
ONOCLEA SENSIBILIS				O
TARAXACUM OFFICINALE				R
FRAGARIA VIRGINIANA				R
TUSSILAGO FARFARA				A-O
ALLIARIA PETIOLATA				R
GERANIUM ROBERTIANUM				R
SOLIDAGO SP.				R

NOTES:

ALIEN SPECIES- OCCASIONAL, LOCAL
TRACKS/TRAILS- FAINT TRAILS (ATV), LOCAL

SEEPS PRESENT

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 3
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ BASIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		■ DECIDUOUS	☐ BOG
	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR			☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			■ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	POPULUS TREMULOIDES > ACER SACCHARUM > BETULA PAPYRIFERA > ABIES BALSAMEA
2	SUBCANOPY	3	3	PRUNUS SEROTINA > ACER RUBRUM > FRAXINUS AMERICANA > BETULA ALLEGHENIENSIS
3	UNDERSTOREY	4	3	RUBUS IDAEUS > RUBUS OCCIDENTALIS = RUBUS ALLEGHENIENSIS
4	GRD. LAYER	6	3	FRAGARIA VIRGINIANA > MAIANTHEMUM CANADENSE > SOLIDAGO CANADENSIS > EQUISETUM ARVENSE

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	O	10-24	R	25-50	N	>50
DEADFALL/LOGS:	A	<10	O	10-24	R	25-50	R	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	FOREST	CODE: FO
COMMUNITY SERIES:	DECIDUOUS FOREST	CODE: FOD
ECOSITE:	DRY- FRESH UPLAND DECIDUOUS FOREST	CODE: FODM 4
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: 1 = CANOPY 2= SUBCANOPY 3= UNDERSTOREY 4= GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES CODE	LAYER 1	2	3	4
POPULUS TREMULOIDES	O			
ACER RUBRUM		O-R		O-R
ABIES BALSAMEA	R			
ACER SACCHARUM	O-R			O-R
PRUNUS SEROTINA		O		
FRAXINUS AMERICANA		O-R		
BETULA PAPYRIFERA	O-R			
BETULA ALLEGHENIENSIS		R		
RUBUS IDAEUS			O-R	
PARTHENOCISSUS QUINQUEFOLIA				O
RUBUS OCCIDENTALIS			R	
RUBUS ALLEGHENIENSIS			R	

SPECIES CODE	LAYER 1	2	3	4
SOLIDAGO CANADENSIS				O-R
DAUCUS CAROTA				R
FRAGARIA VIRGINIANA				O
MENTHA CANADENSIS				R
MAIANTHEMUM CANADENSE				O-R
EQUISETUM ARVENSE				R
VERONICA OFFICINALIS				R

NOTES:

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 4
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	■ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
	☐ ACIDIC BEDRK.	☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
		☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		■ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
	☐ BASIC BEDRK.	☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
	☐ CARB BEDRK.	☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					■ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	PRUNUS SEROTINA > ACER SACCHARUM
2	SUBCANOPY	3	3	ACER NEGUNDO > FRAXINUS AMERICANA > SORBUS AUCUPARIA > MALUS PUMILA
3	UNDERSTOREY	4	3	CORNUS SERICEA > VITIS RIPARIA > RHAMNUS CATHARTICA > RUBUS IDAEUS
4	GRD. LAYER	6	3	FRAGARIA VIRGINIANA > BROMUS ERECTUS > CIRSIUM ARVENSE > PARTHENOCISSUS QUINQUEFOLIA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	O	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	R	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	R	<10	N	10-24	N	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	AGRICULTURE	CODE: AG
COMMUNITY SERIES:	TREED AGRICULTURE	CODE: TAG
ECOSITE:	FENCEROW	CODE: TAGM 5
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
ACER NEGUNDO		O		
PRUNUS SEROTINA	O			
SORBUS AUCUPARIA		R		
MALUS PUMILA		R		
PRUNUS PENSYLVANICA		R		
FRAXINUS AMERICANA		O-R		
ACER SACCHARUM	O			
CORNUS SERICEA			O	
RUBUS IDAEUS			R	
PARTHENOCISSUS QUINQUEFOLIA				O-R
RHAMNUS CATHARTICA			O-R	
VITIS RIPARIA			O	

SPECIES	LAYER C	SC	U	GL
BROMUS ERECTUS				O-R
OXALIS STRICTA				R
SOLIDAGO CANADENSIS				R
CIRSIUM ARVENSE				O-R
TANACETUM VULGARE				R
FRAGARIA VIRGINIANA				O
ASCLEPIAS SYRIACA				R
TARAXACUM OFFICINALE				R

NOTES:

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 5
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
	☐ ACIDIC BEDRK.	☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		■	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			■ FOREST
					☐ PLANTATION

SITE	COVER
☐ OPEN WATER	☐ OPEN
☐ SHALLOW WATER	☐ SHRUB
■ SURFICIAL DEP.	■ TREED
☐ BEDROCK	

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	THUJA OCCIDENTALIS = POPULUS TREMULOIDES > BETULA ALLEGHENIENSIS
2	SUBCANOPY	3	3	THUJA OCCIDENTALIS = POPULUS TREMULOIDES > ACER SACCHARUM > TILIA AMERICANA
3	UNDERSTOREY	4	2	RHAMNUS CATHARTICA > CORNUS ALTERNIFOLIA
4	GRD. LAYER	6	3	ERYTHRONIUM AMERICANUM > FRAGARIA VIRGINIANA > MAIANTHEMUM CANADENSE > GEUM LACINATUM

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	R	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	R	<10	R	10-24	R	25-50	N	>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	FOREST	CODE: FO
COMMUNITY SERIES:	MIXED FOREST	CODE: FOM
ECOSITE:	DRY- FRESH WHITE CEDAR MIXED FOREST	CODE: FOMM 4
VEGETATION TYPE:	DRY- FRESH WHITE CEDAR- POPLAR MIXED FOREST	CODE: FOMM 4-2
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
THUJA OCCIDENTALIS	A-O	O	R	
ACER SACCHARUM		R		
TILIA AMERICANA		R		
FRAXINUS AMERICANA			O-R	
POPULUS TREMULOIDES	A-O	O		
BETULA ALLEGHENIENSIS	O-R			
RHAMNUS CATHARTICA			O	
CORNUS ALTERNIFOLIA			O	

SPECIES	LAYER C	SC	U	GL
MAIANTHEMUM RACEMOSUM				R
ERYTHRONIUM AMERICANUM				A-O
MAIANTHEMUM CANADENSE				O
FRAGARIA VIRGINIANA				O
PARTHENOCISSUS QUINQUEFOLIA				R
ARALIA NUDICAULIS				R
GEUM LACINIATUM				O-R
ACTAEA PACHYPODA				R
CAREX SP.				R
EQUISETUM ARVENSE				R

NOTES: ALIEN SPECIES- OCCASIONAL, WIDESPREAD
TRACKS/TRAILS- FAINT TRAILS, LOCAL
RECREATION- LIGHT, LOCAL, PUBLIC USING ADJACENT TRAIL
NOISE- SLIGHT, LOCAL

CANDIDATE BAT HABITAT PRESENT

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Representative Photographs of Vegetation Community:



ABOUD & ASSOCIATES INC.
Consulting Arborists+Ecologists+Landscape Architects

ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 6
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		■ GRAMINOID	☐ STREAM
	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE		☐ FORB	■ MARSH
SITE		■ TABLELAND		☐ LICHEN	☐ SWAMP
☐ OPEN WATER	☐ BASIC BEDRK.	☐ ROLL. UPLAND	COVER	☐ BRYOPHYTE	☐ FEN
■ SHALLOW WATER		☐ CLIFF	■ OPEN	☐ DECIDUOUS	☐ BOG
☐ SURFICIAL DEP.	☐ CARB BEDRK.	☐ TALUS	☐ SHRUB	☐ CONIFEROUS	☐ BARREN
☐ BEDROCK		☐ CREVICE/CAVE	☐ TREED	☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	POPULUS TREMULOIDES
2	SUBCANOPY	3	1	SALIX SP. > POPULUS BALSAMIFERA
3	UNDERSTOREY	4	4	TYPHA ANGUSTIFOLIA >> CORNUS SERICEA
4	GRD. LAYER			

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION								BA:
SIZE CLASS ANALYSIS:		<10		10-24		25-50		>50
STANDING SNAGS:		<10		10-24		25-50		>50
DEADFALL/LOGS:		<10		10-24		25-50		>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	MARSH	CODE:	MA
COMMUNITY SERIES:	SHALLOW MARSH	CODE:	MAS
ECOSITE:	GRAMINOID MINERAL SHALLOW MARSH	CODE:	MASM 1
VEGETATION TYPE:	CATTAIL MINERAL SHALLOW MARSH	CODE:	MASM 1-1
INCLUSION		CODE:	
COMPLEX		CODE:	

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
SALIX SP.		O-R		
POPULUS TREMULOIDES	R			
POPULUS BALSAMIFERA		R		
CORNUS SERICEA			R	

SPECIES	LAYER C	SC	U	GL
TYPHA ANGUSTIFOLIA			A-O	

NOTES: TRACKS/TRAILS- FAINT TRAILS, LOCAL
RECREATION- MODERATE, LOCAL- CHAIRS OUT BESIDE POND, DOGS FROM DOG PARK SWIM IN POND

RWBB

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 7
	SURVEYOR(S): SD, KS	DATE: MAY 18 & SEPT 1, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	■ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER		☐ TABLELAND	☐ OPEN	☐ LICHEN	■ SWAMP
☐ SHALLOW WATER	☐ BASIC BEDRK.	☐ ROLL. UPLAND	■ SHRUB	☐ BRYOPHYTE	☐ FEN
■ SURFICIAL DEP.		☐ CLIFF	☐ TREED	☐ DECIDUOUS	☐ BOG
☐ BEDROCK	☐ CARB BEDRK.	☐ TALUS		■ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	2	THUJA OCCIDENTALIS > BETULA ALLEGHENIENSIS > FRAXINUS NIGRA > ACER SACCHARUM
2	SUBCANOPY	3	3	SALIX BEBBIANA >> CORNUS SERICEA > THUJA OCCIDENTALIS
3	UNDERSTOREY	4	3	CORNUS SERICEA > RHAMNUS CATHARTICA > CORNUS ALTERNIFOLIA > RIBES CYNOSBATI
4	GRD. LAYER	6	4	PHALARIS ARUNDINACEA > ONOCLEA SENSIBILIS > PILEA FONTANA > SYMPHYOTRICHUM PUNICEUM

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	O	10-24	R	25-50	N	>50
STANDING SNAGS:	R	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	O	<10	R	10-24	N	25-50	N	>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE: SANDY CLAY LOAM	DEPTH TO MOTTLES/GLEY	g= 20	G= 20
MOISTURE: MOIST	DEPTH OF ORGANICS:	3	(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK	>100	(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: SWAMP		CODE: SW
COMMUNITY SERIES: THICKET SWAMP		CODE: SWT
ECOSITE: WILLOW MINERAL DECIDUOUS THICKET SWAMP		CODE: SWTM 3
VEGETATION TYPE: BEBB'S WILLOW MINERAL DECIDUOUS THICKET SWAMP		CODE: SWTM 3-2
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
ACER SACCHARUM	R			
THUJA OCCIDENTALIS	O	R		
SALIX BEBBIANA		A		
BETULA ALLEGHENIENSIS	R			
FRAXINUS NIGRA	R			
CORNUS SERICEA		O-R	A-O	
CORNUS ALTERIFOLIA			O-R	
RHAMNUS CATHARTICA			O-R	
RIBES HIRTELLUM			R	
RIBES CYNOSBATI			R	

SPECIES	LAYER C	SC	U	GL
ERYTHRONIUM AMERICANUM				R
PHALARIS ARUNDINACEA				A
PILEA FONTANA				O-R
TUSSILAGO FARFARA				R
ONOCLEA SENSIBILIS				O
RUBUS PUBESCENS				R
SOLIDAGO SP.				R
THALICTRUM DIOICUM				R
GALIUM ASPRELLUM				R
VIOLA SP.				R
GERANIUM ROBERTIANUM				R
GERANIUM MACULATUM				R
SYMPHYOTRICHUM PUNICEUM				O-R

NOTES:
ALIEN SPECIES- OCCASIONAL, LOCAL
NOISE- SLIGHT, LOCAL

AMRE

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 8
	SURVEYOR(S): SD, KS	DATE: MAY 18, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	☐ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☐ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
SITE	☐ ACIDIC BEDRK.	☐ VALLEYSLOPE	COVER	☐ FORB	☐ MARSH
☐ OPEN WATER		☐ TABLELAND	☐ OPEN	☐ LICHEN	☐ SWAMP
☐ SHALLOW WATER	☐ BASIC BEDRK.	☐ ROLL. UPLAND	☐ SHRUB	☐ BRYOPHYTE	☐ FEN
☐ SURFICIAL DEP.		☐ CLIFF	☐ TREED	☐ DECIDUOUS	☐ BOG
☐ BEDROCK	☐ CARB BEDRK.	☐ TALUS		☐ CONIFEROUS	☐ BARREN
		☐ CREVICE/CAVE		☐ MIXED	☐ MEADOW
		☐ ALVAR		☐	☐ PRAIRIE
		☐ ROCKLAND			☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	4	POPULUS TREMULOIDES > PRUNUS SEROTINA > ACER SACCHARUM = ACER SACCHARINUM
2	SUBCANOPY	3	3	FRAXINUS AMERICANA > CORNUS ALTERNIFOLIA >RHAMNUS CATHARTICA > MALUS PUMILA
3	UNDERSTOREY	4	3	RHAMNUS CATHARTICA > VITIS RIPARIA > RUBUS IDAEUS > RIBES CYNOSBATI
4	GRD. LAYER	6	4	ERYTHRONIUM AMERICANUM > MATTEUCCIA STRUTHIOPTERIS > FRAGARIA VIRGINIANA > VIOLA SP

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	N	>50
STANDING SNAGS:	O	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	O	<10	R	10-24	N	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS: FOREST		CODE: FO
COMMUNITY SERIES: DECIDUOUS FOREST		CODE: FOD
ECOSITE: DRY- FRESH UPLAND DECIDUOUS FOREST		CODE: FODM 4
VEGETATION TYPE:		CODE:
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER C	SC	U	GL
POPULUS TREMULOIDES	A			
FRAXINUS AMERICANA		O-R		
ACER SACCHARUM	R			
MALUS PUMILA		R		
ACER SACCHARINUM	R			
PRUNUS SEROTINA	O			
RUBUS IDAEUS			R	
RHAMNUS CATHARTICA		R	O	
CORNUS ALTERNIFOLIA		O-R		
VITIS RIPARIA			O	
LONICERA TATARICA			R	
RIBES CYNOSBATI			R	

SPECIES	LAYER C	SC	U	GL
FRAGARIA VIRGINIANA				O-R
ACTAEA PACHYPODA				R
ERYTHRONIUM AMERICANUM				A
MATTEUCCIA STRUTHIOPTERIS				A-O
VIOLA SP.				R
TARAXACUM OFFICINALE				R
GALIUM MOLLUGO				R

NOTES:
ALIEN SPECIES- OCCASIONAL, WIDESPREAD
GAPS IN CANOPY- SMALL, LOCAL
NOISE- SLIGHT, LOCAL
DEATH/DISEASE OF TREES- LIGHT, LOCAL
RECREATION- PEOPLE USING TRAIL

EACH, CAGO

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 9
	SURVEYOR(S): SD, KS	DATE: MAY 18 & SEPT 1, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		■ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
	☐ ACIDIC BEDRK.	☐ CLIFF		☐ DECIDUOUS	☐ BOG
SITE		☐ TALUS	COVER	☐ CONIFEROUS	☐ BARREN
☐ OPEN WATER	☐ BASIC BEDRK.	☐ CREVICE/CAVE	■ OPEN	☐ MIXED	■ MEADOW
☐ SHALLOW WATER		☐ ALVAR	☐ SHRUB		☐ PRAIRIE
■ SURFICIAL DEP.		☐ ROCKLAND	☐ TREED		☐ THICKET
☐ BEDROCK	☐ CARB BEDRK.	☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	1	PINUS STROBUS
2	SUBCANOPY			
3	UNDERSTOREY	4	2	CORNUS SERICEA > RHAMNUS CATHARTICA > RHUS TYPHINA > ACER NEGUNDO
4	GRD. LAYER	6	4	SOLIDAGO CANADENSIS > SOLIDAGO ALTISSIMA > FRAGARIA VIRGINIANA > DAUCUS CAROTA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:		<10		10-24		25-50		>50
STANDING SNAGS:		<10		10-24		25-50		>50
DEADFALL/LOGS:		<10		10-24		25-50		>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	MEADOW	CODE:	ME
COMMUNITY SERIES:	FORB MEADOW	CODE:	MEF
ECOSITE:	DRY- FRESH FORB MEADOW	CODE:	MEFM 1
VEGETATION TYPE:	GOLDENROD FORB MEADOW	CODE:	MEFM 1-1
INCLUSION		CODE:	
COMPLEX		CODE:	

NOTES:

LAYERS: 1 = CANOPY 2= SUBCANOPY 3= UNDERSTOREY 4= GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES CODE	LAYER 1	2	3	4
PINUS STROBUS	R			
ACER NEGUNDO			R	
PRUNUS SP.			R	
RHAMNUS CATHARTICA			O-R	
PARTHENOCISSUS QUINQUEFOLIA				O
VITIS RIPARIA				R
RHUS TYPHINA			R	
CORNUS SERICEA			O	

SPECIES CODE	LAYER 1	2	3	4
SOLIDAGO CANADENSIS				A-O
DAUCUS CAROTA				O
MEDICAGO SATIVA				O-R
VERBASCUM THAPSUS				R
TANACETUM VULGARE				O-R
ACHILLEA MILLEFOLIUM				O-R
ASCLEPIAS SYRIACA				O-R
PHLEUM PRATENSE				R
THYMUS PRAECOX				O
FRAGARIA VIRGINIANA				O
PLANTAGO MAJOR				R
SOLIDAGO ALTISSIMA				O

NOTES:

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 13
	SURVEYOR(S): SD, KS	DATE: MAY 18 & SEPT 1, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
■ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		☐ FORB	☐ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
	☐ ACIDIC BEDRK.	☐ CLIFF		☐ DECIDUOUS	☐ BOG
SITE		☐ TALUS	COVER	■ CONIFEROUS	☐ BARREN
☐ OPEN WATER		☐ CREVICE/CAVE	☐ OPEN	☐ MIXED	☐ MEADOW
☐ SHALLOW WATER	☐ BASIC BEDRK.	☐ ALVAR	☐ SHRUB	☐	☐ PRAIRIE
■ SURFICIAL DEP.		☐ ROCKLAND	■ TREED		☐ THICKET
☐ BEDROCK	☐ CARB BEDRK.	☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			■ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	2	3	FRAXINUS AMERICANA > ACER RUBRUM > PICEA GLAUCA > PRUNUS SEROTINA
2	SUBCANOPY	3	3	FRAXINUS AMERICANA = ACER RUBRUM > MALUS PUMILA > ULMUS AMERICANA
3	UNDERSTOREY	4	3	RUBUS IDAEUS > VITIS RIPARIA > RIBES CYNOSBATI > LONICERA TATARICA
4	GRD. LAYER	6	4	ALLIARIA PETIOLATA > SOLIDAGO SP. >ERYTHRONIUM AMERICANUM > GALIUM MOLLUGO

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:	A	<10	A	10-24	O	25-50	R	>50
STANDING SNAGS:	O	<10	R	10-24	N	25-50	N	>50
DEADFALL/LOGS:	O	<10	R	10-24	N	25-50	N	>50
COMM. AGE.	MID-AGED							

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	WOODLAND	CODE:	WO
COMMUNITY SERIES:	DECIDUOUS WOODLAND	CODE:	WOD
ECOSITE:	DRY- FRESH DECIDUOUS WOODLAND	CODE:	WODM 4
VEGETATION TYPE:		CODE:	
INCLUSION		CODE:	
COMPLEX		CODE:	

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES	LAYER			
	C	SC	U	GL
PICEA GLAUCA	O			
FRAXINUS AMERICANA	A-O	O	R	
ACER RUBRUM	O	O		
THUJA OCCIDENTALIS		R		
PINUS STROBUS		R		
ULMUS AMERICANA		R		
PRUNUS SEROTINA	R			
MALUS PUMILA		O-R		
LONICERA TATARICA			R	
RIBES CYNOSBATI			O-R	
RUBUS IDAEUS			O	
SICYOS ANGULATUS			R	
ROSA SP.			R	
RHAMNUS CATHARTICA			R	
VITIS RIPARIA			O-R	
PRUNUS VIRGINIANA			R	
CORNUS SERICEA			O-R	
RHUS TYPHINA			R	

SPECIES	LAYER			
	C	SC	U	GL
TARAXACUM OFFICINALE				O-R
ALLIARIA PETIOLATA				A-O
GERANIUM ROBERTIANUM				R
LAMIUM PURPUREUM				O-R
SOLIDAGO SP.				O
HEMEROCALLIS FULVA				R
AEGOPODIUM PODAGRARIA				R
GALIUM MOLLUGO				O
FRAGARIA VIRGINIANA				R
RANUNCULUS ACRIS				R
EQUISETUM ARVENSE				R
ERYTHRONIUM AMERICANUM				O

NOTES:

ALIEN SPECIES- OCCASIONAL, WIDESPREAD
PLANTINGS/PLANTATIONS- GARDEN VARIETY SPECIES PLANTED CLOSEST TO 1ST LINE, SOME SPECIES UNABLE TO BE IDENTIFIED.
NOISE- SLIGHT, WIDESPREAD
RECREATION- SEVERAL PEOPLE USING THE TRAIL (WALKING, BIKING ETC.)

DOWO, BCCH, BLJA, NOCA, RWBB, BAOR

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ELC COMMUNITY DESCRIPTION & CLASSIFICATION	PROJ. NO./NAME: DICKSON DRIVE MUNICIPAL EA		POLYGON: 15
	SURVEYOR(S): SD, KS	DATE: MAY 18 & SEPT 1, 2021	PHOTO #:
	START: 17:50	END: 21:05	ZONE & UTM:

POLYGON DESCRIPTION

SYSTEM	SUBSTRATE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ ORGANIC	☐ LACUSTRINE	■ NATURAL	☐ PLANKTON	☐ LAKE
■ WETLAND	■ MINERAL	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☐ PARENT MIN.	☐ BOTTOMLAND		☐ FLOATING-LVD.	☐ RIVER
		☐ TERRACE		☐ GRAMINOID	☐ STREAM
		☐ VALLEYSLOPE		☐ FORB	■ MARSH
		■ TABLELAND		☐ LICHEN	☐ SWAMP
		☐ ROLL. UPLAND		☐ BRYOPHYTE	☐ FEN
	☐ ACIDIC BEDRK.	☐ CLIFF		☐ DECIDUOUS	☐ BOG
		☐ TALUS		☐ CONIFEROUS	☐ BARREN
SITE		☐ CREVICE/CAVE	COVER	■ MIXED	☐ MEADOW
☐ OPEN WATER	☐ BASIC BEDRK.	☐ ALVAR	■ OPEN		☐ PRAIRIE
☐ SHALLOW WATER		☐ ROCKLAND	☐ SHRUB		☐ THICKET
■ SURFICIAL DEP.		☐ BEACH/BAR	☐ TREED		☐ SAVANNAH
☐ BEDROCK	☐ CARB BEDRK.	☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

STAND DESCRIPTION

	LAYER	HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (>> MUCH GREATER THAN; > GREATER THAN; = ABOUT EQUAL TO)
1	CANOPY	3	1	POPULUS BALSAMIFERA
2	SUBCANOPY	4	1	POPULUS BALSAMIFERA
3	UNDERSTOREY	5	4	PHALARIS ARUNDINACEA > EUTHAMIA GRAMINIFOLIA > EUPATORIUM PERFOLIATUM = EUTROCHIUM MACULATUM
4	GRD. LAYER	6	3	TUSSILAGO FARFARA > PHLEUM PRATENSE > DIPSACUS FULLONUM > BIDENS FRONDOSA

HT CODES: 1= >25m 2= 10<HT≤25m 3= 2<HT≤10m 4= 1<HT≤2m 5= 0.5<HT≤1m 6= 0.2<HT≤0.5m 7= HT≤0.2m
CVR CODES: 0= NONE, 1= 0%<CVR≤10% 2= 10%<CVR≤25% 3= 25%<CVR≤60% 4= CVR>60%

STAND COMPOSITION							BA:	
SIZE CLASS ANALYSIS:		<10		10-24		25-50		>50
STANDING SNAGS:		<10		10-24		25-50		>50
DEADFALL/LOGS:		<10		10-24		25-50		>50
COMM. AGE.								

ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT

SOIL ANALYSIS:

TEXTURE:	DEPTH TO MOTTLES/GLEY	g=	G=
MOISTURE:	DEPTH OF ORGANICS:		(cm)
HOMOGENOUS/VARIABLE	DEPTH TO BEDROCK		(cm)

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	MARSH	CODE: MA
COMMUNITY SERIES:	MEADOW MARSH	CODE: MAM
ECOSITE:	MIXED MINERAL MEADOW MARSH	CODE: MAMM 3
VEGETATION TYPE:	MIXED MINERAL MEADOW MARSH	CODE: MAMM 3-1
INCLUSION		CODE:
COMPLEX		CODE:

NOTES:

LAYERS: 1 = CANOPY 2= SUBCANOPY 3= UNDERSTOREY 4= GRD LAYER
ABUNDANCE CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT

SPECIES CODE	LAYER 1	2	3	4
POPULUS BALSAMIFERA	R	R		

SPECIES CODE	LAYER 1	2	3	4
PHALARIS ARUNDINACEA			A	
EUPATORIUM PERFOLIATUM			O	
EUTROCHIUM MACULATUM			O	
EUTHAMIA GRAMINIFOLIA			A-O	
PHLEUM PRATENSE				R
TRIFOLIUM PRATENSE				R
PHRAGMITES AUSTRALIS			O	
DIPSACUS FULLONUM				R
TUSSILAGO FARFARA				O
ASCLEPIAS SYRIACA				R
DAUCUS CAROTA				R
BIDENS FRONDOSA				R

NOTES:

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APPENDIX 4
Vascular Plant List

Season		Plant [1] Type	Scientific Name	Common Name	CC [2]	CW [3]	SARO [4] Status	SARA [5] Status	Global [6] Rank	Prov. [7] Rank	Wellington County (2009)
Spring	Summer										
✓	✓	TR	Abies balsamifera	Balsam Fir	5	-3	NL	NL	G5	S5	
	✓	TR	Acer negundo	Manitoba Maple	0	0	NL	NL	G5	S5	
✓	✓	TR	Acer rubrum	Red Maple	4	0	NL	NL	G5	S5	
✓	✓	TR	Acer saccharinum	Silver Maple	5	-3	NL	NL	G5	S5	
✓	✓	TR	Acer saccharum	Sugar Maple	4	3	NL	NL	G5	S5	
	✓	FO	Achillea millefolium	Common Yarrow	0	3	NL	NL	G5	SNA	
✓		FO	Actaea pachypoda	White Baneberry	6	5	NL	NL	G5	S5	
	✓	FO	Actaea rubra	Red Baneberry	6	3	NL	NL	G5	S5	
✓		FO	Aegopodium podagraria	Goutweed	*	0	NL	NL	GNR	SNA	
✓		FO	Alliaria petiolata	Garlic Mustard	*	0	NL	NL	GNR	SNA	
✓	✓	FO	Aralia nudicaulis	Wild Sarsasparilla	4	3	NL	NL	G5	S5	
✓	✓	FO	Arisaema triphyllum	Jack-in-the-Pulpit	5	-3	NL	NL	G5	S5	
	✓	FO	Asclepias syriaca	Common Milkweed	0	5	NL	NL	G5	S5	
✓	✓	FE	Athyrium filix-femina	Lady Fern	4	0	NL	NL	G5T5	S5	
✓		GR	Avena sativa	Cultivated Oats	*	5	NL	NL	GNR	SNA	
✓	✓	TR	Betula allegheniensis	Yellow Birch	6	0	NL	NL	G5	S5	
✓	✓	TR	Betula papyrifera	Paper Birch	2	3	NL	NL	G5	S5	
	✓	FO	Bidens frondosa	Devil's Beggarticks	3	-3	NL	NL	G5	S5	
	✓	GR	Bromus erectus	Meadow Brome	*	5	NL	NL	GNR	SNA	
	✓	GR	Bromus inermis	Awnless Brome	*	5	NL	NL	G5	SNA	
✓		FO	Cardamine diphylla	Two-leaved Toothwort	7	3	NL	NL	G5	S5	
	✓	FO	Circaea canadensis	Broad-leaved Enchanter's Nightshade	2	3	NL	NL	GNR	S5	
	✓	FO	Cirsium arvense	Canada Thistle	*	3	NL	NL	G5	SNA	
✓	✓	SH	Cornus alternifolia	Alternate-leaved Dogwood	6	3	NL	NL	G5	S5	
✓		SH	Cornus sericea	Red-osier Dogwood	2	-3	NL	NL	G5	S5	
	✓	FO	Daucus carota	Wild Carrot	*	5	NL	NL	GNR	SNA	
	✓	FO	Dipsacus fullonum	Common Teasel		3	NL	NL	GNR	SNA	

	✓	FE	Dryopteris intermedia	Evergreen Wood Fern	5	0	NL	NL	G5	S5	
	✓	VI	Echinocystis lobata	Wild Mock-cucumber	3	-3	NL	NL	G5	S5	
	✓	FO	Epipactis helleborine	Eastern Helleborine	*	3	NL	NL	GNR	SNA	
✓	✓	FE	Equisetum arvense	Field Horsetail	0	0	NL	NL	G5	S5	
	✓	FE	Equisetum pratense	Meadow Horsetail	8	-3	NL	NL	G5	S5	✓
✓		FO	Erythronium americanum	Yellow Trout-lily	5	5	NL	NL	G5	S5	
	✓	FO	Eupatorium perfoliatum	Common Boneset	2	-3	NL	NL	G5	S5	
	✓	FO	Euthamia graminifolia	Grass-leaved Goldenrod	2	0	NL	NL	G5	S5	
	✓	FO	Eutrochium maculatum	Spotted Joe-pye-weed	3	-5	NL	NL	G5T5	S5	
✓	✓	FO	Fragaria virginiana	Wild Strawberry	2	3	NL	NL	G5	S5	
✓	✓	TR	Fraxinus americana	White Ash	4	3	NL	NL	G5	S4	
✓		TR	Fraxinus nigra	Black Ash	7	-3	NL	NL	G5	S4	
	✓	TR	Fraxinus pennsyvanica	Green Ash	3	-3	NL	NL	G5	S4	
✓	✓	FO	Galium asprellum	Rough Bedstraw	6	-5	NL	NL	G5	S5	
✓	✓	FO	Galium mollugo	Smooth Bedstraw	*	5	NL	NL	GNR	SNA	
✓		FO	Galium palustre	Marsh Bedstraw	5	-5	NL	NL	G5	S5	
✓		FO	Geranium maculatum	Spotted Geranium	6	3	NL	NL	G5	S5	
✓	✓	FO	Geranium robertianum	Herb-robert	2	3	NL	NL	G5	S5	
✓		FO	Geum lacinatum	Rough Avens	4	-3	NL	NL	G5	S4	✓
✓	✓	FE	Gymnocarpium dryopteris	Common Oak Fern	7	3	NL	NL	G5	S5	
✓		FO	Hemercallis fulva	Orange Daylily	*	5	NL	NL	G5	S5	
✓	✓	FO	Impatiens capensis	Spotted Jewelweed	4	-3	NL	NL	G5	S5	
✓		FO	Lamium purpureum	Purple Deadnettle	*	5	NL	NL	GNR	SNA	
✓	✓	SH	Lonicera tatarica	Tartarian Honeysuckle	*	3	NL	NL	GNR	SNA	
	✓	FO	Medicago sativa	Alfalfa	*	5	NL	NL	GNR	SNA	
	✓	FO	Mentha arvensis	Field Mint	3	-3	NL	NL	G5T5	S5	
✓	✓	FO	Maianthemum canadense	Wild- Lily-of-the-valley	5	3	NL	NL	G5	S5	
✓	✓	FO	Maianthemum racemosum	Large False Solomon's Seal	4	3	NL	NL	G5	S5	
✓	✓	TR	Malus pumila	Common Apple	*	5	NL	NL	G5	SNA	
✓	✓	FE	Matteuccia struthiopteris	Ostrich Fern	5	0	NL	NL	G5T5	S5	
✓	✓	FE	Onoclea sensibilis	Sensitive Fern	4	-3	NL	NL	G5	S5	
✓	✓	FO	Oxalis stricta	Upright Yellow Wood-sorrel	0	3	NL	NL	G5	S5	
✓	✓	VW	Parthenocissus quinquefolia	Virginia Creeper	6	3	NL	NL	G5	S4?	
	✓	FO	Persicaria maculosa	Spotted Lady's-thumb	*	-3	NL	NL	G3G5	SNA	

	✓	GR	Phalaris arundinacea	Reed Canary Grass	0	-3	NL	NL	G5	S5	
	✓	GR	Phleum pratense	Common Timothy	*	3	NL	NL	GNR	SNA	
	✓	GR	Phragmites austrails	European Reed		-3	NL	NL	G5T5	SNA	
	✓	SH	Physocarpus opulifolius	Eastern Ninebark		-3	NL	NL	G3G5	SU	
✓	✓	TR	Picea glauca	White Spruce	6	3	NL	NL	G5	S5	
	✓	TR	Picea pungens	Blue Spruce		3	NL	NL	G5	SNA	
✓		FO	Pilea fontana	Lesser Clearweed	5	-3	NL	NL	G5	S4	
✓	✓	TR	Pinus strobus	Eastern White Pine	4	3	NL	NL	G5	S5	
	✓	FO	Plantago major	Common Plantain	*	3	NL	NL	G5	S5	
✓	✓	TR	Populus balsamifera	Balsam Poplar	4	-3	NL	NL	G5	S5	
✓	✓	TR	Populus tremuloides	Trembling Aspen	2	0	NL	NL	G5	S5	
	✓	TR	Prunus pensylvanica	Pin Cherry	3	3	NL	NL	G5	S5	
✓	✓	TR	Prunus serotina	Black Cherry	3	3	NL	NL	G5	S5	
✓	✓	SH	Prunus virginiana	Choke Cherry	2	3	NL	NL	G5	S5	
	✓	TR	Quercus rubra	Northern Red Oak	6	3	NL	NL	G5	S5	
✓		FO	Ranunculus acris	Tall Buttercup	*	0	NL	NL	G5	SNA	
✓		FO	Ranunculus recurvatus	Hooked Buttercup	4	-3	NL	NL	G5T5	S5	
✓	✓	SH	Rhamnus cathartica	Common Buckthorn	*	0	NL	NL	GNR	SNA	
✓	✓	SH	Rhus typhina	Staghorn Sumac	1	3	NL	NL	G5	S5	
✓	✓	SH	Ribes cynosbati	Prickly Gooseberry	4	3	NL	NL	G5	S5	
✓	✓	SH	Ribes hirtellum	Smooth Gooseberry	6	-3	NL	NL	G5	S5	✓
	✓	SH	Rubus allegheniensis	Alleghany Blackberry	2	3	NL	NL	G5	S5	
✓	✓	SH	Rubus idaeus ssp. strigosus	Wild Red Raspberry	2	3	NL	NL	G5T5	S5	
	✓	SH	Rubus occidentalis	Black Raspberry	2	5	NL	NL	G5	S5	
✓	✓	FO	Rubus pubescens	Dewberry	4	-3	NL	NL	G5	S5	
✓		SH	Salix bebbiana	Bebb's Willow	4	-3	NL	NL	G5	S5	
	✓	SH	Sambucus nigra	Black Elderberry		-3	NL	NL	G5	SNA	
	✓	SE	Schoenoplectus tabernaemontani	Soft-stemmed Bulrush	5	-5	NL	NL	G5	S5	
✓		VI	Sicyos angulatus	One-seeded Bur-cucumber	2	-3	NL	NL	G5	S4S5	
	✓	VI	Solanum dulcamara	Bittersweet Nightshade	*	0	NL	NL	GNR	SNA	
	✓	FO	Solidago altissima	Tall Goldenrod	1	3	NL	NL	G-T5	S5	
	✓	FO	Solidago canadensis	Canada Goldenrod	1	3	NL	NL	G5T5	S5	
✓	✓	TR	Sorbus aucuparia	European Mountain-ash	*	5	NL	NL	G5	SNA	

	✓	FO	Symphyotrichum ericoides	White Heath Aster	4	3	NL	NL	G5T5	S5	
	✓	FO	Symphyotrichum novae-angliae	New England Aster	2	-3	NL	NL	G5	S5	
	✓	FO	Symphyotrichum puniceum	Swamp Aster	6	-5	NL	NL	G5	S5	
	✓	FO	Tanacetum vulgare	Common Tansy	*	5	NL	NL	GNR	SNA	
✓	✓	FO	Taraxacum officinale	Common Dandelion	*	3	NL	NL	G5	SNA	
✓		FO	Thalictrum dioicum	Early Meadow-rue	6	3	NL	NL	G5	S5	
✓	✓	TR	Thuja occidentalis	Eastern White Cedar	4	-3	NL	NL	G5	S5	
	✓	FO	Thymus praecox	Creeping Thyme		5	NL	NL	GNR	SNA	
✓		FO	Tiarella cordifolia	Heart-leaved Foam-flower	6	3	NL	NL	G5	S5	
✓	✓	TR	Tilia americana	Basswood	4	3	NL	NL	G5	S5	
✓		FO	Trientalis borealis	Northern Starflower	6	0	NL	NL	G5	S5	
	✓	FO	Trifolium pratense	Red Clover	*	3	NL	NL	GNR	SNA	
✓	✓	FO	Trillium erectum	Red Trillium	6	3	NL	NL	G5	S5	
	✓	TR	Tsuga canadensis	Eastern Hemlock	7	3	NL	NL	G5	S5	
✓	✓	FO	Tussilago farfara	Colt's-foot	*	3	NL	NL	GNR	SNA	
✓		FO	Typha angustifolia	Narrow-leaved Cattail		-5	NL	NL	G5	SNA	
✓	✓	TR	Ulmus americana	American Elm	3	-3	NL	NL	G5	S5	
	✓	FO	Verbascum thapsus	Common Mullein	*	5	NL	NL	GNR	SNA	
	✓	FO	Veronica officinalis	Common Speedwell	*	5	NL	NL	G5	SNA	
✓	✓	VW	Vitis riparia	Riverbank Grape	0	0	NL	NL	G5	S5	

1.	Plant Types: AL = Algae; FE = Fern; FO = Forb; GR = Grass; LC = Lichen; LV = Liverwort; MO = Moss; RU = Rush; SE = Sedge; SH = Shrub; TR = Tree; VI = Herbaceous vine; VW = Woody Vine
2.	CC: Coefficient of Conservatism reflects a species' fidelity to a specific habitat. Range from 0 to 10; 10 = very conservative, not likely in disturbed habitats, 1 = least conservative, likely found in a broad range of habitat. * = value not assigned because they are non-native
3.	CW: Coefficient of Wetness reflects a species' affinity for wet soil conditions. Range from -5 to 5; -5 = obligate wetland species, 5 = obligate upland species.
4.	SARO: Status under the Provincial Endangered Species Act, listed on the Species at Risk in Ontario (SARO) list. In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
5.	SARA: Status under the National Species at Risk Act (SARA), assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
6.	Global rarity rank. Range from G1 to G5; G1 = Extremely rare, G5 = Very Common. NR = Unranked; U = Unrankable.
7.	Provincial rarity rank. Range from S1 to S5; S1 = Extremely rare, S5 = Very Common. NR = Unranked; U = Unrankable.
8.	Significant Plants of Wellington County (Dougan & Associates, 2009)

APPENDIX 5
Significant Wildlife Habitat Assessment

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
SEASONAL CONCENTRATION AREAS OF ANIMALS								
1	Waterfowl stopover and Staging Areas (terrestrial)	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	flooded field ecosite and 100-300m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
2	Waterfowl Stopover and Staging (Aquatic)	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (ie. >700 waterfowl use days) confirms SWH	Aquatic ecosite and 100m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
3	Shorebird Migratory stopover	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	Shoreline ecosite and 100m radius is the SWH	No habitat matching criteria identified in Study Area, >5km from any Lake Ontario	No	None required.	No
4	Raptor Wintering Area	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or, at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	Ecosite communities (field and woodland) is the SWH	No habitat matching criteria identified in Study Area. Fields in study area are primarily agricultural (Cultivated Oats)	No	None required.	No
5	Bat Hibernacula	- Caves, mine shafts, underground foundations, karsts - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	Ecosite and 200m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required	No
6	Bat Maternity Colony	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >20 Little Brown Myotis, >5 adult female Silver-haired Bats confirms SWH	Entire woodland or forest stand ELC ecosite containing colony is the SWH	Forested ecosites present in Study area with trees >10cm DBH.	Yes	Studies recommended pre-construction in areas where tree removal/damage to occur in candidate habitat.	unknown

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
7	Turtle Wintering Area	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Mapped ELC ecosite, or deep pool element where turtles overwinter is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
8	Reptile Hibernaculum	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Feature hibernacula is located in, and 30m radius is the SWH	No habitat matching criteria identified in Study Area	No	None required.	No
9	Colonially-nesting Bird Habitat (cliff/bank)	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	Colony and 50m radius around peripheral nest is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
10	Colonially-nesting Bird Habitat (Tree/shrub)	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	Edge of the colony plus minimum 300m radius, or extent of the forest ecosite, or entire island <15ha is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
11	Colonially-nesting Bird Habitat (Ground)	- Rocky islands or peninsulas within a lake or large river(natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	Edge of colony plus min 150m radius or extent of ELC ecosite, or island <3ha is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
12	Migratory Butterfly Stopover Area	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	Field/meadow and forest/woodland is the SWH	No habitat matching criteria identified in Study Area, >5km from Lake Ontario	No	None required.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
13	Land bird Migratory Stopover Area	- Woodlots >5ha in size - within 5km of lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	Woodlot is the SWH	No habitat matching criteria identified in Study Area, >5km from Lake Ontario	No	None required.	No
14	Deer Yarding Areas	- ELC communities providing Thermal cover (FOM,FOC,SWM,SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	LIO mapping	No Deer yarding areas identified on LIO Mapping	No	None required.	No
15	Deer Winter Congregation Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF - Contact MNRF or LIO for known deer winter areas.	LIO mapping	Deer Wintering Area (Stratum 2) present within the Conifer-Hardwood and White Cedar-Conifer Swamp communities within and adjacent the northern portion of the Study Area.	Yes	None required.	Yes.
RARE VEGETATION COMMUNITIES								
16	Cliffs & Talus Slopes	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Area of ELC sites: TAO, TAS, TAT, CLO, CLS, CLT	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
17	Sand Barren	- Exposed, sparsely vegetated & caused by lack of moisture, fires and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
18	Alvar	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
19	Old Growth Forest	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
20	Savannah	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size, and must be restored to a natural state. - Confirm one or more savannah indicator species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
21	Tallgrass Prairie	- Ground cover dominated by prairie grasses with <25% tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size, and must be restored to a natural state. - Confirm one or more prairie indicator species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Ecological Land Classification completed.	No
22	Other Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	Area of ELC ecosite is the SWH	No communities identified on site are S1-S3 communities	No	None required	No
SPECIALIZED HABITAT FOR WILDLIFE								
23	Waterfowl Nesting Areas	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3 - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	SWH may be greater than or less than 120m from the wetland edge and must provide enough habitat for waterfowl to successfully nest	No habitat matching criteria identified in Study Area. Wetland communities within the Study Area classified as Coniferous and Mixed swamps.	No	None required	No
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest - Alternate nests included in SWH - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	Active nest plus 300m for Osprey Active nest plus 400-800m for Bald Eagle	No habitat matching criteria identified in Study Area	No	None required	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
25	Woodland Raptor Nesting Habitat	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	Nest protection radius: - Red-Shouldered Hawk, Northern Goshawk 400m - Barred Owl 200m - Broad-winged Hawk, Coopers Hawk 100m - Sharp-shinned Hawk 50	The forested habitat containing the Conifer-Hardwood mixed swamp and White Cedar-Conifer coniferous swamp may provide suitable habitat.	No	No stick nests observed during SWH or Winter Wildlife Surveys	No
26	Turtle Nesting Areas	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	Area or sites with exposed mineral soils, plus a radius of 30-100m around the nesting area is the SWH.	No habitat matching criteria identified in Study Area	No	None required	No
27	Seeps and Springs	- Areas where ground water comes to the surface - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	Area of ELC forest ecosite containing seep/spring is the SWH	Seeps and springs possible within forested and wetland communities	Yes	ELC complete	Seeps present in White Cedar-Hardwood Mixed Swamp and White Cedar-Conifer Coniferous Swamp communities.
28	Amphibian Breeding Habitat (woodland)	- Breeding pools within woodlands - Wetland, pond or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	Wetland area, plus 230m radius of woodland is the SWH.	Swamp communities within the Study Area may provide suitable habitat	Yes	Amphibian surveys completed.	Yes. Over 20 individuals of a combination of the listed species were detected over the course of Amphibian Surveys.

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
29	Amphibian Breeding Habitat (Wetland)	- Swamp, marsh, fen, bog, open aquatic and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m), but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	ELC ecosite and shoreline is the SWH Movement corridors (SWH) must be considered if this habitat is significant	Swamp communities within the Study Area may provide suitable habitat.	No	Amphibian surveys complete	No.
30	Area-sensitive Breeding Bird Habitat	- Habitats where interior breeding birds are breeding - Large mature(>60 years) forest stands or woodlots >30ha - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	ELC ecosite is the SWH	No interior habitat (>200m) identified in study area	No	Breeding Bird surveys completed.	No
HABITATS OF SPECIES OF CONSERVATION CONCERN CONSIDERED SWH								

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
31	Marsh Bird Breeding Habitat	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands, all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	ELC ecosite is the SWH	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No
32	Open Country Bird Breeding Habitat	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species - Field with 1 or more Short-eared Owls	Contiguous ELC ecosite is the SWH	No habitat matching criteria identified in Study Area. Open communities within study area primarily agricultural (Cultivated Oats)	No	Breeding Bird Surveys completed.	No
33	Shrub/Early Successional Bird Breeding Habitat	- Cultural thickets, savannah and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	SWH is contiguous ELC ecosite field/thicket area	No habitat matching criteria identified in Study Area	No	Breeding Bird surveys completed.	No

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
34	Terrestrial Crayfish	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	Area of ELC ecosite or Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH	Candidate habitat identified in study area.	Yes	Incidental observation during ELC conducted	No
35	Special Concern & Rare Wildlife Species	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	SWH is the finest ELC scale that protects the form and function of the habitat	No element occurrences for Special Concern or rare Wildlife Species identified within 1km of the study area Background Atlas review identified 7 Special concern species within 10km of the Study Area - Monarch (OBA) - Snapping Turtle (ORAA) - Bald Eagle (eBird) - Eastern Wood-pewee (OBBA) - Wood Thrush (OBBA) - Canada Warbler (OBBA) - Grasshopper Sparrow (OBBA)	Yes- The coniferous and mixed swamp communities may provide habitat for Canada Warbler and Eastern Wood-pewee. Goldenrod Forb meadows may provide suitable habitat for Monarch.	Two season Botanical Survey Breeding Bird Survey Amphibian survey Incidental wildlife	Yes Eastern Wood-pewee identified within the Conifer-Hardwood Mixed swamp and the White-Cedar Conifer Coniferous swamp communities. Several Monarchs observed within the meadow community adjacent the White Cedar-Conifer Swamp.
ANIMAL MOVEMENT CORRIDORS								

#	SIGNIFICANT WILDLIFE HABITAT (SWH)	CANDIDATE SWH CRITERIA	CRITERIA FOR SWH CONFIRMATION	SWH PROTECTED AREA	SITE ASSESSMENT DETAILS	CANDIDATE SWH	FIELD STUDIES REQUIRED/ COMPLETED	CONFIRMED SWH
36	Amphibian Movement Corridor	- Corridors may occur in all ecosites associated with water - Presence of significant amphibian breeding indicates the requirement for identifying corridors - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	Corridor is the SWH	The existing Irvine Creek PSW north-west of the proposed development may provide suitable habitat for an amphibian movement corridor.	Yes	None required	No
37	Deer Movement Corridor	- May occur in all forested ecosites - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat - Unbroken by roads and residential areas - Shorter corridors are more significant	Corridor is the SWH	Deer Wintering Area (Stratum 2) confirmed within the Conifer-Hardwood and White Cedar-Conifer Swamp Communities.	Yes	None required	Yes

APPENDIX 6
Species at Risk Habitat Assessment

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Amphibians										
Jefferson Salamander	*Ambystoma jeffersonianum*	END	END	S2	MNRF Species Occurrence Mapping	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat matching criteria identified in Study Area	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Jefferson Salamander *Ambystoma jeffersonianum* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 38 pp.
'Unisexual Ambystoma, Jefferson dependent population	*'Ambystoma laterale - (2) jeffersonianum*	END	END	S2	MNRF Species Occurrence Mapping	Unisexual ambystoma share the same habitat requirements as Jefferson salamander, as they rely on Jefferson salamander for sperm donation in order to breed (COSEWIC 2016).	No habitat matching criteria identified in Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2016. COSEWIC assessment and status report on the unisexual Ambystoma, Ambystoma laterale, Small-mouthed Salamander–dependent population, Jefferson Salamander–dependent population and the Blue-spotted Salamander–dependent population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxii + 61 pp.
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NAR	THR	S4	ORAA (2008) MNRF Species Occurrence Mapping	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a)	The swamp and thicket communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Amphibian surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and update status report on the Western Chorus Frog Pseudacris triseriata Carolinian population and Great Lakes/St. Lawrence – Canadian Shield population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
Butterflies, Bees, Damselflies, Dragonflies & Insects										
Gypsy Cuckoo Bumble Bee	*Bombus bohemicus*	END	END	S4	MECP (2021)	Occurs in diverse habitats, including open meadows, mixed farmlands, urban areas, boreal forest and montane meadows. Feeds on pollen and nectar from a variety of plant genera.	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2014. COSEWIC assessment and status report on the Gypsy Cuckoo Bumble Bee *Bombus bohemicus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 56 pp.
Monarch	*Danaus plexippus*	SC	SC	S2N, S4B	OBA (2019)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	Approximately 8 individuals observed within the Meadow community north of the White Cedar Mineral Coniferous Swamp.	COSEWIC. 2010. COSEWIC assessment and status report on the Monarch Danaus plexippus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
Rusty-patched Bumble Bee	*Bombus affinis*	END	END	S1	MNRF Species Occurrence Mapping	Uses a variety of open or semi-open habitat, including meadows, agricultural land and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Rusty-patched Bumble Bee Bombus affinis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 34 pp.

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
West Virginia White	*Pieris virginenisis*	SC	NAR	S3	MNRF Species Occurrence Mapping	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	Cardamine diphylla observed within the White cedar Mineral Coniferous Swamp	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	Peter S. Burke. 2013. Management Plan for the West Virginia White (Pieris virginiensis) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. v + 44 pp.
Yellow-banded Bumble Bee	*Bombus terricola*	SC	SC	S3S5	MNRF Species Occurrence Mapping	Occur in a diverse range of habitat, including mixed woodlands, farmlands, urban areas, montane meadows, prairie grasslands and boreal habitats. Queens overwinter underground and in decomposing organic material such as rotting lots (COSEWIC 2015)	Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2015. COSEWIC assessment and status report on the Yellow-banded Bumble Bee *Bombus terricola* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 60 pp. *rank considered out of date
Birds										
Bald Eagle	*Haliaeetus leucocephalus*	SC	NAR	S2N, S4B	iNat (2020) MNRF Species Occurrence Mapping	Prefers deciduous and mixed-deciduous mature forest habitat close to water bodies including lakes and rivers; nests in super canopy trees including Pine (Armstrong 2014).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	Armstrong, Ted (E.R.). 2014. Management Plan for the Bald Eagle (Haliaeetus leucocephalus) in Ontario. Ontario Management Plan Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 53 pp.
Bank Swallow	*Riparia riparia*	THR	THR	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Bank Swallow Riparia riparia in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.
Barn Swallow	*Hirundo rustica*	THR	THR	S5B	OBBA (2007) MNRF Species Occurrence Mapping	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.
Bobolink	*Dolichonyx oryzivorus*	THR	THR	S4B	OBBA (2007 NHIC (n.d) MNRF Species Occurrence Mapping	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	Agricultural and Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	Three individuals observed within the Agricultural communities.	Renfrew, R., A.M. Strong, N.G. Perlut, S.G. Martin and T.A. Gavin. 2015. Bobolink (Dolichonyx oryzivorus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Birds of North America Online: http://bna.birds.cornell.edu/bna/species/176
Canada Warbler	*Wilsonia canadensis*	SC	THR	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	The mixed and coniferous swamp communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Canada Warbler Wilsonia Canadensis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 35 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Cerulean Warbler	*Setophaga cerulea*	THR	END	S3B	MNRF Species Occurrence Mapping	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Cerulean Warbler Dendroica cerulea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 40 pp.
Chimney Swift	*Chaetura pelagica*	THR	THR	S4B, S4N	MECP (2021) MNRF Species Occurrence Mapping	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	MNRF, 2013. General Habitat Description for the Chimney Swift *(Chaeture pelagica)*. Ontario Ministry of Natural Resources and Forestry. July 2, 2013.
Common Nighthawk	*Chordeiles minor*	SC	THR	S4B	MNRF Species Occurrence Mapping	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2007. COSEWIC assessment and status report on the Common Nighthawk *Chordeiles minor* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 25 pp.
Eastern Meadowlark	*Sturnella magna*	THR	THR	S4B	OBBA (2007) NHIC (n.d) MNRF Species Occurrence Mapping	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	Agricultural and Meadow communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	One individual observed within the Agricultural community north of 1st Line.	Jaster, Levi A., William E. Jensen and Wesley E. Lanyon. (2012). Eastern Meadowlark (*Sturnella magna*), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/easmea
Eastern Whip-poor-will	*Caprimulgus vociferus*	THR	THR	S4B	MNRF Species Occurrence Mapping	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2009. COSEWIC assessment and status report on the Whip-poor-will Caprimulgus vociferus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 28 pp.
Eastern Wood-pewee	*Contopus virens*	SC	SC	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Wooded communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	Two individuals observed within the Conifer-Hardwood Mixed Swamp community.	COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-pewee Contopus virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Evening Grosbeak	*Coccothraustes vespertinus*	SC	SC	S4B	MNRF Species Occurrence Mapping	Breeding habitat includes open, mature mixedwood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2016. COSEWIC assessment and status report on the Evening Grosbeak *Coccothraustes vespertinus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.
Grasshopper Sparrow	*Ammodramus savannarum*	SC	SC	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	Vickery, Peter D. 1996. Grasshopper Sparrow (*Ammodramus savannarum*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/239\

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	S-RANK	BACKGROUND SOURCES	HABITAT REQUIREMENTS	SUITABLE HABITAT IN STUDY AREA	FIELD STUDIES COMPLETED/ REQUIRED	OBSERVED BY A & A	REFERENCE
Henslow's Sparrow	*Ammodramus henslowii*	END	END	SHB	MNRF Species Occurrence Mapping	Breeds in grassland habitat, and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Henslow's Sparrow *Ammodramus henslowii* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 37 pp.
Least Bittern	*Ixobrychus exilis*	THR	THR	S4B	MNRF Species Occurrence Mapping	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2009. COSEWIC assessment and update status report on the Least Bittern Ixobrychus exilis in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 36 pp.
Loggerhead Shrike	*Lanius ludovicianus*	END	END	S2B	MNRF Species Occurrence Mapping	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	Environment Canada. 2015. Recovery Strategy for the Loggerhead Shrike, migrans subspecies (Lanius ludovicianus migrans), in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 35 pp.
Louisiana Waterthrush	*Seirus motacilla*	SC	THR	S3B	MNRF Species Occurrence Mapping	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are located in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2006. COSEWIC assessment and update status report on the Louisiana Waterthrush Seiurus motacilla in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 26 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Northern Bobwhite	*Colinus virginianus*	END	END	S1	OBBA (2007)	Requires early successional habitat with a mix of croplands, dense brush cover and grassland in close proximity for feeding, dusting, roosting, escaping predators and nesting. Only known self-sustaining population found on Walpole Island (COEWSIC 2003).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2003. COSEWIC assessment and update status report on the Northern Bobwhite Colinus virginianus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 20 pp.
Olive-sided Flycatcher	*Contopus cooperi*	SC	THR	S4B	MNRF Species Occurrence Mapping	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2007. COSEWIC assessment and status report on the Olive-sided Flycatcher Contopus cooperi in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 25 pp.
Prothonotary Warbler	*Protonotaria citrea*	END	END	S1B	MNRF Species Occurrence Mapping	Occupies large, mature and semi-mature, deciduous swamp forest and riparian floodplains. Permanent and semi-permanent pools of open water are characteristics, and nests are typically situated over standing or slow-moving water (COSEWIC 2007)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2007. COSEWIC assessment and update status report on the Prothonotary Warbler *Prothonotaria citrea* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 31 pp.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	SC	THR	S4B	MNRF Species Occurrence Mapping	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC 2007. COSEWIC assessment and update status report on the Red-headed Woodpecker *Melanerpes erythrocephalus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.

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Short-eared Owl	*Asio flammeus*	SC	SC	S2N, S4B	MNRF Species Occurrence Mapping	Breeds in open habitats, including grasslands, old pasture marshes, bogs, and sand-sage. Nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2008. COSEWIC assessment and update status report on the Short-eared Owl Asio flammeus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
Wood Thrush	*Hylocichla mustelina*	SC	THR	S4B	OBBA (2007) MNRF Species Occurrence Mapping	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Wooded communities within the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Wood Thrush Hylocichla mustelina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.
Yellow-breasted Chat	*Icteria virens*	END	END	S1B	MNRF Species Occurrence Mapping	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. Breeding Bird surveys completed.	None observed.	COSEWIC. 2011. COSEWIC assessment and status report on the Yellow-breasted Chat auricollis subspecies Icteria virens auricollis and the Yellow-breasted Chat virens subspecies Icteria virens virens in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 51 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Fish										
Black Redhorse	*Moxostoma duquesnei*	THR	THR	S2	MNRF Species Occurrence Mapping	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2005. COSEWIC assessment and update status report on the black redhorse Moxostoma duquesnei in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 21 pp.
Northern Sunfish (Great Lakes- Upper St. Lawrence Population)	*Lepomis peltastes*	SC	SC	S3	MNRF Species Occurrence Mapping	Prefers shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses. Usually occurs in clear waters and is considered intolerant of siltation. Substrate usually consists of sand and gravel, as in the Thames River (COSEWIC 2016)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2016. COSEWIC assessment and status report on the Northern Sunfish *Lepomis peltastes*, Saskatchewan- Nelson River populations and the Great Lakes- Upper St. Lawrence populations, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xv + 51 pp.
Redside Dace	*Clinostomus elongatus*	END	END	S1	MECP (2021) MNRF Species Occurrence Mapping	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2007. COSEWIC assessment and update status report on the Redside Dace clinostomus elongatus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. Vii + 59pp.
Silver Shiner	*Notropis photogenis*	THR	THR	S2S3	MECP (2021)	Associated with large, wide streams (usually >20m) in deep riffles and pools, with substrates of gravel, boulder, rubble and sand (COSEWIC, 2011d).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2011. COSEWIC assessment and status report on the Silver Shiner in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 45 pp.
Molluscs										
Fawnsfoot	*Truncilla donaciformis*	END	END	S2	MNRF Species Occurrence Mapping	Occurs in areas of moderate to low flows in medium and large rivers at depths ranging from less than 1m to greater than 5m, although they can adapt to low flow environments such as lakes and reservoirs. Associated with substrates of sand or mud (COSEWIC 2008)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Fawnsfoot *Truncilla donaciformis* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 39 pp.

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Rainbow	*Villosa iris*	SC	SC	S2S3	MNRF Species Occurrence Mapping	Most abundant in small to medium-sized rivers, but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2015. COSEWIC assessment and status report on the Rainbow *Villosa iris* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 82 pp.
Mammals										
Eastern Small-footed Myotis	*Myotis leibii*	END	NA	S2S3	MNRF Species Occurrence Mapping	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Little Brown Myotis	*Myotis lucifugus*	END	END	S3	MNRF Species Occurrence Mapping	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013a COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
Northern Myotis	*Myotis septentrionalis*	END	END	S3	MNRF Species Occurrence Mapping	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis Myotis lucifugus, Northern Myotis Myotis septentrionalis and Tri-colored Bat Perimyotis subflavus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

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Tri-colored Bat	*Perimyotis subflavus*	END	END	S3?	MNRF Species Occurrence Mapping	Hibernate in caves, abandoned mines, wells and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada.2015).	Trees within the wooded communities and fencerows in the Study Area may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis), and Tri-colored Bat (Perimyotis subflavus) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. ix + 110 pp
Reptiles										
Blanding's Turtle	*Emydoidea blandingii*	THR	THR	S3	MNRF Species Occurrence Mapping	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Wetland communities and existing Agriculture within the Study Area may provide suitable habitat for terrestrial movement.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2005. COSEWIC assessment and update status report on the Blanding's Turtle Emydoidea blandingii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. viii + 40 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Northern Map Turtle	*Graptemys geographica*	SC	SC	S3	MNRF Species Occurrence Mapping	Highly aquatic species, found in deep, large waterbodies, including Lakes and large rivers, with abundant basking sites. Emerge onto land only during nesting, which occurs in soft sand or soil. Waterbodies with slow currents, soft mud bottoms and abundant aquatic vegetation are preferred (COSEWIC, 2002b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2002. COSEWIC assessment and status report on the northern map turtle Graptemys geographica in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 34 pp.
Snapping Turtle	*Chelydra serpentina*	SC	SC	S4	ORAA (2019) MNRF Species Occurrence Mapping	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle Chelydra serpentina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp. (www.sararegistry.gc.ca/status/status_e.cfm).
Spotted Turtle	*Clemmys guttata*	END	END	S2	MNRF Species Occurrence Mapping	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2004. COSEWIC assessment and update status report on the spotted turtle Clemmys guttata in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp. (www.sararegistry.gc.ca/status/status_e.cfm).

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Wood Turtle	*Glyptemys insculpta*	END	THR	S2	MNRF Species Occurrence Mapping	Generally found in forested landscapes, associated with clear freshwater streams and associated floodplains. Preferential to streams with year-round current, with sandy or gravelly-sandy bottoms. Streams used are typically meandering with frequent oxbows. Overwintering associated with stable, high concentration dissolved oxygen in pools, under mud or under overhanging banks. Nesting occurs in open areas with high sun exposure, typically within 10 to 50m of aquatic habitat. Home ranges are typically linear, following streams (Environment Canada, 2016).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	Environment Canada. 2016. Recovery Strategy for the Wood Turtle (Glyptemys insculpta) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. v + 48 pp.
Butler's Gartersnake	*Thamnophis butleri*	END	END	S2	MNRF Species Occurrence Mapping	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2010. COSEWIC assessment and status report on the Butler's Gartersnake Thamnophis butler in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 51 pp.
Eastern Ribbonsnake	*Thamnophis sauritus*	SC	SC	S4	MNRF Species Occurrence Mapping	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required.	None observed.	COSEWIC 2002. COSEWIC assessment and status report on the eastern ribbonsnake Thamnophis sauritus. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 24 pp.
Milksnake	*Lampropeltis triangulum*	SC	SC	S4	MNRF Species Occurrence Mapping	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	Edges of forested communities as well as meadows and fencerows may provide suitable habitat.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2014. COSEWIC assessment and status report on the Eastern Milksnake Lampropeltis triangulum in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 61 pp.
Massassauga Rattlesnake	*Sistrurus catenatus*	SC	THR	S3	MNRF Species Occurrence Mapping	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC. 2012. COSEWIC assessment and status report on the Massasauga Sistrurus catenatus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xiii + 84 pp.
Vascular Plants										
American Ginseng	*Panax quinquefolius*	END	END	S2	MNRF Species Occurrence Mapping	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2000. COSEWIC assessment and update status report on the American ginseng Panax quinquefolius in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 17 pp.

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Butternut	*Juglans cinerea*	END	END	S2?	MNRF Species Occurrence Mapping	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2003. COSEWIC assessment and status report on the butternut Juglans cinerea in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 32 pp. (www.sararegistry.gc.ca/status/status_e.cfm)
Hill's Pondweed	*Potamogeton hillii*	SC	SC	S2S3	MNRF Species Occurrence Mapping	Occur in cold clear calcareous streams, ponds and ditches, which are alkaline in nature (COSEWIC 2005c).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2005c COSEWIC assessment and update status report on the Hill's pondweed Potamogeton hillii in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 19 pp.
Tuberous Indian Plantain	*Arnoglossum plantagineum*	SC	SC	S2	MNRF Species Occurrence Mapping	Habitat includes open, sunny areas in wet calcareous soils, including wet meadows and shoreline fens (COSEWIC 2002).	No habitat matching criteria identified within the Study Area.	The Study Area was investigated for habitat during ELC and Vegetation Surveys. No further studies required	None observed.	COSEWIC 2002. COSEWIC assessment and update status report on the tuberous Indian-plantain Arnoglossum plantagineum in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 11 pp.

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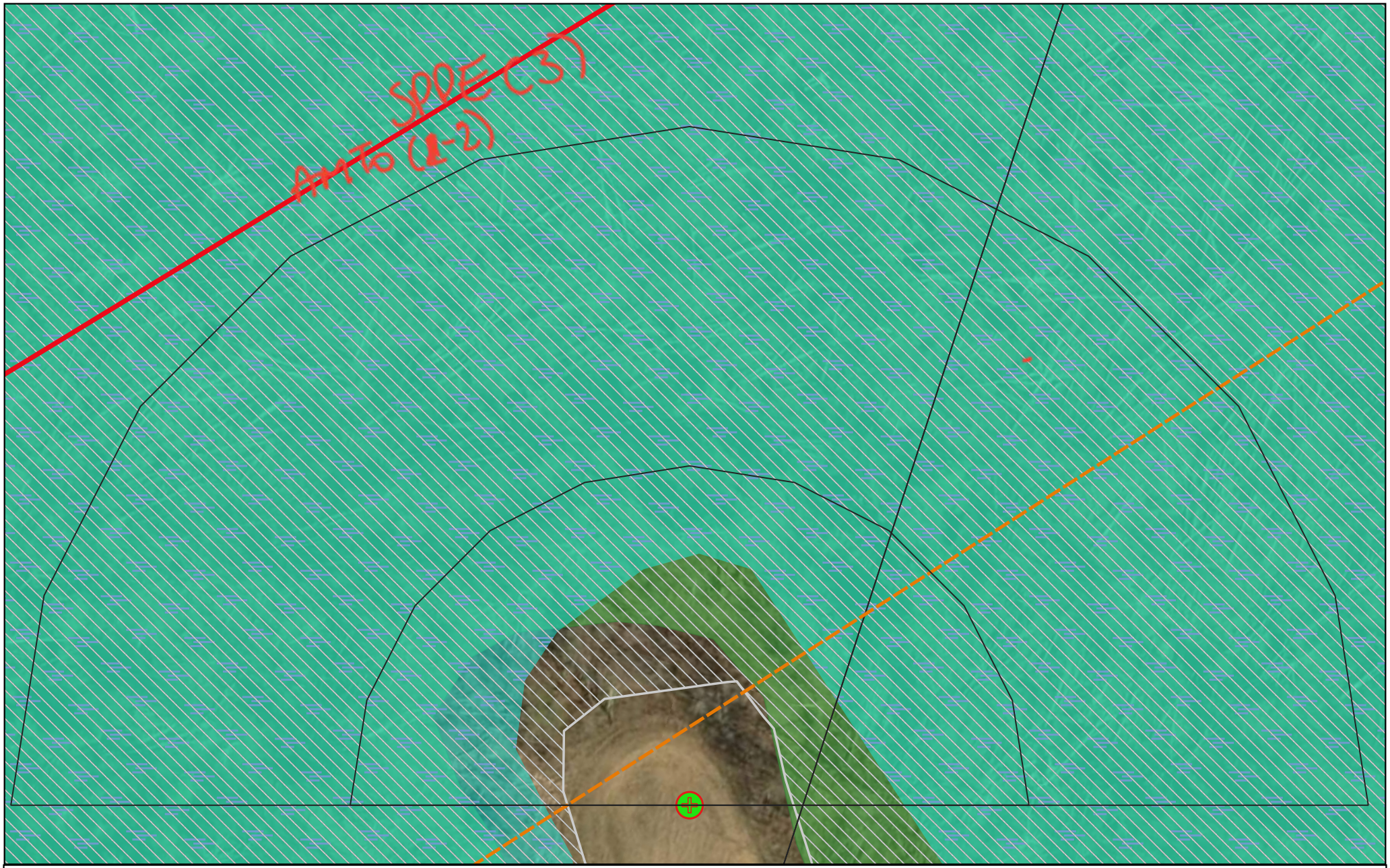
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APPENDIX 7
Anuran Survey Results & Call Codes



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
5	1	100	N	Y

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 11:10

End Time: 11:13

Bkgd Noise (1-4): 1

Water present (Y/N): N

Approx. depth: N/A

Date: Apr 29

Observer(s): SD CAR

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

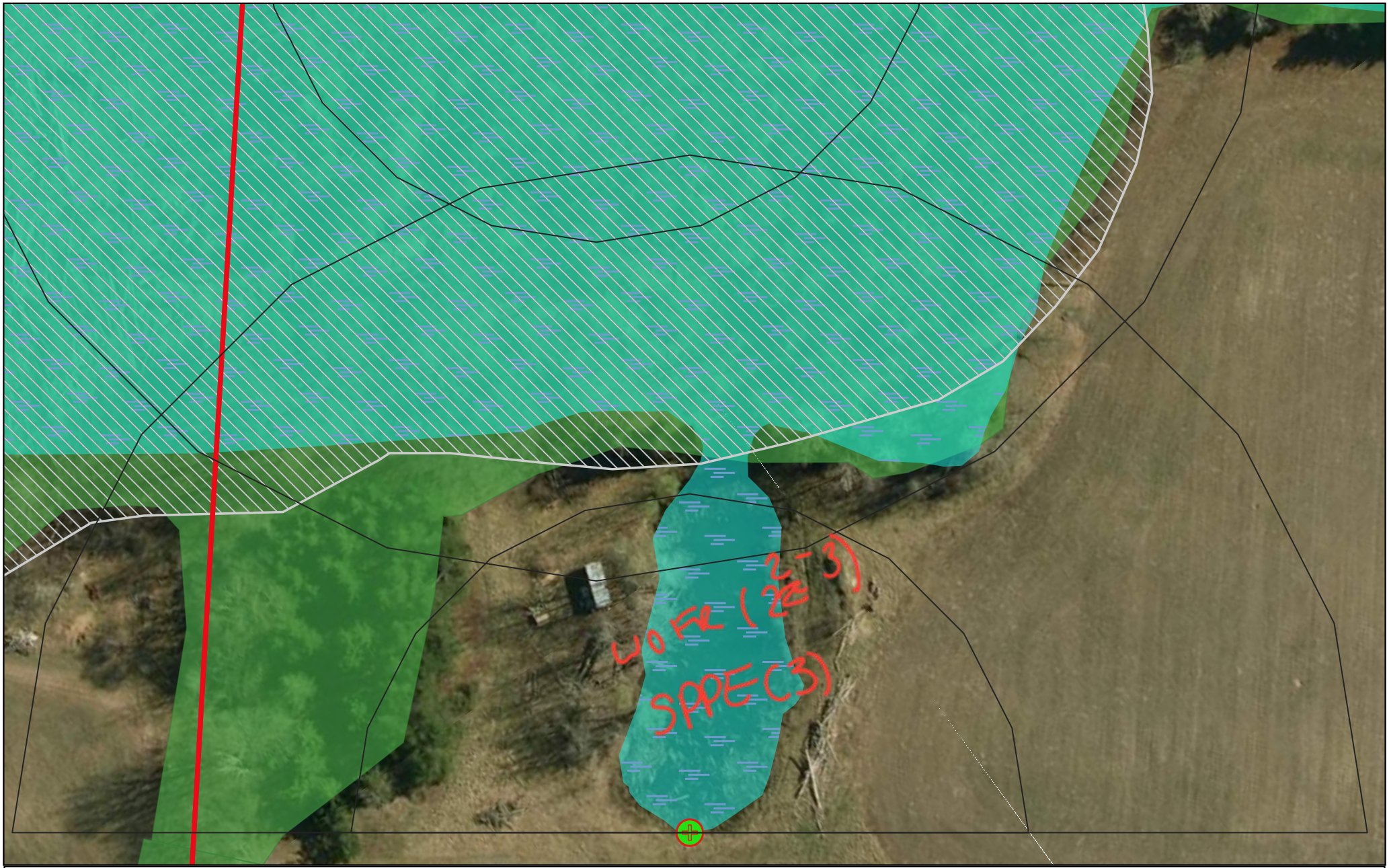
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title:
AMPHIBIAN SURVEY
STATION #1



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
5	1	100	N	Y

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls simultaneous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 1115

End Time: 1118

Bkgd Noise (1-4): 1

Water present (Y/N): Y

Approx. depth: UNK

Date: 1st Apr 29

Observer(s): SD CAR

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title:
AMPHIBIAN SURVEY
STATION #2



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
5	2	100	N	4

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 1135

End Time: 1136

Bkgd Noise (1-4): 1

Water present (Y/N):

Approx. depth:

Date: APR 29

Observer(s): SD CAF

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

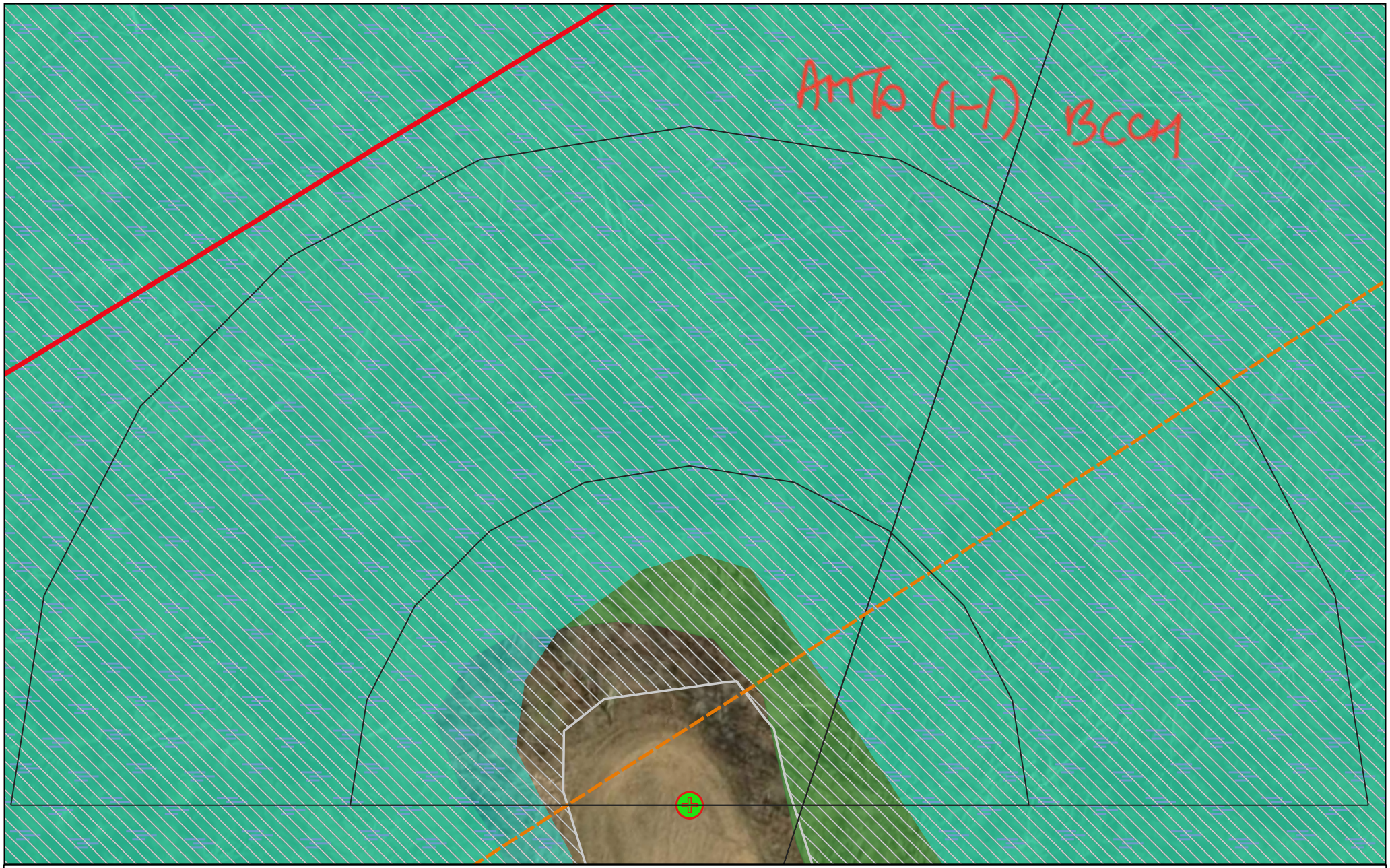
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title:
AMPHIBIAN SURVEY
STATION #3



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
20	1	0	N/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 915

End Time: 918

Bkgd Noise (1-4):

Water present (Y/N):

Approx. depth:

Date: May 18

Observer(s): SD KS

Project: DICKSON DRIVE EXTENSION TOWNSHIP OF CENTRE WELLINGTON

Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title: AMPHIBIAN SURVEY STATION #1



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
20	1	0	n/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls indistinguishable and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 9:22 9:25

End Time:

Bkgd Noise (1-4): 1

Water present (Y/N): Y

Approx. depth: ~50cm

Date: May 18

Observer(s): SD SK

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

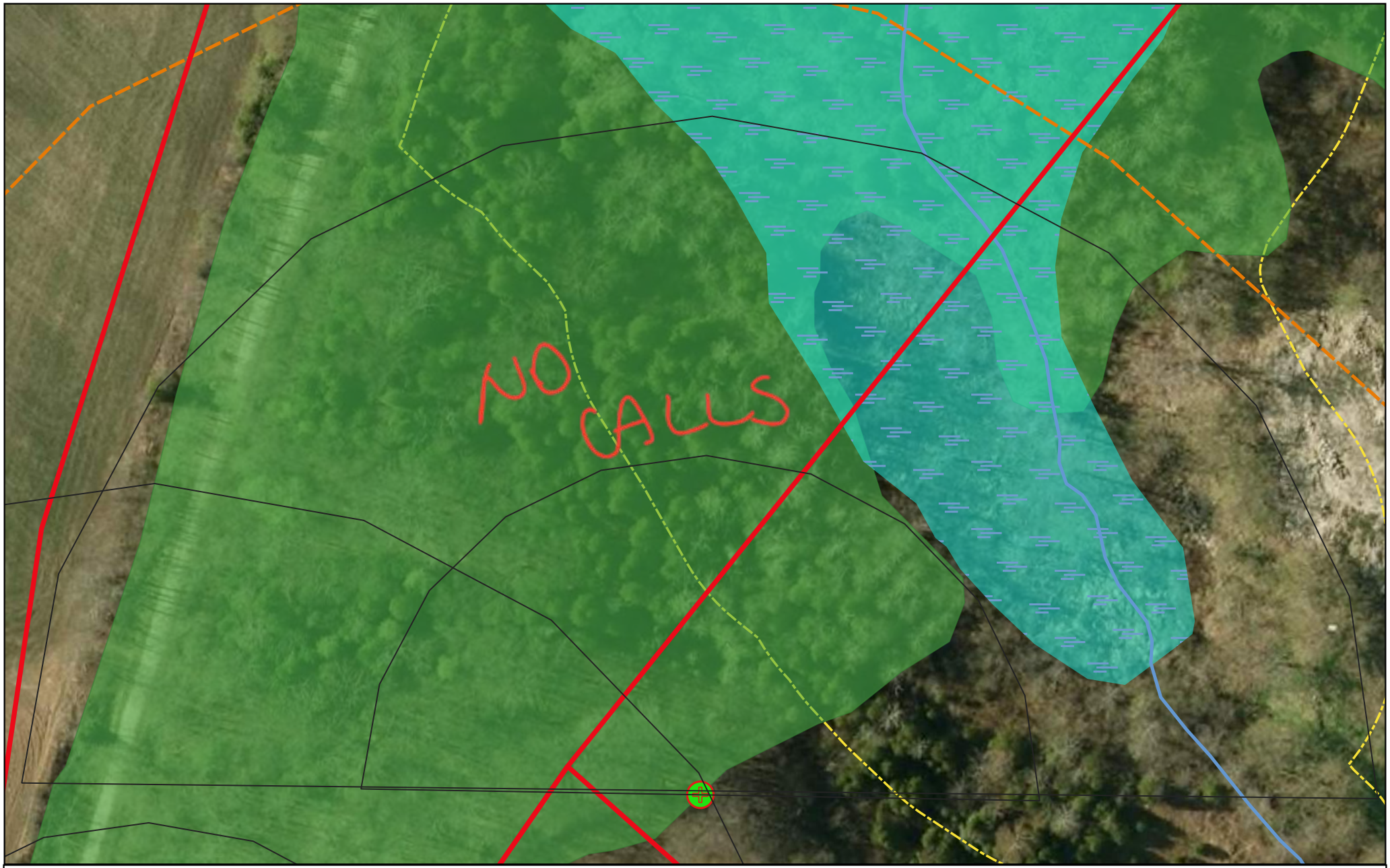
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title:
AMPHIBIAN SURVEY
STATION #2



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
20	1	0	N/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 935

End Time: 938

Bkgd Noise (1-4): 1

Water present (Y/N): Y

Approx. depth: ~10cm

Date: MAY 18

Observer(s): SDSK

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

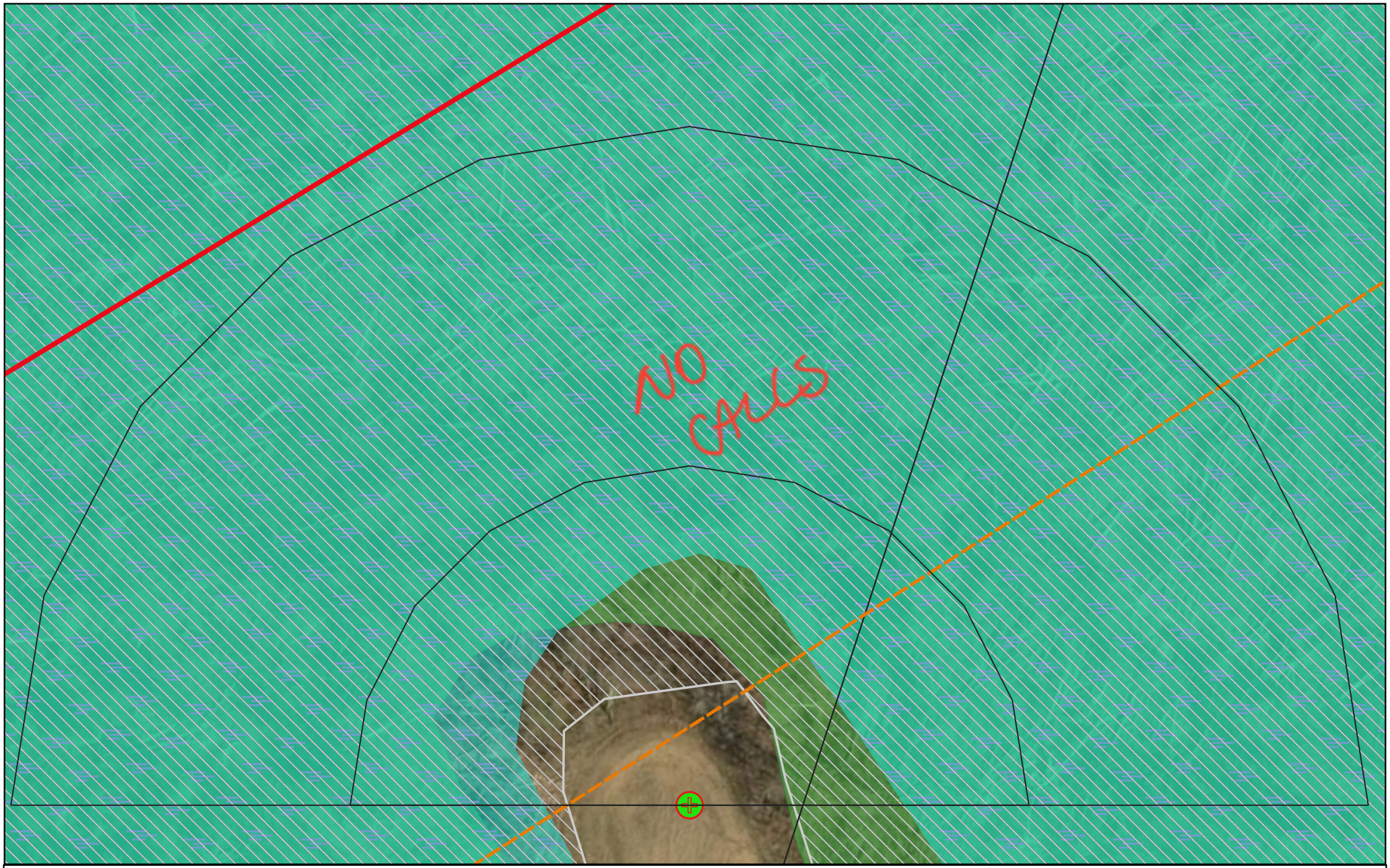
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title:
AMPHIBIAN SURVEY
STATION #3



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
22	1	90	N/A	N/A

Beaufort Scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 939

End Time: 942

Bkgd Noise (1-4): 2

Water present (Y/N): N

Approx. depth: N/A

Date: June 24

Observer(s): SDKS

Project: DICKSON DRIVE EXTENSION TOWNSHIP OF CENTRE WELLINGTON

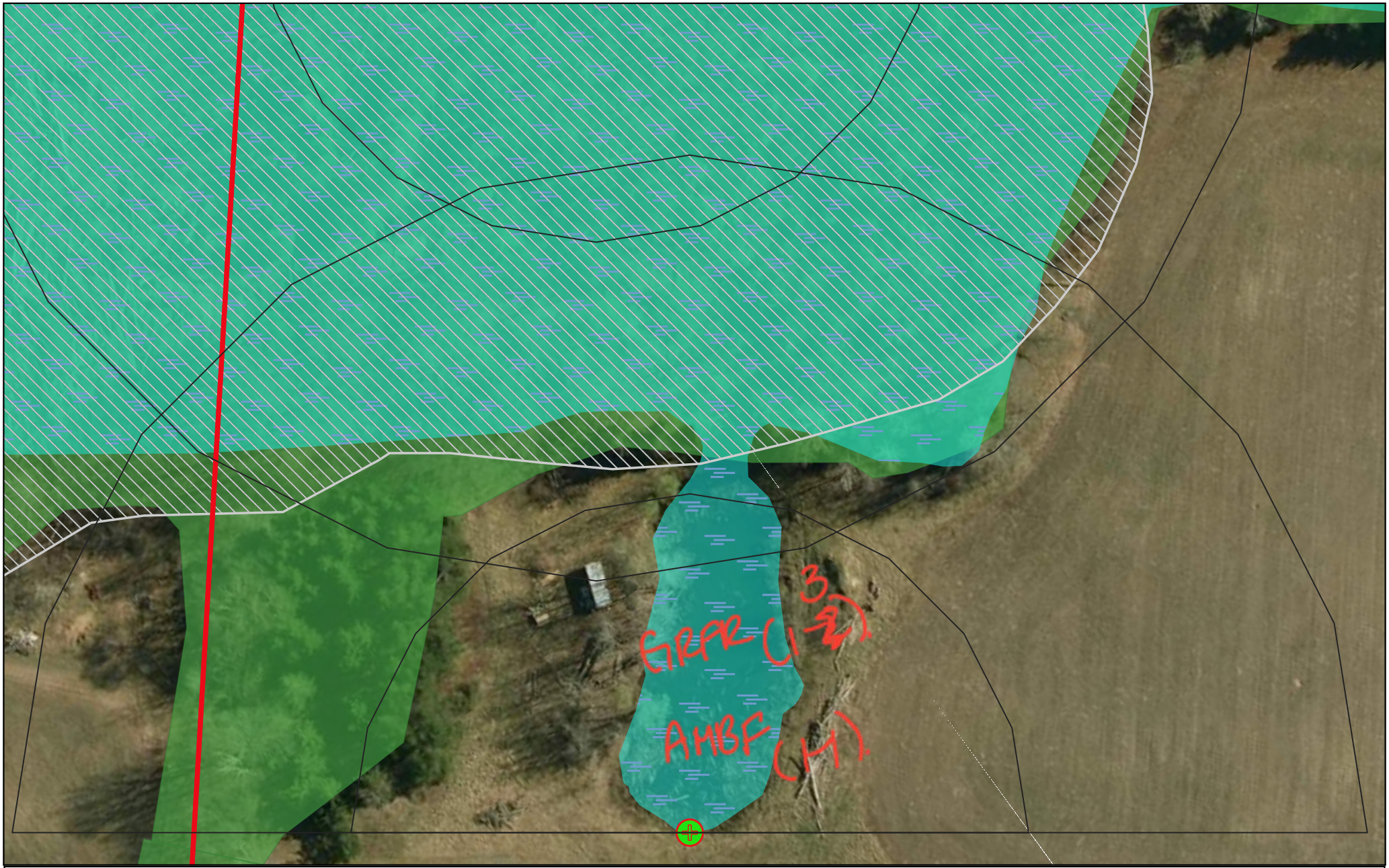
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title: AMPHIBIAN SURVEY STATION #1



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
22	1	90	NA	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls indistinguishable/overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 9444

End Time: 9447

Bkgd Noise (1-4):

Water present (Y/N): Y

Approx. depth: NO

Date: June 24

Observer(s): SO KS

Project:

DICKSON DRIVE EXTENSION
TOWNSHIP OF CENTRE WELLINGTON

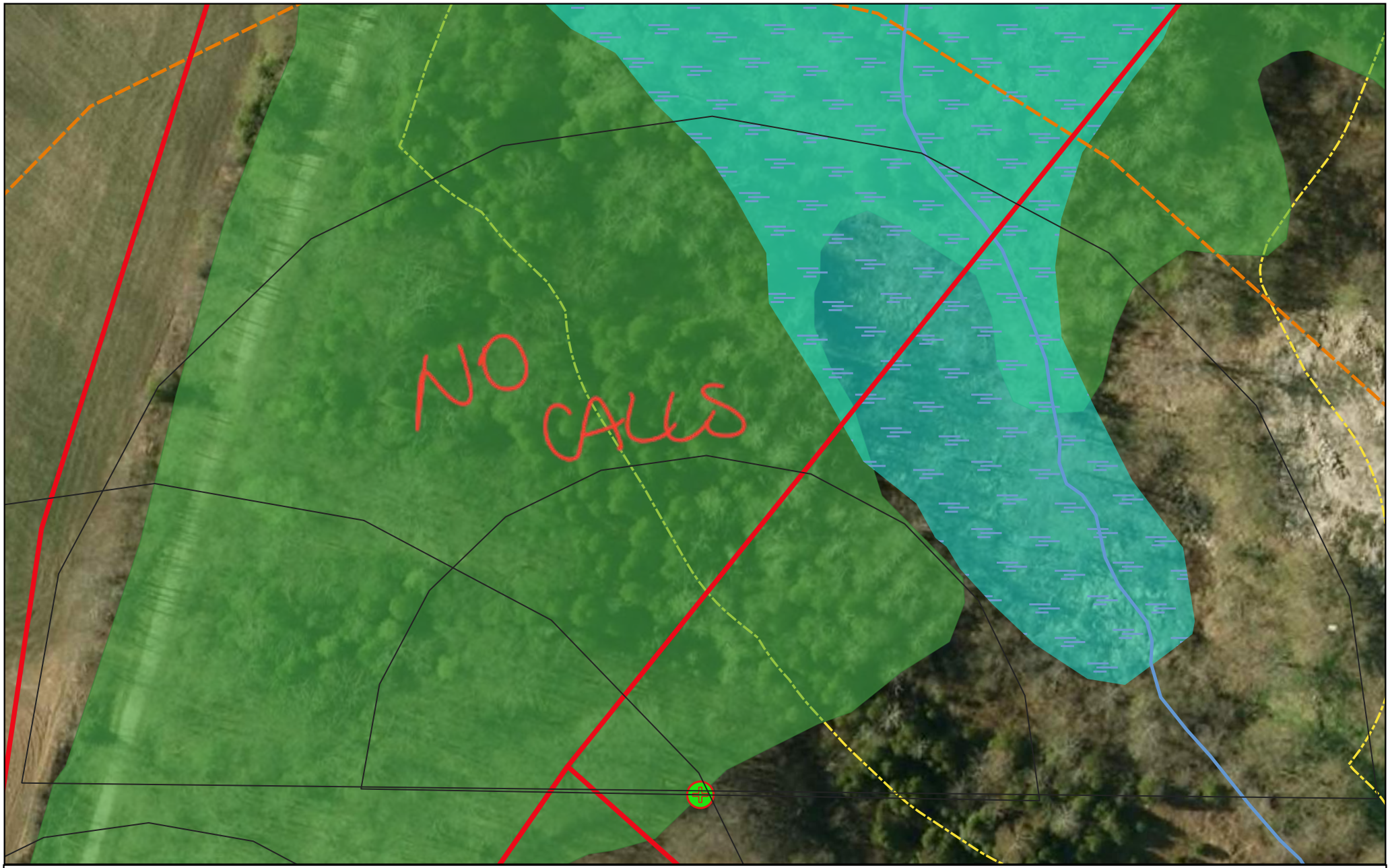
Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title:
AMPHIBIAN SURVEY
STATION #2



Temp (C)	Wind	Cloud Cover	Precip.	Precip. (24hr)
22	1	90	N/A	N/A

Beaufort scale: 0- Calm (0km/hr), 1- Light air (1-5km/hr), 2- Light breeze (6-11km/hr), 3- Gentle breeze (12-19km/hr), 4- Moderate breeze (20-28km/hr), 5- Fresh breeze (29-38km/hr), 6- Strong breeze (39-49km.hr)

Call Level Codes:	
1#	Calls not simultaneous, number of individuals can be accurately counted
2#	Some calls simultaneous, number of individuals can be reliably estimated
3	Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated

UTM:

Start Time: 955

End Time: 958

Bkgd Noise (1-4): 2

Water present (Y/N): Y

Approx. depth: ~10cm

Date: JUNE 24

Observer(s): SDKS

Project: DICKSON DRIVE EXTENSION TOWNSHIP OF CENTRE WELLINGTON

Project #: AA21-085A

Scale: 1 : 750

Information Sources:
1. Orthophotography provided by First Base Solutions, April 2021.

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Title: AMPHIBIAN SURVEY STATION #3

APPENDIX 8
Breeding Bird Survey Results & Call Codes

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	WELLINGTON COUNTY (2009)	PC 1	PC1												PC 2	PC2												PC 3	PC3											
												R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum		R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum		R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum	
												>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE
Canada Goose	Branta canadensis				S5	G5				CP						0	NA					0	NA	0	NA				5	0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Ring-billed Gull	Larus delawarensis				S5B,S4N	G5					✓					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA				1	0	NA	0	NA
Herring Gull	Larus argentatus				S5B,S5N	G5					✓					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA			1		0	NA	0	NA
Mourning Dove	Zenaida macroura				S5	G5										0	NA		1			1	S	1	S					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓							0	NA	1	1			2	S	2	S					0	NA					0	NA	0	NA			1		0	S					0	NA	0	S
Eastern Phoebe	Sayornis phoebe				S5B	G5				CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA				1	0	S					0	NA	0	S
Great Crested Flycatcher	Myiarchus crinitus				S4B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Blue Jay	Cyanocitta cristata				S5	G5										0	NA		2			2	S	2	S					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
American Crow	Corvus brachyrhynchos				S5B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA			1		0	S	0	S
Red-breasted Nuthatch	Sitta canadensis				S5	G5	✓	>10ha		CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
House Wren	Troglodytes aedon				S5B	G5						2				2	S	1	1			2	S	2	S					0	NA					0	NA	0	NA			1		0	S		1			1	S	1	S
American Robin	Turdus migratorius				S5B	G5							1			1	S	1				1	S	1	S			1		0	S					0	NA	0	S					0	NA					0	NA	0	NA
Gray Catbird	Dumetella carolinensis				S4B	G5				CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA			1		0	S	0	S
Brown Thrasher	Toxostoma rufum				S4B	G5			✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA			1		0	S	0	S
Cedar Waxwing	Bombycilla cedrorum				S5B	G5									1	0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
European Starling	Sturnus vulgaris				SNA	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Warbling Vireo	Vireo gilvus				S5B	G5								1		0	S					0	NA	0	S	1	1			2	S					0	NA	2	S					0	NA					0	NA	0	NA
Red-eyed Vireo	Vireo olivaceus				S5B	G5						1	1			2	S					0	NA	2	S		1			1	S					0	NA	1	S			1		0	S				1	0	S	0	S
Yellow Warbler	Dendroica petechia				S5B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP						0	NA					0	NA	0	NA	1	1			2	S					0	NA	2	S					0	NA					0	NA	0	NA
Northern Cardinal	Cardinalis cardinalis				S5	G5										0	NA					0	NA	0	NA		1			1	S					0	NA	1	S					0	NA					0	NA	0	NA
Indigo Bunting	Passerina cyanea				S4B	G5										0	NA		1			1	S	1	S					0	NA					0	NA	0	NA					0	NA			1		0	S	0	S
Chipping Sparrow	Spizella passerina				S5B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA	1				1	S	0	NA	1	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA	1	1			2	S		2			2	S	2	S
Song Sparrow	Melospiza melodia				S5B	G5										0	NA					0	NA	0	NA	1		1		1	A					0	NA	1	A					0	NA					0	NA	0	NA
Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10ha	✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA		1	1		1	S					0	NA	1	S
Red-winged Blackbird	Agelaius phoeniceus				S4	G5										0	NA					0	NA	0	NA	3	2			5	A					0	NA	5	A		1			1	S	2	1			3	S	3	S
Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10ha	✓	CP						0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA
Brown-headed Cowbird	Molothrus ater				S4B	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA				1	0	NA	0	NA
American Goldfinch	Carduelis tristis				S5B	G5				CP						0	NA	1				1	S	1	S					0	NA					0	NA	0	NA					0	NA					0	NA	1	H	1	H
House Sparrow	Passer domesticus				SNA	G5										0	NA					0	NA	0	NA					0	NA					0	NA	0	NA					0	NA					0	NA	0	NA

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	WELLINGTON COUNTY (2009)	PC 4	PC4														PC 5	PC5														PC 6	PC6														SITE SUM	
												R1	date: June 1 2021						R2	date: June 22, 2021						Max Sum			R1	date:June 1, 2021						R2	date: June 22, 2021						Max Sum			R1	date: June 1, 2021						R2	date: June 22, 2021						Max Sum				
												>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	HBE	TOTAL	HBE	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	TOTAL	HBE
Canada Goose	Branta canadensis				S5	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
Ring-billed Gull	Larus delawarensis				S5B,S	G5					✓					0	NA					0	NA	0	NA				1	0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
Herring Gull	Larus argentatus				S5B,S	G5					✓					0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
Mourning Dove	Zenaida macroura				S5	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA				2	0	NA	0	NA	1	S
Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓							0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
Eastern Phoebe	Sayornis phoebe				S5B	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S > 100
Great Crested Flycatcher	Myiarchus crinitus				S4B	G5										0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	1	S
Blue Jay	Cyanocitta cristata				S5	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
American Crow	Corvus brachyrhynchos				S5B	G5						1	1			2	A					0	NA	2	A	1	1			2	T					NA	2	T					0	NA		3			3	S	3	S	7	A
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S >100
Red-breasted Nuthatch	Sitta canadensis				S5	G5	✓	>10ha		CP						0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	1	S
House Wren	Troglodytes aedon				S5B	G5										0	NA		1			1	S	1	S					0	NA					NA	0	NA					0	NA					0	NA	0	NA	4	S
American Robin	Turdus migratorius				S5B	G5										0	NA		1			1	S	1	S					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
Gray Catbird	Dumetella carolinensis				S4B	G5				CP						0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S >100
Brown Thrasher	Toxostoma rufum				S4B	G5			✓	CP						0	NA			1		0	S	0	S					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	S >100
Cedar Waxwing	Bombycilla cedrorum				S5B	G5							2			2	S					0	NA	2	S					0	NA	2				H	2	H					0	NA					0	NA	0	NA	4	H >100
European Starling	Sturnus vulgaris				SNA	G5									6	0	NA		1			1	S	1	S				1	0	NA					NA	0	NA	5	1			6	NY					0	NA	6	NY	12	FY
Warbling Vireo	Vireo gilvus				S5B	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	S
Red-eyed Vireo	Vireo olivaceus				S5B	G5										0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	4	S
Yellow Warbler	Dendroica petechia				S5B	G5										0	NA					0	NA	0	NA		1			1	S					NA	1	S					0	NA					0	NA	0	NA	1	S
American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP						0	NA					0	NA	0	NA					0	NA	1				S	1	S					0	NA					0	NA	0	NA	3	S
Northern Cardinal	Cardinalis cardinalis				S5	G5								1		0	S					0	NA	0	S		1			1	S					NA	1	S					0	NA					0	NA	0	NA	2	S
Indigo Bunting	Passerina cyanea				S4B	G5										0	NA					0	NA	0	NA	1				1	S	1				S	1	S					0	NA					0	NA	0	NA	2	S
Chipping Sparrow	Spizella passerina				S5B	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	1	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50	✓	CP			2	1		2	S	1	1			2	S	2	S			1		0	S					NA	0	S	1	1			2	S					0	NA	2	S	6	S
Song Sparrow	Melospiza melodia				S5B	G5						1				1	S	1	1			2	S	2	S					0	NA					NA	0	NA					0	NA					0	NA	1	1	2	S	2	S	5	A
Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10	✓	CP			1			1	D					0	NA	1	D					0	NA					NA	0	NA					0	NA					0	NA	0	NA	2	D
Red-winged Blackbird	Agelaius phoeniceus				S4	G5							1			1	S	2	2	1		4	S	4	S		1			1	S		2			S	2	S	2	1			3	S	2	3			5	S	5	S	19	A
Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10	✓	CP						0	NA					0	NA	0	NA			1		0	S					NA	0	S					0	NA					0	NA	0	NA	0	S >100
Brown-headed Cowbird	Molothrus ater				S4B	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA					0	NA					0	NA	0	NA	0	FO
American Goldfinch	Carduelis tristis				S5B	G5				CP			1	1		1	S		1			1	H	1	S					0	NA	1				H	1	H				1	0	NA		1			1	H	1	H	5	S
House Sparrow	Passer domesticus				SNA	G5										0	NA					0	NA	0	NA					0	NA					NA	0	NA			1		0	S					0	NA	0	S	0	FO

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES (BCR 13)	GRCA (date unk.)	WELLINGTON COUNTY (2009)	Polygon: A Date: June 1, 2021		Habitat: Dog Park/Pond Date: June 22, 2021		Totals		Polygon: B Date:June 1, 2021		Habitat: FOD/SWD Date: June 22, 2021		Totals		SITE SUMMARY	
												COUNT	HBE	COUNT	HBE	MAX	HBE	COUNT	HBE	COUNT	HBE	MAX	HBE	TOTAL	HBE
Great Blue Heron	Ardea herodias				S4	G5					✓			1	X	1	X							1	X
Mourning Dove	Zenaida macroura				S5	G5								1	S	1	S							1	S
Eastern Wood-pewee	Contopus virens	SC	SC		S4B	G5			✓		✓									1	S	1	S	1	S
American Crow	Corvus brachyrhynchos				S5B	G5								1	H	1	H							1	H
Black-capped Chickadee	Poecile atricapillus				S5	G5				CP				2	S	2	S							2	S
House Wren	Troglodytes aedon				S5B	G5						1	S	1	S	2	S	2	S			2	S	2	S
American Robin	Turdus migratorius				S5B	G5								1	S	1	S							1	S
European Starling	Sturnus vulgaris				SNA	G5								1	S	1	S							1	S
Warbling Vireo	Vireo gilvus				S5B	G5												1	S			1	S	1	S
Red-eyed Vireo	Vireo olivaceus				S5B	G5								3	S	3	S	2	S			2	S	5	S
Yellow Warbler	Dendroica petechia				S5B	G5								1	S	1	S							1	S
American Redstart	Setophaga ruticilla				S5B	G5	✓	>100ha		CP	✓			3	S	3	S	3	S			3	S	6	S
Ovenbird	Seiurus aurocapilla				S4B	G5	✓	>70ha		CP	✓			1	S	1	S							1	S
Chipping Sparrow	Spizella passerina				S5B	G5						1	S	1	S	2	S							2	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP	✓	1	S			1	S							1	S
White-throated Sparrow	Zonotrichia albicollis				S5B	G5				CP								1	S			1	S	1	S
Bobolink	Dolichonyx oryzivorus	THR	THR		S4B	G5	✓	>10ha	✓	CP	✓	1	S			1	S							1	S
Red-winged Blackbird	Agelaius phoeniceus				S4	G5								2	S	2	S							2	S
Eastern Meadowlark	Sturnella magna	THR	THR		S4B	G5	✓	>10ha	✓	CP	✓	1	S			1	S							1	S
American Goldfinch	Carduelis tristis				S5B	G5				CP				2	S	2	S							2	S

Breeding Evidence Codes

FO-Flyover

Possible

H- Observed in suitable habitat

S- Singing male or adult producing other sounds associated with breeding

Probable

D- Courtship or displays involving a male and female or antagonistic behaviour between two or more individuals

A- Agitated behaviour or alarm calls of an adult in suitable nesting habitat during breeding season

Confirmed

FY- Recently fledged young or downy young

APPENDIX 9
Grassland Breeding Bird Survey Results

COMMON NAME	SCIENTIFIC NAME	SARO	COSEWIC	SARA	S-RANK	G-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA (date unk.)	WELLINGTON COUNTY (2009)	TRANSECT 1				TRANSECT 2				SUMMARY
												date:June 1, 2021		date: June 22, 2021		date:June 1, 2021		date: June 22, 2021		
												TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	TOTAL	HBE	**HBE**
American Robin	Turdus migratorius				S5B	G5										1	H			H
European Starling	Sturnus vulgaris				SNA	G5										1	H			H
Bobolink	Dolichonyx oryzivorus	THR	THR	THR	S4B	G5	✓	>10ha	✓	CP	✓	3	H							H
Red-winged Blackbird	Agelaius phoeniceus				S4B	G5						1	S	3	S			1	H	T
Song Sparrow	Melospiza melodia				S5B	G5								2	S			2	H	S
Savannah Sparrow	Passerculus sandwichensis				S4B	G5	✓	>50ha	✓	CP	✓			2	S					S
Eastern Phoebe	Sayomis phoebe				S5B	G5				CP								1	S	S
American Crow	Corvus brachyrhynchos				S5B	G5												1	H	H
House Wren	Troglodytes aedon				S5B	G5								1	S					S

Breeding Evidence Codes

Possible

H- Species observed in suitable habitat

S- Singing male or adult producing other sounds associated with breeding in suitable nesting habitat

Probable

T- Presumed territory based on presence of an adult bird in the same suitable nesting habitat patch on at least two visits.

APPENDIX 10
Site Investigation Details

Survey	Time	Date	Staff	Temp. (°C)	Wind (Beaufort)	Cloud Cover %	Precipitation	Past Precipitation
Amphibian Survey #1	23:10 - 23:30	29/04/2021	SD, CAR	5	1	100	None	Rain
Candidate Bat Maternity Habitat Survey	09:18-11:20	13/05/2021	CAR, KS	11	3	0	None	None
ELC/Spring Botanical	17:50-21:05	18-May-21	SD, KS	20	1	0	None	None
Amphibian Survey #2	21:15-21:30	18-May-21	SD, KS	20	1	0	None	None
Breeding Bird Survey #1	07:17-09:34	01-Jun-21	CAR	16	2	0	None	None
Grassland Breeding Bird Survey #1	7:37-8:14, 8:36-8:49	01-Jun-21	CAR	16	2	0	None	None
Breeding Bird Survey #2	07:02-09:30	22-Jun-21	CAR	13	2	70	None	Rain
Grassland Breeding Bird Survey #2	7:17-8:00, 8:29-8:56	22-Jun-21	CAR	13	2	70	None	Rain
Amphibian Survey #3	21:39-21:50	24-Jun-21	SD, KS	22	1	90	None	None
Wetland Delineation & Verification	08:30-15:30	23-Aug-21	SD, KS	29	1	0	None	None
Summer Botanical	11:15-15:30	01-Sep-21	SD, KS	23	1	0	None	None

APPENDIX 11
MNRF & MECP Requests for Information

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

190 Nicklin Road
Guelph . Ontario
N1H 7L5

T: 519.822.6839
F: 519.822.4052
info@aboudtng.com
www.aboudtng.com

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SUBWATERSHED STUDIES
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STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

10/05/2021

Our Project #:AA21-085A
Sent by email: esa.guelph@ontario.ca

Ministry of Natural Resources and Forestry
Guelph District
Ontario Government Bldg, 1 Stone Road W.
Guelph, ON N1G 4Y2

Re: Dickson Drive Extension Municipal Class EA
Township of Centre Wellington, Wellington County
Request for Local Site Information

To whom it may concern,

Please accept this request for Information regarding:
☒ Wetland Mapping and/or Evaluation and Data Records
☐ Fish Dot Information
☐ ANSI Mapping and/or check-sheet
☒ Other:

Any other possible site constraints or information would also be greatly appreciated. As it applies to an Environmental Impact Study for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus dog park to the Elora Cataract Trail (*Figure 1*). The information provided will be used to inform the Environmental Impact Study, which will be prepared in consultation with the Grand River Conservation Authority (GRCA), Wellington County and Township of Centre Wellington.

Township: Township of Centre Wellington

Lot: 9

Concession: 1

UTM Coordinates: 550326.40 E 4841589.59 N

Background Information
The preparation of an EIS is required as part of a Municipal Class EA for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus Dog park to the Elora Cataract Trailway. The site is entirely within the urban boundary of Fergus, and includes a portion of the Irvine Creek Provincially Significant Wetland, woodlands, agriculture and residential lands.

The study area has not undergone any landscape changes in the recent past (within 5 years).

Please contact the undersigned should you require additional information of the above.

Yours truly,

ABOUD & ASSOCIATES INC.



Shannon Davison B. Env., Eco. Rest. Cert.
Ecologist
T:519.822.6839
C: 226.581.0707

Attachment: Figure 1

LEGEND

- PROPERTY ACCESS
- STUDY AREA
- DEER WINTERING AREA
- GRCA WATERCOURSE
- GRCA WETLAND
- LIO WOODLANDS
- GRCA REGULATION LIMIT
- PROPOSED ROAD
- PROPOSED SECONDARY ROAD
- PROPOSED TRAIL ALIGNMENT

Information Sources:

1. Orthophotography provided by First Base Solutions Accessed April, 2021.
2. Woodlands and Wetland provided by Land Information Ontario

Title:

ENVIRONMENTAL STUDY AREA & CONSTRAINTS

Project:

DICKSON ROAD
FERGUS ON

Date: APRIL 2021

Project: AA21-085A

Scale: 1 : 5000

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Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Shannon Davison

From: Ungar, Darren (MNRF) <Darren.Ungar@ontario.ca>
Sent: June-21-21 10:46 AM
To: Shannon Davison
Subject: RE: AA21-085A MNRF Request for Information
Attachments: AA21-085A MNRF Information Request.pdf; Irvine_Creek_July2019_amendedFeb28_2020.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

External

Good morning Shannon,

Please see the attached wetland evaluation for Irvine Creek PSW. The stream on the property is a warm water system and the restricted in-water timing window is from March 15th to June 30th

All the best

Darren Ungar
Management Biologist
Ministry of Natural Resources & Forestry
Guelph District
226-962-6870

From: Shannon Davison <sdavison@aboudtng.com>
Sent: May 10, 2021 3:07 PM
To: ESA Guelph (MNRF) <ESAGUELPH@ontario.ca>
Subject: AA21-085A MNRF Request for Information

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please find attached a Request for Information as it relates to a Municipal Class EA for the Extension of Dickson Drive and a multi-use pathway connecting the Fergus dog park and Elora Cataract Trail.

Any information you can provide is greatly appreciated.

Regards,

Shannon Davison B.Env. Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner- In Training #0499
MNRF Certified Wetland Evaluation . MNRF Certified Ecological Land Classification
ABOUD & ASSOCIATES INC. 190 Nicklin Road . Guelph . Ontario . N1H 7L5

C : 226.581.0707 www.aboudtng.com sdavison@aboudtng.com

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CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

10/05/2021

Our Project #:AA21-085A
Sent by email: SAROntario@ontario.ca

Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section, Species at Risk Branch

Re: Dickson Drive Extension Municipal Class EA
Township of Centre Wellington, Wellington County
Request for Species at Risk and Local Site Information

To whom it may concern:

Please accept this request for Information regarding:
☒ Species at Risk

Any other possible site constraints or information would also be greatly appreciated. As it applies to an Environmental Impact Study for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus dog park to the Elora Cataract Trailway.

Project Proponent and Location

Proponent: Township of Centre Wellington

Township: Township of Centre Wellington (Wellington County)

Lot: 9

Concession: 1

UTM Coordinates: 550326.40 E 4841589.59 N

Proposed Activity

The preparation of an EIS is required as part of a Municipal Class EA for a proposed road extension of Dickson Drive and multi-use pathway connecting the Fergus dog park to the Elora Cataract Trailway.

Existing Site Conditions

Per GRCA mapping, a portion of the study area is within the regulation limit. The site is entirely within the urban boundary of Fergus, and includes Provincially Significant Wetlands, woodlands, agriculture, and residential lands (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. The Ontario Reptile and Amphibian Atlas shows within a 10 km square of the subject lands, the recent and historical presence of 13 species (including complexes) of reptiles and amphibians (accessed April 15, 2021). Including three species of Conservation Concern (Snapping Turtle, Western Chorus Frog and Midland Painted Turtle).

2. The Natural Heritage Information Center indicates the presence of Eastern Meadowlark, Barn Swallow and Bobolink within the nine 1km squares containing the subject lands. It also identifies that portion of the Irvine Creek Provincially Significant Wetland complex and a colonial waterbird nesting area are present in the vicinity of the Study Area.

3. The Ontario Breeding Bird Atlas shows within a 10 km square of the subject lands, the recent and historical presence of 120 species of birds, including eight species of Conservation Concern (Northern Bobwhite, Eastern Wood-pewee, Bank Swallow, Barn Swallow, Wood Thrush, Canada Warbler, Grasshopper Sparrow, Bobolink and Eastern Meadowlark).

4. The Ontario Mammal Atlas indicates the presence of 21 species within the two 10km squares containing the subject lands. No species of Conservation Concern where indicated.

5. eBird records from the nearby Fergus Dog Park (~350m from the subject lands) indicate the recent and historical presence of 15 species, including one species of Conservation Concern (Barn Swallow).

6. iNaturalist observations (research grade) within 1km of the subject lands indicate the recent presence of two vascular plant species, one insect species and three bird species. One of the species observed (Bald Eagle) is considered a species of Conservation Concern.

7. The Ontario Butterfly Atlas shows within the two 10km squares containing the subject lands, the recent and historical presence of 24 species of butterflies, including one species of Conservation Concern (Monarch)

Please contact the undersigned should you require additional information of the above.

Yours truly,

ABOUD & ASSOCIATES INC.



Shannon Davison B. Env., Eco. Rest. Cert.
Ecologist
T:519.822.6839
C: 226.581.0707

LEGEND

- PROPERTY ACCESS
- STUDY AREA
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Information Sources:

1. Orthophotography provided by First Base Solutions Accessed April, 2021.
2. Woodlands and Wetland provided by Land Information Ontario

Title:

ENVIRONMENTAL STUDY AREA & CONSTRAINTS

Project:

DICKSON ROAD
FERGUS ON

Date: APRIL 2021

Project: AA21-085A

Scale: 1 : 5000

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Consulting Arborists • Ecologists • Landscape Architects
190 Nicklin Road . Guelph . Ontario . N1H 7L5 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Shannon Davison

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: May-26-21 2:08 PM
To: Shannon Davison
Subject: RE: AA21-085A Request for Information

External

Hi Shannon,

In addition to the species you list in your prescreening report the following Endangered/Threatened species should be added; silver shiner, chimney swift, gypsy cuckoo bumble bee and redside dace. The wood thrush which is a species of Special Concern should also be included.

Please note it remains the clients responsibility to:

- Carry out preliminary screening for their project,
- Obtain the best available information for all applicable information sources,
- Conduct necessary field studies or inventories to identify and confirm the presence of absence of species at risk or their habitat,
- Consider any potential impacts to species at risk that a proposed activity might cause, and
- Comply with the Endangered Species Act (ESA).

It is important to note that a lack of information does not mean that species at risk or their habitat are not present. There are many areas where the Government of Ontario does not currently have information, especially in more remote parts of the province. On-site assessments can better verify site conditions, identify and confirm presence of species at risk and/or their habitats. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that their habitat is not damaged or destroyed through the activities carried out on the site.

The Ministry of Environment, Conservation and Parks is only responsible for species at risk and the Endangered Species Act. If you would like confirmation of fisheries or other natural heritage features outside of species at risk please contact the Ministry of Natural Resources and Forestry office.

Lisa

Ontario

Lisa McShane
Management Biologist
Permissions and Compliance Section, Species at Risk Branch
Ministry of Environment, Conservation and Parks
lisa.mcshane@ontario.ca
(226) 668-0527

From: Shannon Davison <sdavison@aboudtng.com>
Sent: Monday, May 10, 2021 2:54 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Subject: AA21-085A Request for Information

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please find attached a Request for Information as it related to an EIS for a Municipal Class EA for a road extension and multi-use pathway in the Township of Centre Wellington.

Any information you can provide is appreciated.

Regards,

Shannon Davison B.Env. Eco. Rest. Cert.
Ecologist
Certified Ecological Restoration Practitioner- In Training #0499
MNRF Certified Wetland Evaluation . MNRF Certified Ecological Land Classification
ABOUD & ASSOCIATES INC. 190 Nicklin Road . Guelph . Ontario . N1H 7L5
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APPENDIX 12
Glossary of Terms and Impact Ratings

Glossary of Terms and Impacts

Duration of Impact
ST – Short-term (define based on project)
LT- Long-term (define based on project)

Reversibility
R- Reversible
P – Permanent

Geographic Extent of Influence
SA– Subject Area (physical disturbance area)
AA- Assessment Area (120m zone of influence)
LA – Landscape Area (Area outside AA that may be affected)

Frequency of Disturbance
O - Occurs once.
S - Occurs sporadically at irregular intervals.
R - Occurs on a regular basis and at regular intervals.
C – Continuous, ongoing and all the time.

Existing Ecological Site Context
U - Undisturbed: Area relatively or not adversely affected by human activity.
PD – Past Disturbance: Area Adversely affected by human activity in recent past, but regeneration has occurred.
D -Disturbed: Area has been substantially previously disturbed by human development or human development is still present.

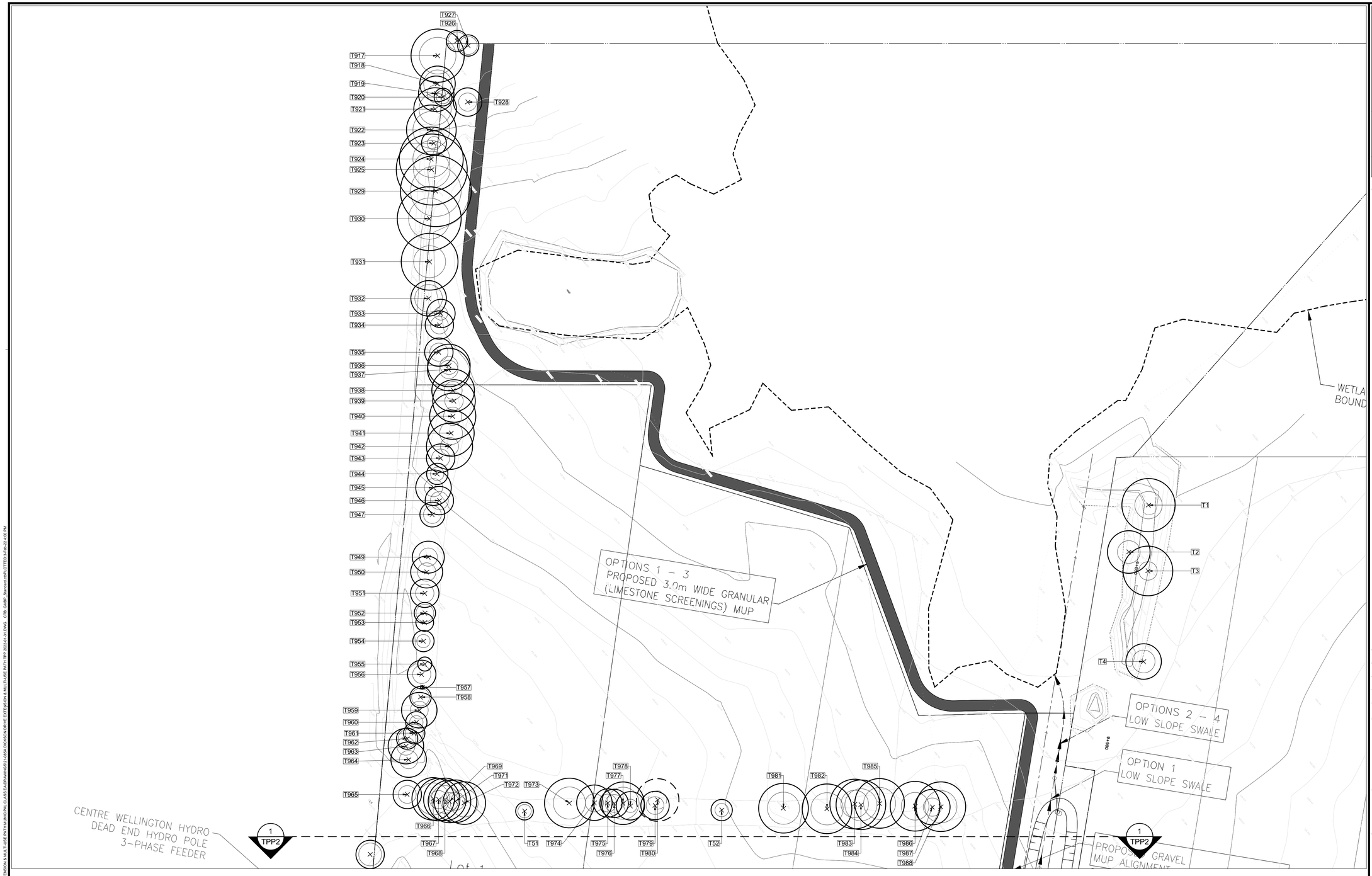
Likelihood of impact occurring
If the Proposed activity occurs, the likelihood of the impact occurring is:
L: Low probability of occurrence.
M: Medium probability of occurrence.
H: High probability of occurrence.

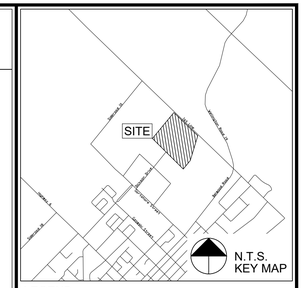
Cumulative Environmental Effects
Will the proposed activity interact with other impacts?
Y: Potential for environmental effect to interact with the environmental effects of other past, present or foreseeable future activities
N: Environmental effect will not or is not likely to interact with the environmental effects of other past, present or foreseeable future activities.

Impact Rating
None: An event that, if it occurs, will cause no foreseeable impact.
Minor: An event that, if it occurs, will cause small, reversible and geographically localized impact that can be easily mitigated.
Moderate: Significant but reversible, OR irreversible and geographically localized, impact that requires significant mitigation.
Severe: Significant AND irreversible impact on the environment, impacts cannot be fully mitigated.

Potential vs. Actual impact
[1] *Potential Impact* is a relative rating of the expected impact to occur in the absence of any mitigation measures.
[2] *Actual Impact* is the expected impact in consideration of implementation of mitigation measures or where potential impact may cause little to no actual impact.

APPENDIX 13
Tree Preservation Plan





LEGEND:

EXISTING TREE
ID NUMBER | THICK CIRCLE DENOTES CROWN DIAMETER (ESTIMATED). THIN CIRCLE DENOTES MINIMUM TREE PROTECTION ZONE (MTPZ). SINGLE THICK CIRCLE DENOTES BOTH CROWN DIAMETER AND MTPZ

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TREE HAS MODERATE LOW TO HIGH BIOLOGICAL HEALTH AND MODERATE LOW TO HIGH STRUCTURAL CONDITION AND CAN BE INCORPORATED INTO THE PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR STRUCTURAL CONDITION

REMOVE TREE
TREE IS IN CONFLICT WITH PROPOSED DEVELOPMENT

REMOVE TREE
TREE HAS LOW BIOLOGICAL HEALTH AND/OR LOW STRUCTURAL CONDITION AND IS IN CONFLICT WITH PROPOSED DEVELOPMENT

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1. Site Plans received from Triton Engineering Services Ltd. January 14, 2022.
2. Tree Inventory and Assessment conducted by Aboud & Associates Inc. August 31, 2021.

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0	ISSUED FOR REVIEW	JD	21 SEP-21

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Title:

TREE PRESERVATION PLAN

Project:

DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

Drawing No:

TPP1

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CENTRE WELLINGTON HYDRO
DEAD END HYDRO POLE
3-PHASE FEEDER

DICKSON DRIVE

N DRIVE

PROPOSED GRAVEL MUP ALIGNMENT OPTIONS 1 - 3

STORMTECH CHAMBER (BELOW GRADE) OPTION 1

SWM BLOCK (ABOVE GRADE) OPTIONS 2 - 4

STREET A

SHED

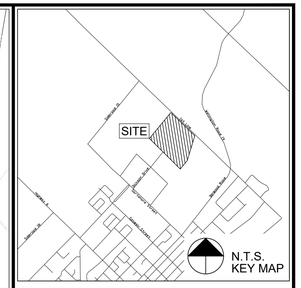
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Lot 12 1.62ac
Lot 13 1.83ac
Lot 19 1.38ac
Lot 20 1.33ac
Lot 21 1.44ac

T14 T15 T16 T17 T18 T19 T20 T21 T22 T23 T24 T25 T26 T27 T28 T29 T30 T31 T32 T33 T34 T35 T36 T37 T38 T39 T41 T40 T42 T43 T44 T45 T46 T47 T48 T49 T50 T990 T991 T992 T993 T994 T995 T996

0+950 1+000 1+050 1+100 1+150 1+200 1+250 2+000 2+050 2+100

1 TPP1 2 TPP3 3 TPP4



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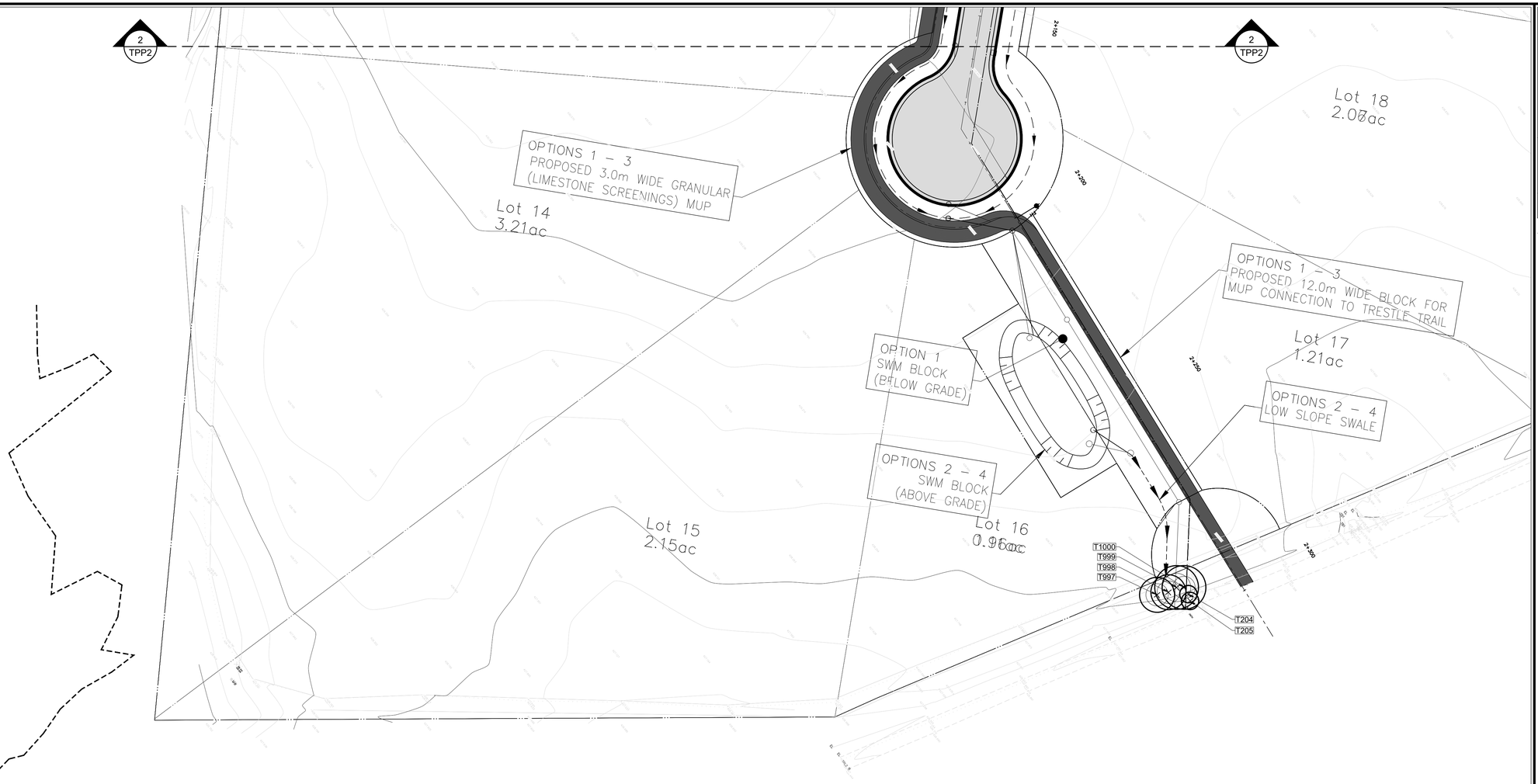
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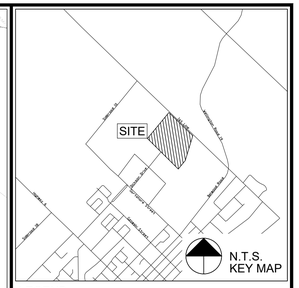
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Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

Drawing No:

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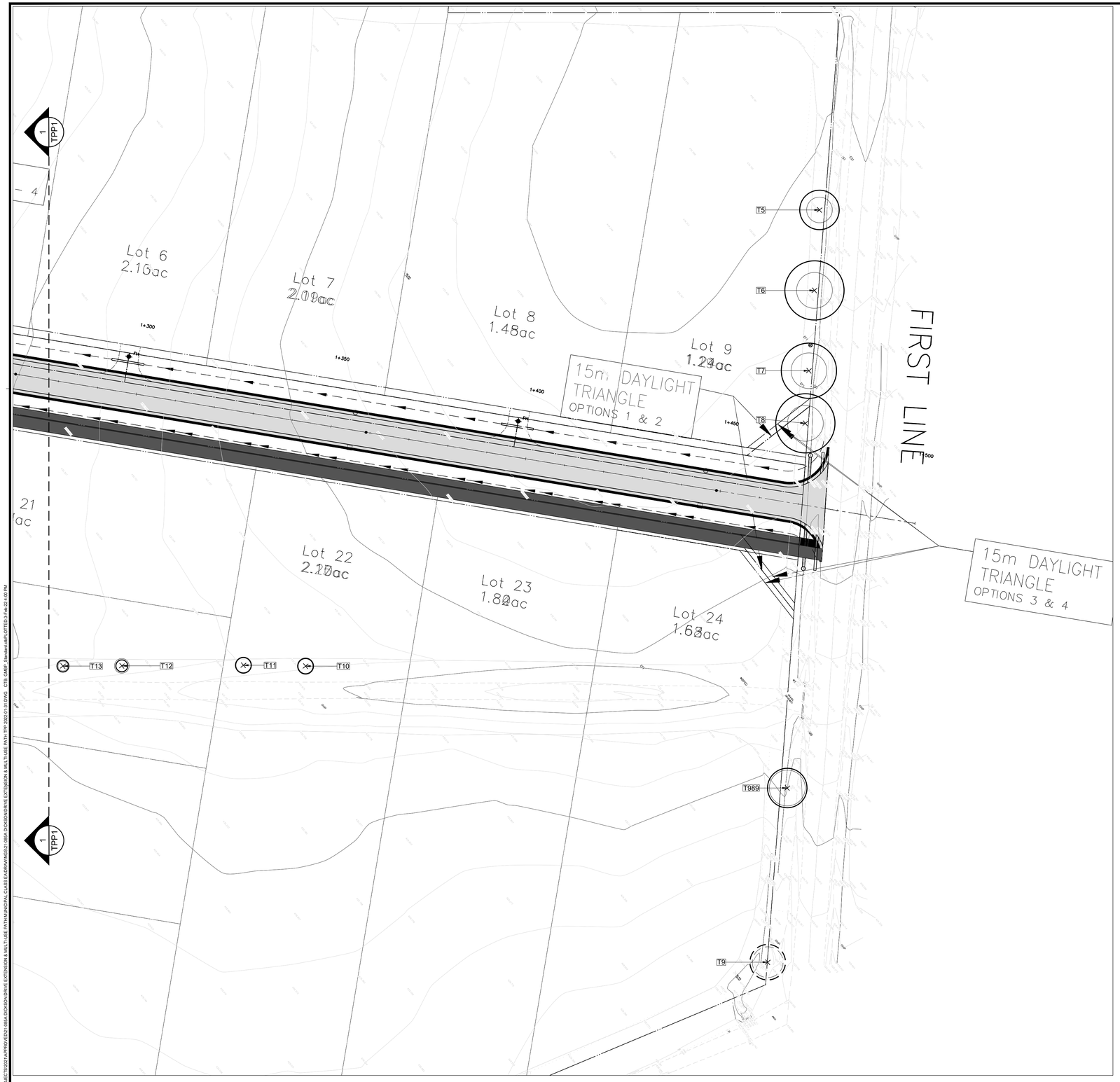
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Project: AA21-085A	Drawn: JGL
Scale: 1:500	Checked: JD

Drawing No:

TPP3

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GENERAL TREE NOTES

1. All arboricultural work performed on trees such as pruning of branches and roots shall be conducted by an ISA Certified Arborist.
2. Prune and mitigate limbs and roots damaged by construction work in accordance with ANSI A300 (Part 1) - 2008 Pruning and the Best Management Practices companion publication (revised 2008).
3. Tree Protection Fence to be erected prior to the commencement of any construction or grading, and maintained throughout the duration of the work.
4. Tree Protection Zone is delimited by Tree Protection Fence shown on the drawings.
5. No construction or activities including the following to occur within Tree Protection Zone: equipment parking or access, storage of supplies, topsoil or fill, and refueling.
6. Tree removals (if required) will be undertaken in compliance with the Migratory Birds Convention Act. Efforts will be made to remove vegetation outside the General Nesting period (April 1 - Aug 31) for regions C1 and C2 of Ontario. In the event vegetation must be removed within the General Nesting Period, a qualified avian biologist is to review the site prior to removal to ensure compliance with the Migratory Birds Convention Act.
7. Any soils and vegetation within tree protection zone damaged by the Contractor shall be restored to the satisfaction of the Municipality by the Contractor at no additional cost to the Owner.

CONSTRUCTION WITHIN MINIMUM TREE PROTECTION ZONE

1. An ISA Certified Arborist must be present on site during construction activities within MTPZ to confirm and/or modify mitigation measures for trees to be preserved.
2. Use trenchless methods (e.g. horizontal directional drilling) to install underground services (e.g. sanitary sewers and water lines) within Minimum Tree Protection Zones.

EXISTING UNDERGROUND SERVICES WITHIN TREE PROTECTION ZONES

1. Existing sanitary/storm sewers and watermains to be discontinued within tree protection zones will be filled (as needed) and abandoned.
2. Excavation and access for construction/removal of abandoned underground services will be conducted outside of tree protection zones.

FINISH GRADING WITHIN TREE PROTECTION ZONES

Where finish grading of cuts and fills, and including swales occurs within tree protection zones, the following steps are required.

Grade Cut:

1. Excavate by hand or Air-spade technology to a maximum depth of 100mm.
2. Roots encountered are to be assessed by the Project Arborist to determine the extent of roots to be pruned. Based on findings, other treatments may be required (e.g. crown reduction, tree removal), and which may require approval from the City.
3. Based on root findings, local, minor adjustments to grading within the tree protection zone may be required based on field consultation between the Project Arborist and Project Engineer.
4. No access by heavy equipment into tree protection zone is permitted. Fine grading to be carried out using light equipment and/or by hand.

Grade Fill:

5. Add topsoil to meet grade requirements to a maximum of 150mm.
6. No topsoil to be added onto trunk base or above-ground section of trunk base flare.
7. Maintain positive drainage away from trunk base.
8. Based on local conditions (e.g. surface drainage), local, minor adjustments to grading within the tree protection zone may be required based on field consultation between the Project Arborist and Project Engineer.

TREES OWNED BY OTHERS

1. Trees owned by others require permission (i.e. written consent) from the land owner(s) prior to activities that may damage or destroy trees. Trees owned by others are Offsite Trees and Shared Trees:
   a. Offsite Trees - Trees on property adjacent to the subject property;
   b. Shared (Boundary) Trees - Trees whose trunk including the basal trunk flare growing on the boundary between the subject property and adjoining property (from *Ontario Forestry Act*).

The Provincial Forestry Act, R.S.O. 1990 (Section 10):

10. (2) Every tree whose trunk is growing on the boundary between adjoining lands is the common property of the owners of the adjoining lands. 1990, c. 18 Sched. I, s. 21.
(3) Every person who injures or destroys a tree growing on the boundary between adjoining lands without the consent of the land owners is guilty of an offence under this Act. 1998, c. 18, Sched. I, s. 21.

ROOT SENSITIVE EXCAVATION

A preliminary excavation at the limit of work is recommended to determine the potential magnitude of the impacts posed by the planned work. For excavation in turf or permeable surfaces, the final excavation limit should be marked in the field and excavation shall be performed using air-spade, dry-vac truck, hydro-vac truck or hand tools. For excavation of existing impermeable surfaces, the impermeable top layer may be broken up by machine to allow access to the permeable base layers. The permeable base layers may need to be excavated further to expose existing roots, in which case this excavation shall be performed using air-spade, dry-vac truck, hydro-vac truck or hand tools. All root sensitive excavation must be performed under the supervision of a qualified arborist. All roots exposed must be documented by the supervising arborist. Every effort should be made to preserve as many exposed roots as possible. Roots approved for pruning should be cleanly cut with a sharp, non-vibrating tool such as a handsaw, secateurs, chainsaw at face of trench such that no further disturbance of the roots are to be expected once mechanical excavation begins. All root pruning is to be performed by the arborist only, as per guidelines below.

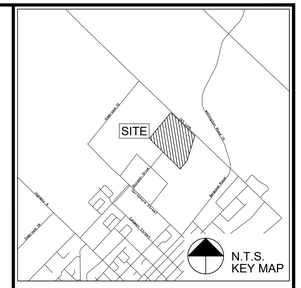
1. When root sensitive excavation is performed in regards to the installation of a deep site feature such as a foundation, roots of less than 5cm diameter can be cut sharply, if necessary, unless an abundance of smaller roots are involved. If roots of 5cm diameter or greater or an abundance of smaller roots are exposed in the excavation areas inside or just outside the Tree Protection Zone (TPZ) of bylaw trees they should be preserved.

2. When root sensitive excavation is performed in regards to the installation of site features such as post holes, all roots exposed of under 5cm diameter may be cleanly cut at face of hole such that no further disturbance of the roots are to be expected once mechanical excavation begins for the lower portion of the holes (below hand dug area). If roots of 5cm diameter or greater are uncovered they should be preserved, the post holes filled in with viable soil and the hole moved at least 0.5 metre away to avoid significant roots.

3. When root sensitive excavation is performed in regards to the installation of site features such as driveways, walkways, curbs, etc. roots of less than 5cm diameter can be cut sharply, if necessary, unless an abundance of smaller roots are involved. If roots of 5cm diameter or greater or an abundance of smaller roots are exposed in the excavation areas inside or just outside the TPZ of bylaw trees they should be preserved

4. When root sensitive excavation is performed in regards to the installation of utilities such as water lines or sewers, every effort should be made to preserve as many exposed roots as possible by installing the utilities underneath the roots without root pruning. If roots of 5cm diameter or greater are uncovered they should be preserved.

GENERAL TREE PROTECTION NOTES



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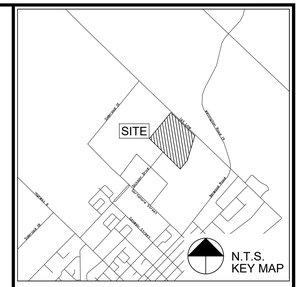
Drawing No:

TPP4

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Tree No. (not tagged)	Tree Species	DBH (cm)	Minimum Tree Protection Zone (m, from total height of tree)	Crown Diameter est. (m)	Crown Class	Condition	Constraint to Development	Ownership: Private (P), Offsite (O), Municipal (M), Shared (S?)	Rec. Action - Development: Preserve, Remove	Rec. Action - Development (Option 1): Preserve, Remove	Rec. Action - Development (Option 2): Preserve, Remove	Rec. Action - Development (Option 3): Preserve, Remove	Rec. Action - Development (Option 4): Preserve, Remove	Final Recommendation: Preserve, Remove	Compensation Required: Yes (Y), No (N)	Reason for removal	Comments
1	Acer negundo Manitoba Maple	52 [38,30]	3.6	15	Dominant	Good	M	P	P	P	P	P	P	P	N		
2	Acer negundo Manitoba Maple	41 [27,20,20,19]	3.0	12	Dominant	Good	M	P	P	P	P	P	P	P	N		
3	Acer negundo Manitoba Maple	40	2.4	14	Dominant	Fair	M	P	P	P	P	P	P	P	N		Broken crown
4	Acer negundo Manitoba Maple	42 [30,22,20]	3.0	10	Dominant	Good	M	P	P	P	P	P	P	P	N		
5	Acer rubrum Red Maple	50	3.0	10	Dominant	Good	M	P	P	P	P	P	P	P	N		
6	Acer saccharum ssp. saccharum Sugar Maple	68	4.2	15	Dominant	Fair	M	P	P	P	P	P	P	P	N		Deadwood moderate, large cavity
7	Acer saccharum ssp. saccharum Sugar Maple	64	4.2	14	Dominant	Good	M(H)	P	P	P	P	P	P	P	N		Minor deback
8	Acer saccharum ssp. saccharum Sugar Maple	68	4.2	15	Dominant	Good	M(H)	P	P	P	P	P	P	P	N		
9	Fraxinus americana White Ash	60	3.6	9	Dominant	Very Poor	L	S	R	P	P	P	P	RC	N	Condition	EAB
10	Acer saccharum ssp. saccharum Sugar Maple	10	1.8	4	Dominant	Fair	L	P	P	P	P	P	P	P	N		Trunk wound moderate
11	Acer saccharum ssp. saccharum Sugar Maple	14	1.8	4	Dominant	Good	L	P	P	P	P	P	P	P	N		
12	Acer saccharum ssp. saccharum Sugar Maple	10	1.8	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
13	Acer saccharum ssp. saccharum Sugar Maple	8	1.2	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
14	Acer saccharum ssp. saccharum Sugar Maple	8	1.2	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
15	Acer saccharum ssp. saccharum Sugar Maple	9	1.2	3	Dominant	Good	L	P	P	P	P	P	P	P	N		
16	Picea pungens 'Glauca' Colorado Blue Spruce	18	1.8	2	Dominant	Dead	L	P	R	R	R	R	R	RCD	N	Road extension and condition	
17	Picea pungens 'Glauca' Colorado Blue Spruce	24	2.4	6	Dominant	Good	M	P	P	R	R	R	R	RD	Y	Road extension	
18	Picea pungens 'Glauca' Colorado Blue Spruce	25	2.4	6	Dominant	Good	M	P	P	R	R	R	R	RD	Y	Road extension	Vines
19	Populus deltoides Eastern Cottonwood	34 [18,16,16,13,12]	2.4	6	Dominant	Good	M	P	P	R	R	R	R	RD	Y	Road extension	
20	Prunus serotina Black Cherry	44 [34,28]	3.0	12	Co-Dominant	Fair	M(L)	P	P	P	P	P	P	P	N		Unbalanced crown minor,
21	Prunus serotina Black Cherry	47 [36,30]	3.0	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
22	Acer platanoides Norway Maple	70	4.2	14	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Large split in trunk
23	Prunus serotina Black Cherry	52 [42,30]	3.6	12	Co-Dominant	Fair	M	P	P	P	P	P	P	P	N		Trunk wound moderate at base
24	Picea abies Norway Spruce	55	3.6	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
25	Picea abies Norway Spruce	42	3.0	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
26	Picea abies Norway Spruce	70	4.2	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
27	Picea abies Norway Spruce	48	3.0	8	Intermediate	Fair	L	P	P	P	P	P	P	P	N		Broken crown
28	Thuja occidentalis Eastern White Cedar	43	3.0	7	Co-Dominant	Excellent	M	P	P	P	P	P	P	P	N		
29	Thuja occidentalis Eastern White Cedar	31	2.4	5	Co-Dominant	Excellent	M	P	P	P	P	P	P	P	N		
30	Acer saccharum ssp. saccharum Sugar Maple	95	6.0	18	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
31	Acer saccharum ssp. saccharum Sugar Maple	86	5.4	18	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
32	Acer saccharum ssp. saccharum Sugar Maple	56	3.6	11	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
33	Acer saccharum ssp. saccharum Sugar Maple	46 [36,28]	3.0	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Codominant stems
34	Acer saccharum ssp. saccharum Sugar Maple	39	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
35	Thuja occidentalis Eastern White Cedar	34	2.4	9	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		Minor lean
36	Thuja occidentalis Eastern White Cedar	72 [43,43,37]	4.8	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
37	Acer platanoides Norway Maple	57 [47,32]	3.6	12	Dominant	Good	M	P	P	P	P	P	P	P	N		
38	Acer saccharum ssp. saccharum Sugar Maple	35	2.4	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
39	Acer saccharum ssp. saccharum Sugar Maple	65 [60,24]	4.2	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
40	Acer saccharum ssp. saccharum Sugar Maple	89	5.4	15	Dominant	Good	M	P	P	P	P	P	P	P	N		Large portion of the trunk failed
41	Acer saccharum ssp. saccharum Sugar Maple	98	6.0	14	Dominant	Good	M	P	P	P	P	P	P	P	N		
42	Acer saccharum ssp. saccharum Sugar Maple	80	4.8	12	Dominant	Good	M(L)	P	P	P	P	P	P	P	N		Deadwood moderate
43	Acer saccharum ssp. saccharum Sugar Maple	95	6.0	18	Dominant	Good	M	P	P	P	P	P	P	P	N		
44	Prunus serotina Black Cherry	26	2.4	8	Dominant	Good	M	P	P	P	P	P	P	P	N		
45	Prunus serotina Black Cherry	36	2.4	10	Dominant	Good	H	P	P	P	P	P	P	P	N		
46	Picea glauca White Spruce	14	1.8	4	Dominant	Good	M(H)	M	P	P	P	P	P	P	N		Vines
47	Picea pungens 'Glauca' Colorado Blue Spruce	12	1.8	4	Dominant	Good	M(H)	M	P	P	P	P	P	P	N		Vines
48	Acer platanoides Norway Maple	20 [18,9]	2.4	5	Dominant	Good	M	M	P	P	P	P	P	P	N		Codominant stems
49	Pinus sylvestris Scots Pine	20	2.4	5	Dominant	Good	M	M	P	P	P	P	P	P	N		
50	Robinia pseudoacacia Black Locust	43 [23,22,20,21]	3.0	8	Dominant	Good	H	O	P	P	P	P	P	P	N		Vines
51	Acer platanoides 'Crimson King' Crimson King Maple	15	1.8	5	Dominant	Good	L	P	P	P	P	P	P	P	N		
52	Acer platanoides 'Crimson King' Crimson King Maple	15	1.8	6	Dominant	Good	L	P	P	P	P	P	P	P	N		
53	Prunus serotina Black Cherry	75 [60,40]	4.8	15	Dominant	Good	M(H)	P	P	P	P	P	P	P	N		
204	Acer saccharum ssp. saccharum Sugar Maple	14	1.8	4	Intermediate	Good	M	O	P	P	P	P	P	P	N		
205	Acer saccharum ssp. saccharum Sugar Maple	16	1.8	4	Intermediate	Good	M	O	P	P	P	P	P	P	N		
917	Acer saccharum ssp. saccharum Sugar Maple	73	4.8	15	Dominant	Good	H	O	P	P	P	P	P	P	N		Offsite
918	Acer saccharum ssp. saccharum Sugar Maple	60	3.6	10	Dominant	Fair	H	O	P	P	P	P	P	P	N		Trunk decay severe
919	Acer saccharum ssp. saccharum Sugar Maple	30	2.4	10	Intermediate	Good	H	O	P	P	P	P	P	P	N		
920	Fraxinus americana White Ash	18	1.8	5	Intermediate	Poor	L	P	P	P	P	P	P	P	N		
921	Acer saccharum ssp. saccharum Sugar Maple	65	4.2	12	Co-Dominant	Fair	M(H)	O	P	P	P	P	P	P	N		Unbalanced crown severe, trunk wound severe

Tree No. (not tagged)	Tree Species	DBH (cm)	Minimum Tree Protection Zone (m, from total height of tree)	Crown Diameter est. (m)	Crown Class	Condition	Constraint to Development	Ownership: Private (P), Offsite (O), Municipal (M), Shared (S?)	Rec. Action - Development: Preserve, Remove	Rec. Action - Development (Option 1): Preserve, Remove	Rec. Action - Development (Option 2): Preserve, Remove	Rec. Action - Development (Option 3): Preserve, Remove	Rec. Action - Development (Option 4): Preserve, Remove	Final Recommendation: Preserve, Remove	Compensation Required: Yes (Y), No (N)	Reason for removal	Comments
922	Acer saccharum ssp. saccharum Sugar Maple	77	4.8	14	Co-Dominant	Good	H	O	P	P	P	P	P	P	N		Trunk wound severe, unbalanced crown moderate
923	Prunus serotina Black Cherry	17	1.8	7	Suppressed	Good	M(H)	O	P	P	P	P	P	P	N		
924	Acer saccharum ssp. saccharum Sugar Maple	75	4.8	18	Co-Dominant	Good	M(H)	O	P	P	P	P	P	P	N		Unbalanced crown severe, trunk wound severe
925	Acer saccharum ssp. saccharum Sugar Maple	73 [64,35]	4.8	20	Co-Dominant	Excellent	H	O	P	P	P	P	P	P	N		
926	Prunus serotina Black Cherry	34	2.4	6	Co-Dominant	Fair	M	S	P	P	P	P	P	P	N		Crown thin
927	Ostrya virginiana Ironwood	26	2.4	6	Intermediate	Good	M	S	P	P	P	P	P	P	N		
928	*Picea glauca* *White Spruce*	31	2.4	8	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
929	Acer saccharum ssp. saccharum Sugar Maple	105	6.6	20	Co-Dominant	Good	H	P	P	P	P	P	P	P	N		Codominant stems, trunk splits
930	*Acer saccharum ssp. saccharum* *Sugar Maple*	82 [65,50]	5.4	18	Co-Dominant	Good	H	S	P	P	P	P	P	P	N		
931	Acer saccharum ssp. saccharum Sugar Maple	62	4.2	16	Co-Dominant	Good	H	S	P	P	P	P	P	P	N		
932	*Populus deltoides* *Eastern Cottonwood*	58	3.6	10	Co-Dominant	Good	H	P	P	P	P	P	P	P	N		
933	Robinia pseudoacacia Black Locust	15	1.8	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
934	Robinia pseudoacacia Black Locust	20	2.4	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
935	Robinia pseudoacacia Black Locust	31 [27,16]	2.4	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
936	*Robinia pseudoacacia* *Black Locust*	25 [23,11]	2.4	12	Intermediate	Good	L	P	P	P	P	P	P	P	N		
937	*Robinia pseudoacacia* *Black Locust*	38 [27,27]	2.4	12	Intermediate	Good	L	P	P	P	P	P	P	P	N		
938	Acer saccharinum Silver Maple	30	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
939	*Acer saccharinum* *Silver Maple*	38 [30,14]	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
940	*Acer saccharinum* *Silver Maple*	36	2.4	13	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
941	*Acer saccharinum* *Silver Maple*	42	3.0	13	Intermediate	Good	M	P	P	P	P	P	P	P	N		Broken crown
942	*Acer saccharinum* *Silver Maple*	30 [25,16]	2.4	13	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
943	*Robinia pseudoacacia* *Black Locust*	31	2.4	8	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		Codominant stems, trunk split
944	*Robinia pseudoacacia* *Black Locust*	18	1.8	6	Intermediate	Good	L	P	P	P	P	P	P	P	N		
945	*Robinia pseudoacacia* *Black Locust*	32	2.4	10	Intermediate	Good	L	P	P	P	P	P	P	P	N		
946	*Robinia pseudoacacia* *Black Locust*	27	2.4	8	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
947	*Robinia pseudoacacia* *Black Locust*	20	2.4	7	Co-Dominant	Fair	L	P	P	P	P	P	P	P	N		Crown thin
949	*Robinia pseudoacacia* *Black Locust*	34	2.4	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Trunk wound moderate
950	*Robinia pseudoacacia* *Black Locust*	38	2.4	9	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
951	*Robinia pseudoacacia* *Black Locust*	37	2.4	8	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Vines
952	*Robinia pseudoacacia* *Black Locust*	20	2.4	6	Co-Dominant	Poor	L	P	P	P	P	P	P	P	N		Vines, deadwood moderate, crown thin
953	*Robinia pseudoacacia* *Black Locust*	22	2.4	5	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Vines
954	*Robinia pseudoacacia* *Black Locust*	15 [13,8]	1.8	6	Intermediate	Good	M	P	P	P	P	P	P	P	N		Vines
955	Robinia pseudoacacia Black Locust	15	1.8	4	Suppressed	Fair	M(L)	P	P	P	P	P	P	P	N		Broken crown, vines
956	*Robinia pseudoacacia* *Black Locust*	33	2.4	8	Intermediate	Good	M(L)	P	P	P	P	P	P	P	N		Vines
957	*Robinia pseudoacacia* *Black Locust*	24	2.4	1	Intermediate	Dead	L	P	R	P	P	P	P	RC	N	Condition	Vines
958	*Robinia pseudoacacia* *Black Locust*	23 [20,11]	2.4	6	Intermediate	Good	M(L)	P	P	P	P	P	P	P	N		
959	*Robinia pseudoacacia* *Black Locust*	24	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		Vines
960	*Robinia pseudoacacia* *Black Locust*	18	1.8	6	Intermediate	Good	L	P	P	P	P	P	P	P	N		
961	*Acer saccharinum* *Silver Maple*	27 [17,14,11,10]	2.4	6	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		
962	Robinia pseudoacacia Black Locust	23	2.4	6	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		
963	*Robinia pseudoacacia* *Black Locust*	29	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
964	*Robinia pseudoacacia* *Black Locust*	35	2.4	10	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
965	*Acer x Freemani* *Freeman Maple*	20 [14,14]	2.4	8	Suppressed	Good	M(L)	P	P	P	P	P	P	P	N		Codominant stems
966	*Populus deltoides* *Eastern Cottonwood*	65	4.2	12	Dominant	Good	M	P	P	P	P	P	P	P	N		
967	*Populus deltoides* *Eastern Cottonwood*	32	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
968	*Populus deltoides* *Eastern Cottonwood*	58	3.6	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
969	*Populus deltoides* *Eastern Cottonwood*	23	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
971	*Populus deltoides* *Eastern Cottonwood*	35	2.4	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
972	*Populus deltoides* *Eastern Cottonwood*	60	3.6	12	Co-Dominant	Good	M	P	P	P	P	P	P	P	N		
973	*Populus deltoides* *Eastern Cottonwood*	65	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
974	*Acer platanoides* *Norway Maple*	31 [25,18]	2.4	10	Intermediate	Good	L	P	P	P	P	P	P	P	N		Codominant stems
975	*Populus deltoides* *Eastern Cottonwood*	21	2.4	8	Co-Dominant	Fair	L	P	P	P	P	P	P	P	N		Crown thin
976	*Acer platanoides 'Crimson King'* *Crimson King Maple*	22	2.4	8	Suppressed	Good	L	P	P	P	P	P	P	P	N		
977	*Populus deltoides* *Eastern Cottonwood*	66	4.2	12	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
978	*Acer platanoides 'Crimson King'* *Crimson King Maple*	15	1.8	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
979	*Acer platanoides 'Crimson King'* *Crimson King Maple*	20	2.4	8	Intermediate	Good	L	P	P	P	P	P	P	P	N		
980	*Prunus serotina* *Black Cherry*	36 [26,20,15]	2.4	12	Intermediate	Very Poor	L	P	R	P	P	P	P	RC	N	Condition	
981	*Populus deltoides* *Eastern Cottonwood*	66	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
982	*Populus deltoides* *Eastern Cottonwood*	70	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
983	*Populus deltoides* *Eastern Cottonwood*	56	3.6	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		



No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

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190 Nicklin Road , Guelph , Ontario , N1H 7L5 . 519.822.6839 . www.aboudting.com

Title:

TREE PRESERVATION DATA

Project:

DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022 | Designer: DB
Project: AA21-085A | Drawn: JGL
Scale: N/A | Checked: JD

Drawing No:

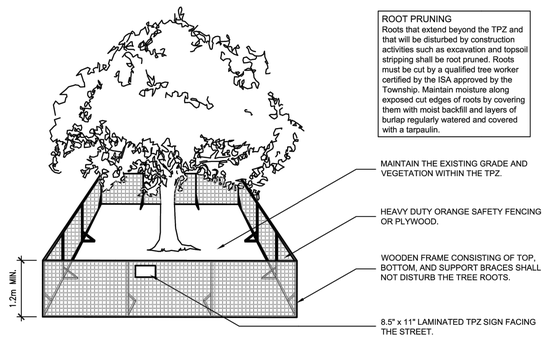
TPP5

FILE PATH: I:\ABOUDFS01\COMPANY\A A PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH\MUNI\PNL CLASS EA\DRAWING\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMBP Standard.ctb PLOTTED:3-Feb-22 4:06 PM

Tree No. (not tagged)	Tree Species	DBH (cm)	Minimum Tree Protective Zone (m, from outer edge of trunk)	Crown Diameter est. (m)	Crown Class	Condition	Constraint to Development	Ownership: Private (P), Offsite (O), Municipal (M), Shared (S)	Rec. Action - Condition: Preserve/ Remove	Rec. Action - Development (Option 1): Preserve/ Remove	Rec. Action - Development (Option 2): Preserve/ Remove	Rec. Action - Development (Option 3): Preserve/ Remove	Rec. Action - Development (Option 4): Preserve/ Remove	Final Recommendation: Preserve/ Remove	Compensation Required: Yes (Y) or No (N)	Reason for removal	Comments
984	*Populus deltoides* *Eastern Cottonwood*	65	4.2	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
985	*Populus deltoides* *Eastern Cottonwood*	63	4.2	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
986	*Populus deltoides* *Eastern Cottonwood*	60	3.6	14	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
987	*Populus deltoides* *Eastern Cottonwood*	34	2.4	10	Intermediate	Good	L	P	P	P	P	P	P	P	N		
988	*Populus deltoides* *Eastern Cottonwood*	68	4.2	14	Dominant	Good	L	P	P	P	P	P	P	P	N		
989	*Acer saccharum ssp. saccharum* *Sugar Maple*	70	4.2	10	Dominant	Good	M	M	P	P	P	P	P	P	N		Cavity
990	*Acer negundo* *Manitoba Maple*	45 [37,26,24]	3.0	12	Co-Dominant	Good	L	P	P	P	P	P	P	P	N		
991	*Acer negundo* *Manitoba Maple*	22 [20,10]	2.4	8	Suppressed	Good	L	P	P	P	P	P	P	P	N		
992	*Ulmus americana* *White Elm*	50	3.0	14	Dominant	Excellent	M	P	P	P	P	P	P	P	N		
993	*Acer saccharum ssp. saccharum* *Sugar Maple*	35	2.4	10	Intermediate	Good	M	P	P	P	P	P	P	P	N		
994	*Prunus serotina* *Black Cherry*	32	2.4	10	Intermediate	Fair	L	P	P	P	P	P	P	P	N		Crown thin
995	*Prunus serotina* *Black Cherry*	28 [23,16]	2.4	8	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		
996	*Acer negundo* *Manitoba Maple*	23 [17,16]	2.4	8	Intermediate	Fair	M(L)	P	P	P	P	P	P	P	N		Moderate lean
997	*Prunus serotina* *Black Cherry*	30	2.4	8	Co-Dominant	Good	M	O	P	P	P	P	P	P	N		
998	*Prunus serotina* *Black Cherry*	36 [25,24,11]	2.4	8	Co-Dominant	Good	M	O	P	P	P	P	P	P	N		
999	*Malus pumila* *Apple*	47 [34,33]	3.0	10	Dominant	Good	M	O	P	P	P	P	P	P	N		
1000	*Malus pumila* *Apple*	30	2.4	10	Co-Dominant	Good	M	O	P	P	P	P	P	P	N		Moderate lean

Ownership:							
	Private (On Site) Trees		112				
	Private (Off Site) Trees		15				
	Municipal Trees		5				
	Shared Trees		5				
	Total		**137**				
Recommendation Based on Condition:							
	Preserve Tree Based on Health & Structure			133			
	Remove Tree Based on Health & Structure			4			
	Total			**137**			
Recommendation Based on Development (Option 1):							
	Preserve/Transplant Tree Based on Development Impacts				133		
	Remove Tree Based on Development Impacts				4		
	Total				**137**		
Recommendation Based on Development (Option 2):							
	Preserve/Transplant Tree Based on Development Impacts					133	
	Remove Tree Based on Development Impacts					4	
	Total					**137**	
Recommendation Based on Development (Option 3):							
	Preserve/Transplant Tree Based on Development Impacts		133				
	Remove Tree Based on Development Impacts		4				
	Total		**137**				
Recommendation Based on Development (Option 4):							
	Preserve/Transplant Tree Based on Development Impacts		133				
	Remove Tree Based on Development Impacts		4				
	Total		**137**				
Final Recommendation:							
	Final Recommendation: Preserve (P)	130					
	Final Recommendation: Remove due to Condition (RC)	3					
	Final Recommendation: Remove due to Development (RD)	3					
	Final Recommendation: Remove due to Condition & Development (RCD)	1					
	Total	**137**					

		Total Compensation Trees (2:1)
Trees Requiring Compensation:		
Compensation Required: Yes (Y)	3	**6**
Compensation Required: No (N)	134	
Total	**137**	



ROOT PRUNING
Roots that extend beyond the TPZ and that will be disturbed by construction activities such as excavation and topsoil stripping shall be root pruned. Roots must be cut by a qualified tree worker certified by the ISA approved by the Township. Maintain moisture along exposed cut edges of roots by covering them with moist backfill and layers of burlap regularly watered and covered with a tarpaulin.

TREE PROTECTION BARRIER
1. Tree Protection Barriers constructed with a solid wood frame are required to define the Tree Protection Zone (TPZ).
2. No construction activity, grade changes, surface treatment or excavation of any kind is permitted within the TPZ.
3. All Tree Protection Barriers shall be in place and approved by the Township prior to construction access.
4. Tree Protection Barriers shall remain in place and in good condition until all construction is complete and approved by the Township.
5. During construction activities the TPZ will be inspected and monitored by and a certified arborist to monitor tree helath.
6. All arboriculture work such as pruning of both branches and roots, shall be done by a qualified tree worker certified by the International Society of Arboriculture (ISA) approved by the Township.
7. Sediment control fencing shall be installed as indicated in the Tree Protection Plan and approved by the Township.

MINNIMUM TPZ DISTANCE FROM THE BASE OF THE TRUNK

< 10cm DBH	1.2m
11 - 19cm DBH	1.8m
20 - 40cm DBH	2.4m
41 - 50cm DBH	3.0m
51 - 60cm DBH	3.6m
61 - 70cm DBH	4.2m
71 - 80cm DBH	4.8m
81 - 90cm DBH	5.4m
91 - 100cm DBH	6.0m
> 100cm DBH	6cm/1cm dia.

TREE PROTECTION ZONE DETAIL

Centre Wellington
1 MacDonald Square
Elora, Ontario, N0B 1S0
Phone (519) 846- 9691

DATE: December 2017
SCALE: NTS
DWG NO. F5

1 TPP6 TREE PROTECTION FENCING

Centre Wellington

Tree Protection Zone (TPZ)

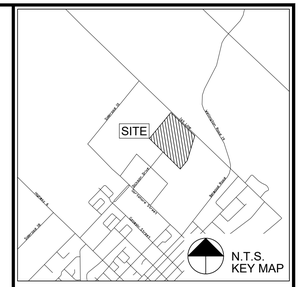
All construction related activities, including grade alteration, excavation, soil compaction, material or equipment storage, disposal of liquids and vehicular access are **PROHIBITED** within the **TPZ**.

The tree protection barrier must not be removed, moved, or altered in any way without the written authorization of the Township.

Concerns or inquiries regarding this **TPZ** can be directed to:

519-846-9691 x218

2 TPP6 TREE PROTECTION SIGNAGE



No.	Description	By	Date
1	ISSUED FOR REVIEW	JD	03 FEB-22
0	ISSUED FOR REVIEW	JD	21 SEP-21

REVISIONS: All previous issues of this drawing are superceded

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Title:
TREE PRESERVATION DETAILS

Project:
DICKSON DRIVE EXTENSION & MULTI-USE PATH
TOWNSHIP OF CENTRE WELLINGTON

Date: FEBRUARY 2022	Designer: DB
Project: AA21-085A	Drawn: JGL
Scale: N/A	Checked: JD

Drawing No:
TPP6

FILE PATH: \\ABOUDSFS01\COMPANY\A+A PROJECTS\2021\APPROVED\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH MUNICIPAL CLASS EA\DRAWINGS\21-085A DICKSON DRIVE EXTENSION & MULTI-USE PATH TPP 2022-01-31.DWG CTB: GMBP Standard.ctb PLOTTED:3-Feb-22 4:00 PM

Section 11

Traffic Impact Study

Dickson Drive Extension

Township of Centre Wellington

Traffic Impact Study

January, 2022

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus, Ontario, N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • GRAVENHURST • HARRISTON

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Appendices

Appendix A – Preliminary Site Plan
Appendix B – Level of Service Definitions
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1.0 INTRODUCTION

Triton Engineering Services Limited was retained by the Township of Centre Wellington (Township) to complete a Traffic Impact Study to support a Municipal Class Environmental Assessment (EA) for the proposed extension of Dickson Drive in Fergus. The Township owns property east of the existing limit of Dickson Drive. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive. The proposed extension will provide access to industrial, commercial, and/or institutional employment lands to allow for continued economic growth and promote a live/work opportunity within the Township. The purpose of the study is to address the impact of this road extension on the adjacent road system.

1.1 Background Documents

The following documents prepared on behalf of the Township of Centre Wellington provide background reference for this Study:

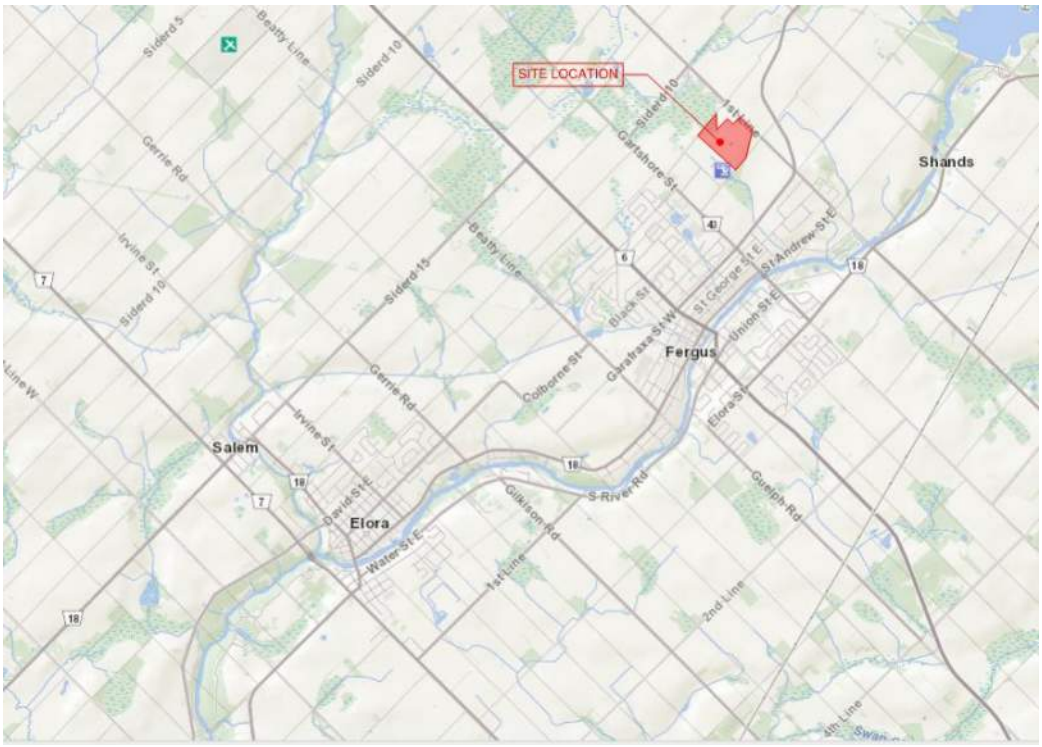
Centre Wellington Business Park Strategy Report, March 2021, McSweeney establishes the objectives and criteria for the development of the subject property as a Business Park. Proposed uses for the property are identified. The Report includes the extension of Dickson Drive to First Line.

Township of Centre Wellington Transportation Master Plan, January 2019 (TMP) addressed the existing transportation system and identified future improvements to accommodate forecast growth. The TMP contemplates the extension of Dickson Drive to First Avenue. It also identified long term transportation improvements including the identification of future roadways to improve north-south connectivity in Fergus.

2.0 EXISTING CONDITIONS

2.1 Road Network

The proposed site is located on 6518 First Line, in the Township of Centre Wellington, with a proposed connection to the east end of Dickson Drive and to First Line, approximately 850m north of the intersection with Wellington Road 19. The location of the site is shown on the Key Plan below.



Key Plan

Dickson Drive is an existing east-west industrial road under the jurisdiction of the Township of Centre Wellington. It is paved with a rural cross-section, with one travel lane in each direction, gravel shoulders and an assumed speed limit of 50km/h.

Gartshore Street at Dickson Drive is an existing north-south arterial road under the jurisdiction of the County of Wellington. It is paved with a rural cross-section, with one travel lane in each direction, gravel shoulders and a posted speed limit of 50km/h. The intersection of Gartshore Street and Dickson Drive is an unsignalized, three-leg intersection, with Dickson Drive under stop control

Gartshore Street at Garafraxa Street is a north-south arterial road under the jurisdiction of the County of Wellington. It is a paved road with one travel lane in each direction, and has an urban cross-section with concrete curb and gutter. It has a posted speed limit of 50km/h, and a separate left-turn lane at the intersection with Garafraxa Street. Garafraxa Street is an east-west arterial road under the jurisdiction of the County of Wellington. It has an urban cross-section with one lane in each direction, a posted speed limit of 40km/h, and a separate left-turn lane at the intersection with Gartshore Street. The intersection of Gartshore Street and Garafraxa Street is signalized

First Line is a north-south paved road under the jurisdiction of the Township of Centre Wellington. It has a rural cross-section with one lane in each direction and an assumed speed limit of 80km/h. Wellington Road 19 is an east-west road under the jurisdiction of

the County of Wellington. It is a paved road with a rural cross-section, with one lane in each direction, gravel shoulders, and a posted speed limit of 70km/h. The intersection of First Line and Wellington Road 19 is unsignalized, with right turn tapers on Wellington Road 19. The south approach of the intersection is named Anderson Street and is a two lane paved local street.

St. David Street (Highway 6) is a north-south arterial road under the jurisdiction of the Township of Centre Wellington. It has an urban cross-section with one lane in each direction and a two-way centre left-turn lane. St. David Street falls under the connecting link program and has a posted speed limit of 50km/h, and separate left-turn lanes at the intersection with Gordon Street. Gordon Street is an east-west collector road under the jurisdiction of the Township of Centre Wellington with one lane in each direction, a posted speed limit of 50km/h, and a separate left-turn lane at the intersection with St. David Street. The intersection of St. David Street and Gordon Street is signalized with an advanced left turn phase for southbound traffic during the AM peak and an advanced left turn for northbound traffic during the PM peak.

2.2 Adjacent Land Use

The surrounding area of the site is zoned a mixture of agricultural, conservation area, general industrial, and institutional. There are agricultural lands to the east and south, a conservation area to the north, and industrial lands to the west.

2.3 Existing Property

The existing property is an agricultural field bounded by First Line to the east, conservation area to the north, industrial properties to the west and the Elora Cataract Trailway to the south. There is a Canadian Reformed Church and two residential dwellings on the northeast corner of the property. A Heritage residential dwelling is on the existing property, with a driveway to First Line approximately 750m north of the intersection with Wellington Road 19. The building is proposed to remain, but the driveway will be removed, with a new entrance provided on the proposed Dickson Drive extension.

3.0 PROPOSED DEVELOPMENT

A preliminary road plan is enclosed in Appendix A. The proposed extension consists of a new road connection from the existing Dickson Drive to First Line, and a 220m long cul-de-sac approximately 300m west of the connection to First Line. The lot fabric and proposed land use will be determined as the property is sold to prospective developers. For the purposes of the Class EA and this study, a lot fabric has been assumed as shown on the preliminary plan and the land use is expected to be a mix of light industrial, offices, servicing, or warehousing. The total area of the site is 55.9 acres, with 42.9 acres being

available for development. The remaining area of the site includes the proposed road and a GRCA wetland on the north side of the site.

The extension is expected to be constructed in 2023.

4.0 EXISTING TRAFFIC

Weekday morning and afternoon peak period traffic counts were performed on the dates listed in Table 1 below.

Table 1: Traffic Count Dates

Intersection	Date of Traffic Count
Dickson Drive and Gartshore Street	21/09/2021
Gartshore Street and Garafraxa Street	22/09/2021
First Line and Wellington Road 19	23/09/2021
St. David Street and Gordon Street	08/12/2021

The existing AM and PM peak hours were determined for each intersection and are illustrated with the volumes on Figure 1.

Existing levels of service for each intersection were analyzed based on the *Highway Capacity Manual, 2000,* using Synchro 10 software version 10.1. Level of Service definitions are included in Appendix B. The detailed capacity analyses outputs are included in Appendix C. Table 2 outlines the existing levels of service for the intersections.

Table 2: 2021 Existing Traffic Level of Service

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
St. David Street and Gordon Street (Signalized)	EB left	C (28.9)	C (29.6)
	EB thru-right	C (28.8)	C (28.4)
	EB Overall	**C (28.8)**	**C (28.6)**
	WB left	C (32.8)	C (33.0)
	WB thru-right	C (29.8)	C (29.3)
	WB Overall	**C (30.9)**	**C (30.4)**
	NB left	A (7.3)	A (6.9)
	NB thru-right	B (11.7)	B (14.5)
	NB Overall	**B (11.4)**	**B (13.4)**
	SB left	A (4.7)	A (6.3)
	SB thru-right	A (7.6)	B (10.2)
	SB Overall	**A (6.4)**	**A (8.8)**
Dickson Drive and Gartshore Street (Unsignalized)	WB left-right	B (12.8)	B (12.5)
	NB thru-right	A (0.0)	A (0.0)
	SB left-thru	A (1.6)	A (0.5)

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
Gartshore Street and Garafraxa Street (Signalized)	EB left	B (16.3)	B (16.8)
	EB thru-right	B (18.1)	B (19.7)
	EB Overall	**B (18.0)**	**B (19.4)**
	WB left	C (21.1)	B (18.8)
	WB thru-right	B (19.8)	B (18.5)
	WB Overall	**C (20.3)**	**B (18.6)**
	NB left	A (7.3)	A (6.7)
	NB thru-right	A (7.8)	A (7.6)
	NB Overall	**A (7.6)**	**A (7.4)**
	SB left	A (6.8)	A (6.4)
	SB thru-right	A (7.5)	A (8.7)
	SB Overall	**A (7.4)**	**A (8.4)**
First Line and Wellington Road 19 (Unsignalized)	EB left-thru-right	A (1.1)	A (0.4)
	WB left-thru-right	A (0.7)	A (0.9)
	NB left-thru-right	B (10.8)	B (11.4)
	SB left-thru-right	B (11.2)	B (11.9)

All intersections are operating at good to acceptable levels of service during the Weekday AM and PM peak hours.

5.0 EXISTING TRAFFIC AFTER DICKSON DRIVE EXTENSION COMPLETED

The existing traffic volumes were re-distributed based on the completion of the Dickson Drive extension to First Line. For the purposes of this analysis, it was assumed that 15% of the traffic entering/exiting the existing industrial lands on Dickson Drive would be coming from/traveling to the east via Wellington Road 19. Once Dickson Drive is extended to First Line, it was assumed that this 15% of traffic would be entering/existing the industrial lands via First Line as shown on Figure 2.

Levels of service were calculated for the Weekday AM and PM peaks at the intersections, including the proposed intersection of Dickson Drive and First Line, and are summarized in Table 3. The detailed capacity analyses outputs are included in Appendix C.

Table 3: Existing Levels of Service After Dickson Drive Constructed

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
St. David Street and Gordon Street (Signalized)	EB left	C (28.9)	C (29.6)
	EB thru-right	C (28.8)	C (28.4)
	EB Overall	**C (28.8)**	**C (28.6)**
	WB left	C (32.8)	C (33.0)
	WB thru-right	C (29.8)	C (29.3)
	WB Overall	**C (30.9)**	**C (30.4)**
	NB left	A (7.3)	A (6.9)
	NB thru-right	B (11.7)	B (14.5)
	NB Overall	**B (11.4)**	**B (13.4)**
	SB left	A (4.7)	A (6.3)
	SB thru-right	A (7.6)	B (10.2)
	SB Overall	**A (6.4)**	**A (8.8)**
Dickson Drive and Gartshore Street (Unsignalized)	WB left-right	B (12.5)	B (12.2)
	NB thru-right	A (0.0)	A (0.0)
	SB left-thru	A (1.6)	A (0.5)
Gartshore Street and Garafraxa Street (Signalized)	EB left	B (16.3)	B (16.8)
	EB thru-right	B (18.1)	B (19.7)
	EB Overall	**B (18.0)**	**B (19.4)**
	WB left	C (21.1)	B (18.8)
	WB thru-right	B (19.8)	B (18.5)
	WB Overall	**C (20.3)**	**B (18.6)**
	NB left	A (7.3)	A (6.7)
	NB thru-right	A (7.8)	A (7.6)
	NB Overall	**A (7.6)**	**A (7.4)**
	SB left	A (6.8)	A (6.4)
	SB thru-right	A (7.5)	A (8.7)
	SB Overall	**A (7.4)**	**A (8.4)**
First Line and Wellington Road 19 (Unsignalized)	EB left-thru-right	A (1.1)	A (0.4)
	WB left-thru-right	A (0.7)	A (0.9)
	NB left-thru-right	B (10.8)	B (11.4)
	SB left-thru-right	B (12.0)	B (13.2)
Dickson Drive and First Line (Unsignalized)	EB left-right	A (8.4)	A (8.4)
	NB thru-right	A (1.2)	A (1.4)
	SB left-thru	A (0.0)	A (0.0)

After the extension is constructed to First Line, the existing intersections will continue to operate at good to acceptable levels of service, with negligible difference in delays due to the traffic re-distribution. The proposed intersection of Dickson Drive and First Line will operate at a very good level of service during the weekday AM and PM peak hours. The surrounding road network can fully accommodate the extension of Dickson Drive to First Line.

6.0 FUTURE BACKGROUND TRAFFIC

For the purpose of this study, the current year, a 5-year horizon, and a 10-year horizon were used. A conservative annual growth rate of 2% was applied to the existing traffic volumes to establish the background 2026 and 2031 traffic for this study, illustrated in Figures 3 and 4 respectively. The area surrounding the development is expected to remain relatively stable over the next few years.

Levels of service were calculated for the Weekday AM and PM peaks at the intersections using the background traffic volumes and are summarized in Table 4 and

Table 5. The detailed capacity analyses outputs are included in Appendix C.

Table 4: 2026 Background Traffic Levels of Service

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
St. David Street and Gordon Street (Signalized)	EB left	C (29.1)	C (30.1)
	EB thru-right	C (28.8)	C (28.4)
	EB Overall	**C (28.9)**	**C (28.7)**
	WB left	C (33.5)	C (34.1)
	WB thru-right	C (29.9)	C (29.4)
	WB Overall	**C (31.2)**	**C (30.8)**
	NB left	A (7.7)	A (7.2)
	NB thru-right	B (12.8)	B (16.6)
	NB Overall	**B (12.5)**	**B (15.1)**
	SB left	A (5.1)	A (7.5)
	SB thru-right	A (8.0)	B (11.1)
	SB Overall	**A (6.9)**	**A (9.8)**
Dickson Drive and Gartshore Street (Unsignalized)	WB left-right	B (13.2)	B (12.9)
	NB thru-right	A (0.0)	A (0.0)
	SB left-thru	A (1.6)	A (0.5)
Gartshore Street and Garafraxa Street (Signalized)	EB left	B (16.1)	B (16.7)
	EB thru-right	B (18.2)	B (20.0)
	EB Overall	**B (18.1)**	**B (19.6)**
	WB left	C (22.7)	B (19.0)
	WB thru-right	B (20.0)	B (18.7)
	WB Overall	**C (20.9)**	**B (18.8)**
	NB left	A (8.0)	A (7.4)
	NB thru-right	A (8.6)	A (8.2)
	NB Overall	**A (8.4)**	**A (8.0)**
	SB left	A (7.4)	A (6.8)
	SB thru-right	A (8.3)	A (10.0)
	SB Overall	**A (8.1)**	**A (9.6)**

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
First Line and Wellington Road 19 (Unsignalized)	EB left-thru-right	A (1.2)	A (0.4)
	WB left-thru-right	A (0.8)	A (0.9)
	NB left-thru-right	B (11.3)	B (12.1)
	SB left-thru-right	B (13.2)	B (14.6)
Dickson Drive and First Line (Unsignalized)	EB left-right	A (8.4)	A (8.4)
	NB thru-right	A (1.2)	A (1.4)
	SB left-thru	A (0.0)	A (0.0)

Table 5: 2031 Background Traffic Levels of Service

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
St. David Street and Gordon Street (Signalized)	EB left	C (28.7)	C (30.6)
	EB thru-right	C (28.4)	C (28.6)
	EB Overall	**C (28.5)**	**C (28.9)**
	WB left	C (34.5)	D (35.4)
	WB thru-right	C (29.6)	C (30.3)
	WB Overall	**C (31.3)**	**C (31.5)**
	NB left	A (7.6)	A (7.9)
	NB thru-right	B (14.3)	B (19.8)
	NB Overall	**B (13.8)**	**B (18.0)**
	SB left	A (5.9)	B (10.3)
	SB thru-right	A (9.3)	B (12.3)
	SB Overall	**A (7.9)**	**B (11.6)**
Dickson Drive and Gartshore Street (Unsignalized)	WB left-right	B (14.1)	B (13.9)
	NB thru-right	A (0.0)	A (0.0)
	SB left-thru	A (1.7)	A (0.6)
Gartshore Street and Garafraxa Street (Signalized)	EB left	B (16.0)	B (16.6)
	EB thru-right	B (18.6)	C (20.3)
	EB Overall	**B (18.4)**	**B (19.9)**
	WB left	C (26.3)	B (19.6)
	WB thru-right	C (20.4)	B (18.9)
	WB Overall	**C (22.4)**	**B (19.1)**
	NB left	A (8.8)	A (8.5)
	NB thru-right	A (9.4)	A (8.9)
	NB Overall	**A (9.2)**	**A (8.8)**
	SB left	A (8.1)	A (7.4)
	SB thru-right	A (9.0)	B (11.8)
	SB Overall	**A (8.8)**	**B (11.2)**
First Line and Wellington Road 19	EB left-thru-right	A (1.2)	A (0.5)
	WB left-thru-right	A (0.8)	A (1.0)

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
(Unsignalized)	NB left-thru-right SB left-thru-right	B (11.8) B (13.9)	B (12.9) C (15.9)
Dickson Drive and First Line (Unsignalized)	EB left-right NB thru-right SB left-thru	A (8.4) A (1.5) A (0.0)	A (8.5) A (1.3) A (0.0)

The intersections will continue to operate at good to acceptable levels of service during the 2026 and 2031 AM and PM peak hours.

7.0 SITE GENERATED TRAFFIC

6.1 General

As identified in the *Centre Wellington Business Park Strategy* Report prepared by McSweeney, target uses include light industrial, office uses, research and development, training centres, contractors and trades. The uses are not intended to cater to the general public, or include large scale industrial facilities.

At this time, the usage and timing of each site development is not known. Estimates of future traffic will be based on anticipated usage. As the individual lots are identified and sold, the purchasers will be required to provide a traffic impact study based on the proposed usage. The level of study required will be based on the proposed usage.

To make a preliminary estimate of future traffic, trip generation was forecast for future developments using the *Institute of Transportation Engineers (ITE) Trip Generation Manual,* which provides trip generation rates for various uses from studies of similar developments, and was used in this analysis. For the purpose of this study, it is assumed that all trips generated by the development are primary trips, providing a conservative approach.

6.2 Trip Generation

The lot layout for the development site is unknown at this time but is expected to provide a variety of uses as described in the Land Feasibility Study, March 2021 completed by McSweeney for the Township. The Business Park ITE Code 770 provides trip generation for a site that contains a variety of business uses, including office spaces, studios, contractors and trades, research and development facility, etc., and was considered to be the most appropriate data source for the proposed usage.

Based on the preliminary site lot fabric and an assumed average building size of 15,000 ft^2, the total site gross floor area was used to calculate the total trips generated by the site during the AM and PM peak hour and is illustrated in Table 6. As noted previously, the lot fabric is preliminary only. If larger buildings are proposed, it is anticipated that larger lots

would be created to accommodate them, which would decrease the total number of lots. The estimated total gross floor area of 360,000 ft^2 provides a reasonable estimate of the total building coverage anticipated for the property.

Table 6: Trip Generation

Land Use	Total Site Gross Floor Area	Trips Generated per Unit					
		Weekday AM			Weekday PM		
		Total	Entering	Exiting	Total	Entering	Exiting
Business Park	360,000 ft²	457	389	68	451	118	333

The trips generated by the development were distributed and assigned to the road network based on local traffic patterns, as well as expected origin and destination, as shown in Table 7 below. The site generated distributions and traffic volumes are also illustrated on Figures 5 and 6.

Table 7: Site Generated Trip Distribution

Direction	Route	Distribution
South	Gartshore Street	20%
West	Gartshore Street and Garafraxa Street	25%
West	First Line and Garafraxa Street	10%
North	Gartshore Street and Gordon/St. David Street	30%
East	First Line and Wellington Road 18	15%
Total		**100%**

8.0 FUTURE TRAFFIC

The total site generated traffic was added to the 2026 and 2031 background traffic volumes at each of the analyzed intersections to determine the total 2026 and 2031 future peak hour traffic, as illustrated in Figures 7 and 8 respectively.

8.1 Site Generated Traffic Impact Analysis

A level of service analysis was carried out to determine the impact of the trips generated by the development on the intersections during the Weekday AM and PM peak hours. The detailed capacity analyses are included in Appendix C. Table 8 and Table 9 summarize the future levels of service in 2026 and 2031 respectively.

Table 8: 2026 Future Traffic Levels of Service

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
St. David Street and Gordon Street (Signalized)	EB left	C (30.1)	C (30.4)
	EB thru-right	C (29.6)	C (28.7)
	EB Overall	**C (29.8)**	**C (29.0)**
	WB left	C (34.7)	C (34.7)
	WB thru-right	C (30.9)	C (30.3)
	WB Overall	**C (32.1)**	**C (31.3)**
	NB left	A (8.2)	A (7.5)
	NB thru-right	B (13.7)	B (17.0)
	NB Overall	**B (13.3)**	**B (15.5)**
	SB left	A (7.3)	A (8.3)
	SB thru-right	A (7.9)	B (11.0)
	SB Overall	**A (7.6)**	**A (9.9)**
Dickson Drive and Gartshore Street (Unsignalized)	WB left-right	E (35.4)	F (98.6)
	NB thru-right	A (0.0)	A (0.0)
	SB left-thru	A (5.9)	A (3.3)
Gartshore Street and Garafraxa Street (Signalized)	EB left	C (22.4)	B (18.2)
	EB thru-right	C (20.6)	C (20.1)
	EB Overall	**C (21.2)**	**B (19.7)**
	WB left	C (26.6)	B (19.0)
	WB thru-right	B (19.8)	B (19.6)
	WB Overall	**C (22.1)**	**B (19.4)**
	NB left	A (8.5)	C (21.3)
	NB thru-right	A (9.9)	A (8.7)
	NB Overall	**A (9.6)**	**B (10.7)**
	SB left	A (8.1)	A (7.1)
	SB thru-right	A (9.0)	C (34.6)
	SB Overall	**A (8.8)**	**C (32.3)**
First Line and Wellington Road 19 (Unsignalized)	EB left-thru-right	A (3.7)	A (1.0)
	WB left-thru-right	A (0.6)	A (0.8)
	NB left-thru-right	B (13.4)	B (12.9)
	SB left-thru-right	C (17.7)	D (28.3)
Dickson Drive and First Line (Unsignalized)	EB left-right	A (8.5)	A (8.8)
	NB thru-right	A (6.1)	A (5.4)
	SB left-thru	A (0.0)	A (0.0)

Table 9: 2031 Future Traffic Levels of Service

Intersection	Movement	Level of Service (Delay, s)	
		Weekday AM	Weekday PM
St. David Street and Gordon Street (Signalized)	EB left	C (29.6)	C (31.1)
	EB thru-right	C (29.1)	C (29.0)
	EB Overall	**C (29.3)**	**C (29.4)**
	WB left	D (35.5)	D (36.3)
	WB thru-right	C (30.5)	C (30.8)
	WB Overall	**C (32.1)**	**C (32.1)**
	NB left	A (8.2)	A (8.2)
	NB thru-right	B (15.3)	B (20.6)
	NB Overall	**B (14.8)**	**B (18.7)**
	SB left	B (10.6)	B (12.6)
	SB thru-right	A (9.1)	B (12.1)
	SB Overall	**A (9.9)**	**B (12.3)**
Dickson Drive and Gartshore Street (Unsignalized)	WB left-right	E (43.5)	F (143.9)
	NB thru-right	A (0.0)	A (0.0)
	SB left-thru	A (5.9)	A (3.3)
Gartshore Street and Garafraxa Street (Signalized)	EB left	C (23.5)	B (18.5)
	EB thru-right	C (21.1)	C (20.1)
	EB Overall	**C (21.9)**	**B (19.7)**
	WB left	C (34.2)	B (19.2)
	WB thru-right	C (20.3)	C (20.6)
	WB Overall	**C (25.0)**	**C (20.2)**
	NB left	A (9.4)	C (32.7)
	NB thru-right	B (11.1)	A (9.9)
	NB Overall	**B (10.7)**	**B (13.5)**
	SB left	A (8.9)	A (8.0)
	SB thru-right	A (9.7)	E (60.9)
	SB Overall	**A (9.6)**	**E (56.4)**
First Line and Wellington Road 19 (Unsignalized)	EB left-thru-right	A (3.7)	A (1.0)
	WB left-thru-right	A (0.6)	A (0.8)
	NB left-thru-right	B (14.0)	B (13.8)
	SB left-thru-right	C (19.3)	E (36.2)
Dickson Drive and First Line (Unsignalized)	EB left-right	A (8.5)	A (8.8)
	NB thru-right	A (6.0)	A (5.3)
	SB left-thru	A (0.0)	A (0.0)

The levels of service for the unsignalized intersection of Dickson Drive and Gartshore Street decline to an unacceptable level for the westbound movement during the 2026 horizon year, with a volume/capacity ratio of 98.6, indicating that capacity will have been reached. To alleviate delays at this intersection, it was analyzed as a signalized

intersection with a separate southbound left turn lane during the 2031 horizon year and the levels of service are shown in the table below.

Table 10: Dickson Drive and Gartshore Street Level of Service for Signalization

Intersection	Movement	Level of Service (Delay, s)	
		AM	PM
Dickson Drive and Gartshore Street (Signalized)	WB left-right	D (37.3)	B (19.0)
	NB thru-right	A (7.9)	B (11.2)
	SB left	A (9.6)	A (9.1)
	SB thru-right	A (5.9)	A (8.4)
	SB Overall	**A (7.7)**	**A (8.5)**

Upgrading the intersection with signals will improve the levels of service to acceptable levels. Since the final development land use and lot fabric is not known and could vary, it is recommended to monitor traffic operations at this intersection and require developers on the site to submit a Traffic Impact Study with updated traffic counts at this intersection to determine the need and timing for traffic signals at this intersection.

The other studied intersections will continue to operate at a good to acceptable level of service during the AM and PM peak hours with very minor increases in delay times with the following exceptions:

- Gartshore and Garafraxa SB thru-right movement declines from LOS B (11.8) to LOS E (60.9) during the 2031 PM Peak;
- First Line and WR 19 SB left-thru-right movement declines from LOS C (15.9) to LOS E (36.2) during the 2031 PM Peak.

While these declines in LOS will be noticeable over time, LOS E is considered to be an acceptable condition during peak traffic operations, and the V/C ratios indicate that there will still be sufficient reserve capacity for these movements.

8.2 Left Turn Lane Warrant Analysis

A left turn lane warrant analysis was undertaken for the unsignalized intersection of Dickson Drive and First Line based on the MTO's Geometric Design Standards. The results of the analysis are in Table 11 below for the horizon years 2026 and 2031.

Table 11: Left Turn Lane Warrant Analysis based on 2026 Horizon Year

Intersection	Design Speed (km/h)	Peak Hour Period	Percentage of left turns	Volume of approaching traffic	Volume of opposing traffic	Warranted?
Future Horizon Year 2026						
Dickson Drive and First Line	80	AM	81%	126	13	No
		PM	73%	45	22	No
Future Horizon Year 2031						
Dickson Drive and First Line	80	AM	80%	129	14	No
		PM	72%	46	24	No

A left turn lane will not be warranted at the intersection of Dickson Drive and First Line due to the low volumes of opposing traffic.

8.3 Sight Distance Analysis

Minimum stopping sight distances for various road grades and design speeds are provided in Table 2.5.3 in the TAC *Geometric Design Guide for Canadian Roads.* It was assumed the speed limit of First Line is 80km/h. The approximate sight distances at the proposed intersection are compared to the minimum provided by TAC in Table 12 below.

Table 12: Proposed Intersection Sight Distance Comparison

Direction	Grade	Minimum Stopping Sight Distance (m)	Approximate Sight Distance at Entrance (m)
South	Level	130	850
North	Level	130	150

The sightlines in both directions at the proposed entrance location are greater than the minimum required.

8.4 Integration with the Township of Centre Wellington Transportation Master Plan

The Township's Transportation Master Study identifies road network improvements for short, medium, and long term time frames. Included in the long term period is an extension of Gartshore Street northerly to Sideroad 15, and improvements to SR 15 to Highway 6. This would provide a northerly connection from Highway 6 to the industrial area that would divert traffic from Gordon Street. The long term time frame is identified as 2041 (20 year horizon). As this time period is beyond the maximum horizon period for this study (2031), this connection was not considered in the analysis. In the long term, this connection would improve access to Dickson Drive from the north. As traffic volumes are monitored, the need and timing of these long term improvements can be reviewed and updated as required.

9.0 CONCLUSIONS AND RECOMMENDATIONS

- The existing road network can accommodate the proposed extension of Dickson Drive to First Line;
- As the Business Park develops, improvements will be required at the intersection of Gartshore Street and Dickson Drive, including traffic signals and a SB left turn lane. The timing of these improvements will depend on the actual development of the business park properties;
- Since details on the number of developments and their land uses are not known at this time, it is recommended to have the developments submit updated studies and traffic counts to confirm the need and timing of improvements;
- The sightlines at the proposed intersection of First Line and Dickson Drive are acceptable.

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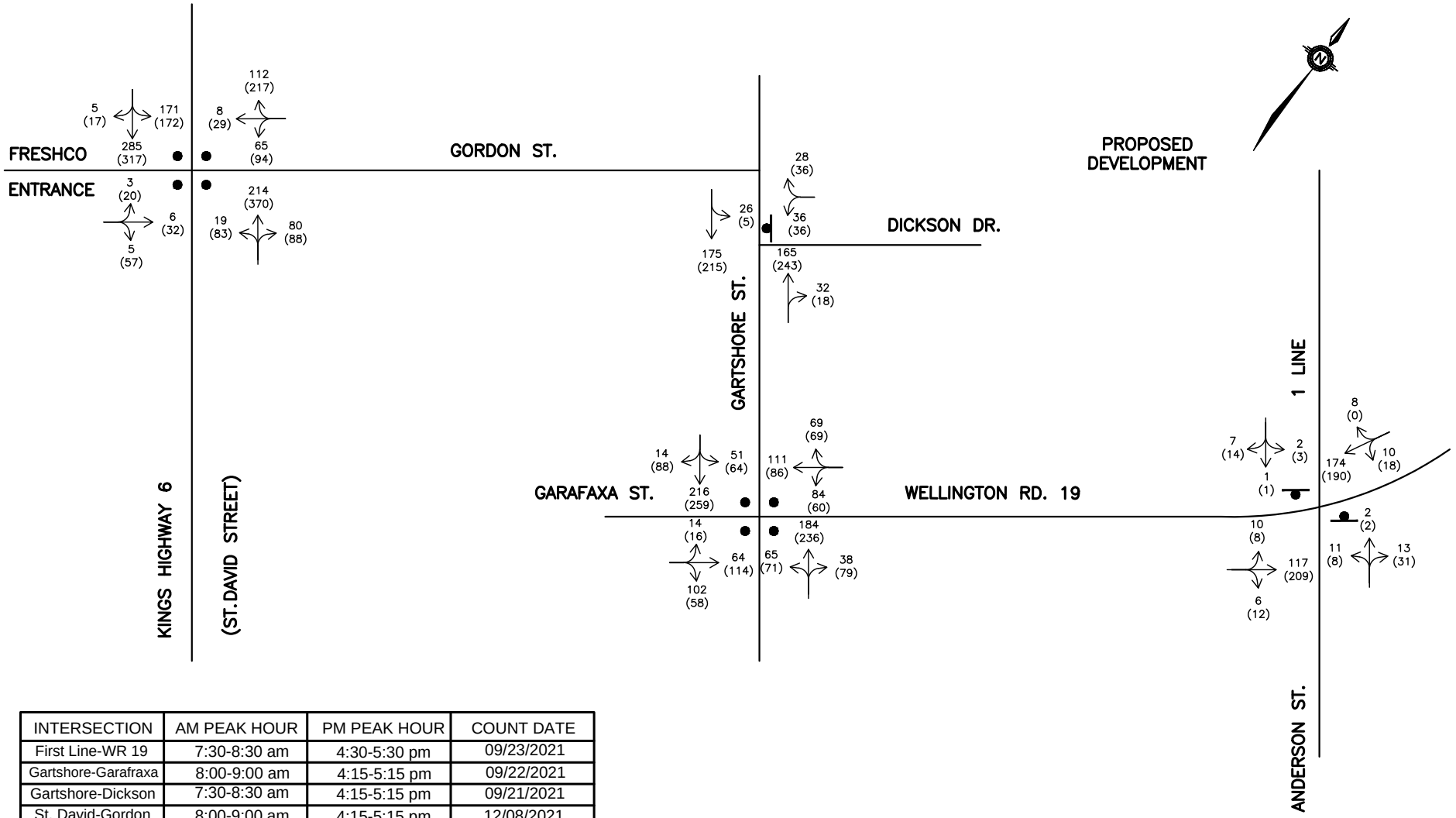


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FIGURES



INTERSECTION	AM PEAK HOUR	PM PEAK HOUR	COUNT DATE
First Line-WR 19	7:30-8:30 am	4:30-5:30 pm	09/23/2021
Gartshore-Garafraxa	8:00-9:00 am	4:15-5:15 pm	09/22/2021
Gartshore-Dickson	7:30-8:30 am	4:15-5:15 pm	09/21/2021
St. David-Gordon	8:00-9:00 am	4:15-5:15 pm	12/08/2021

(NOT TO SCALE)

LEGEND:

STOP CONTROL

25 (25) AM PEAK HOUR PM PEAK HOUR TRAFFIC VOLUMES

EXISTING ROAD

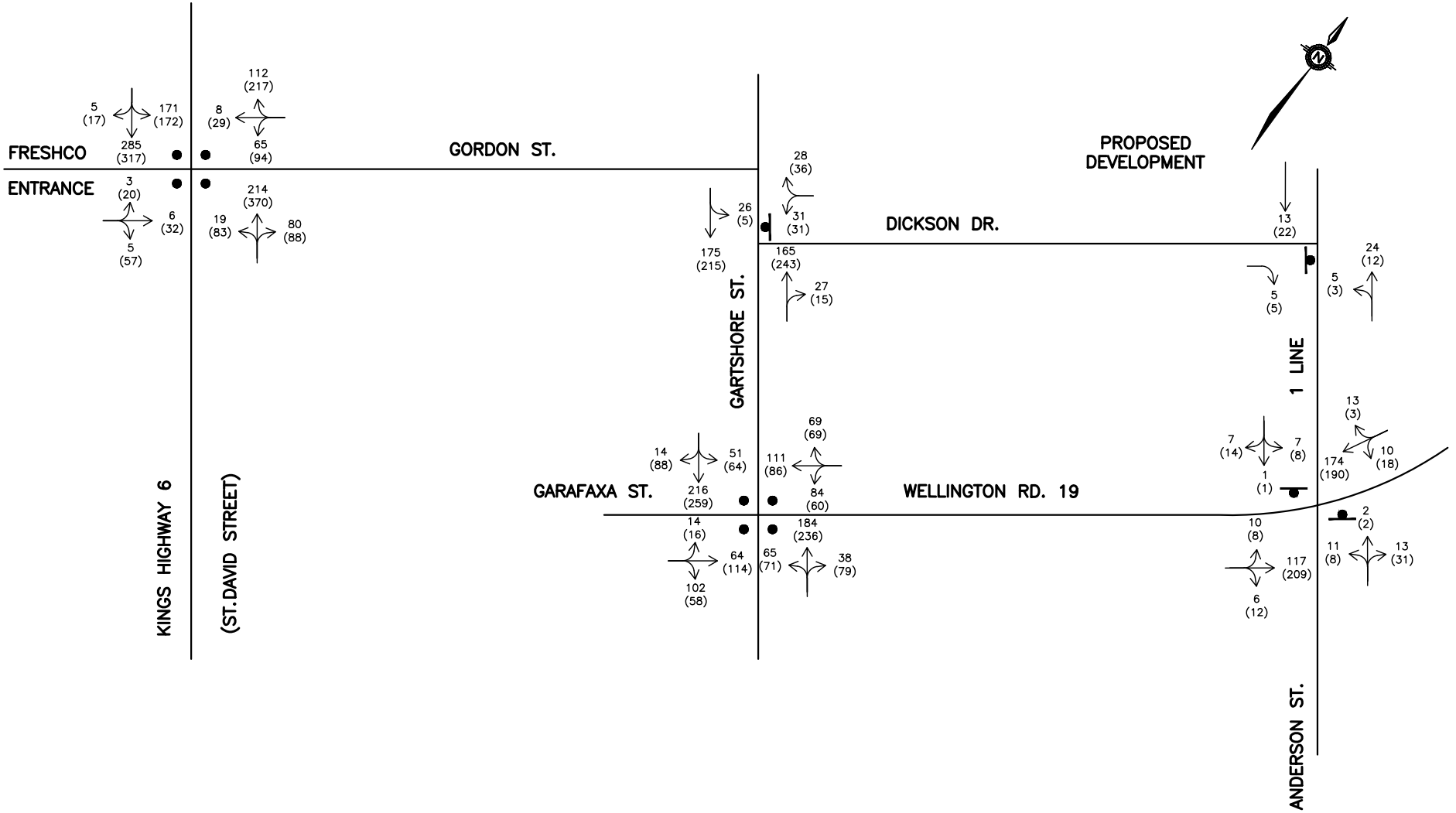
TRAFFIC FLOW

TRAFFIC SIGNALS

PROPOSED ENTRANCE

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FIGURE 1:
2021 EXISTING PEAK HOUR TRAFFIC



(NOT TO SCALE)

LEGEND:

STOP CONTROL

25 (25) AM PEAK HOUR / PM PEAK HOUR TRAFFIC VOLUMES

EXISTING ROAD

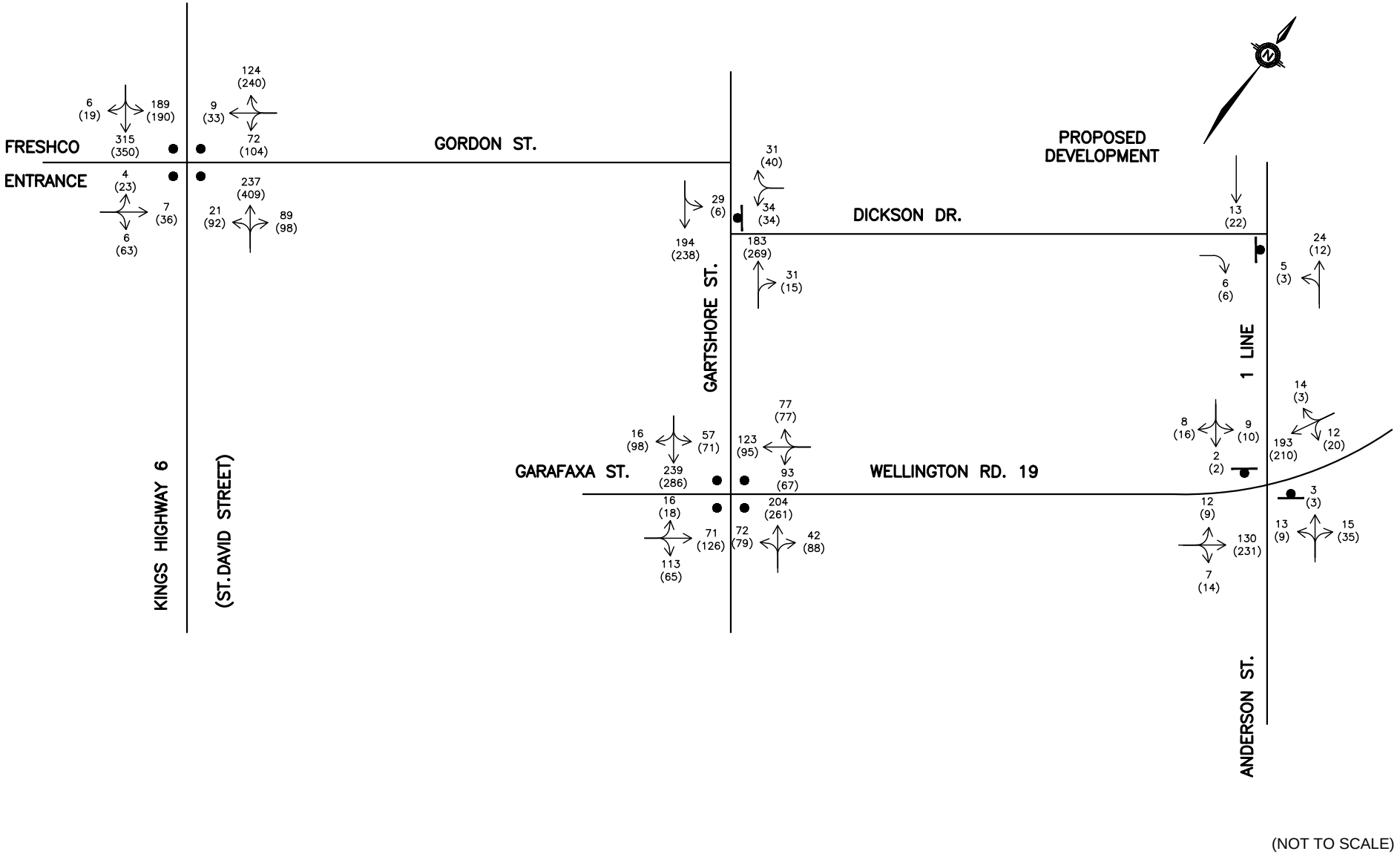
TRAFFIC FLOW

TRAFFIC SIGNALS

PROPOSED ENTRANCE

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FIGURE 2:
EXISTING PEAK HOUR TRAFFIC AFTER EXTENSION COMPLETED



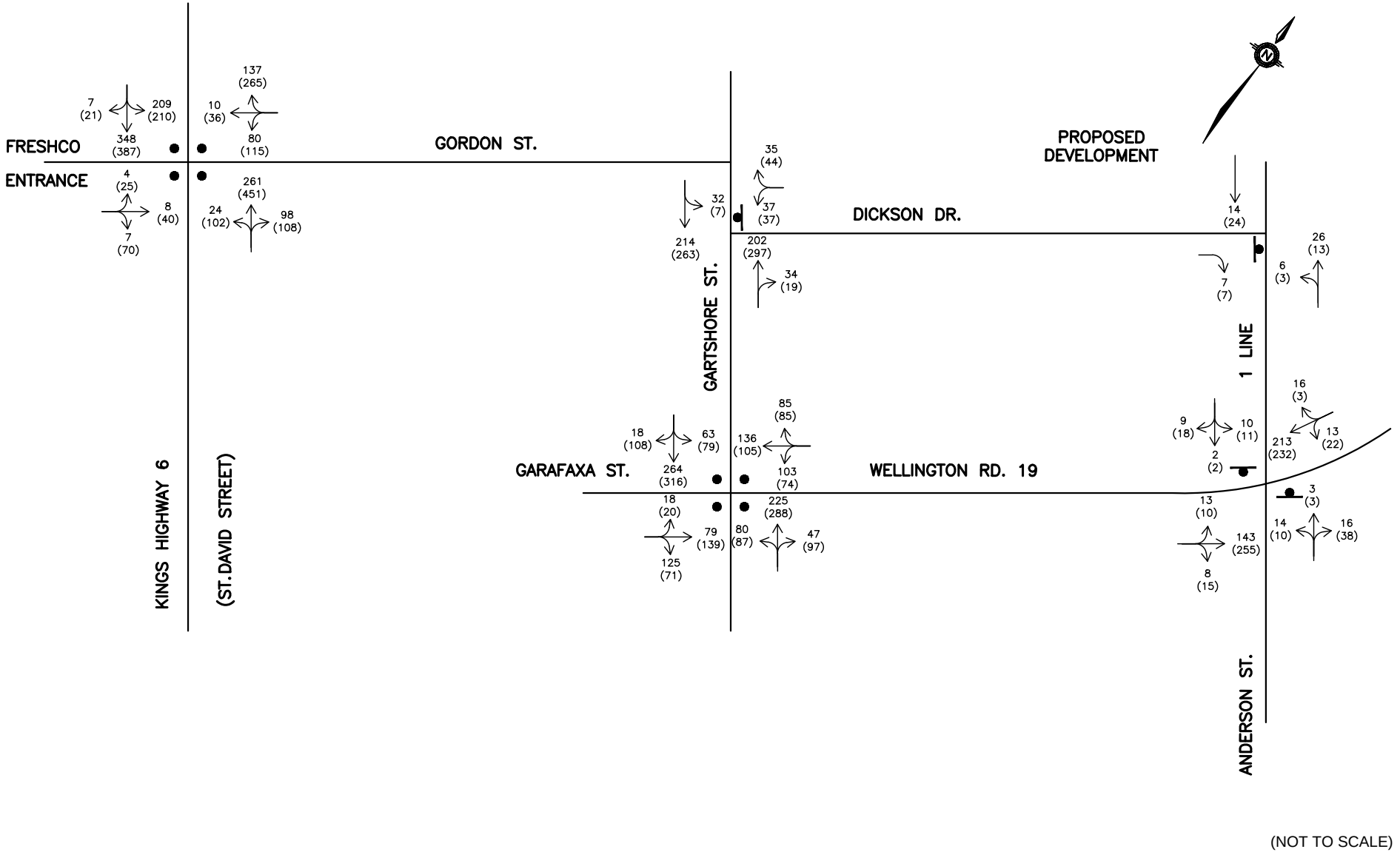
(NOT TO SCALE)

LEGEND:

STOP CONTROL	25 (25)	AM PEAK HOUR PM PEAK HOUR	TRAFFIC VOLUMES	EXISTING ROAD	
TRAFFIC FLOW		TRAFFIC SIGNALS		PROPOSED ENTRANCE	

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FIGURE 3:
2026 BACKGROUND PEAK HOUR TRAFFIC



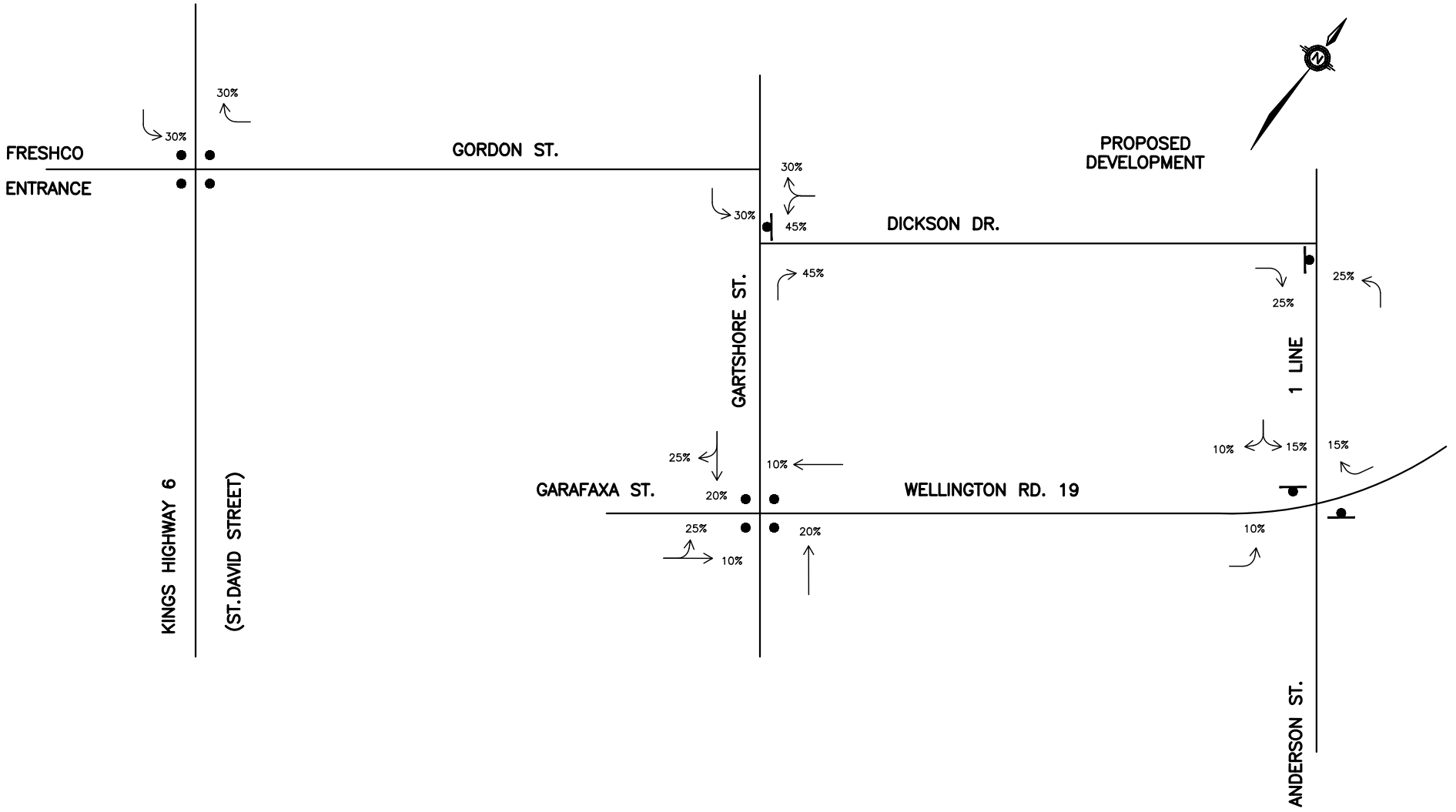
(NOT TO SCALE)

LEGEND:

STOP CONTROL	25 (25)	AM PEAK HOUR PM PEAK HOUR	TRAFFIC VOLUMES	EXISTING ROAD	
TRAFFIC FLOW		TRAFFIC SIGNALS		PROPOSED ENTRANCE	

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FIGURE 4:
2031 BACKGROUND PEAK HOUR TRAFFIC



LEGEND:

STOP CONTROL

25 AM PEAK HOUR
(25) PM PEAK HOUR
TRAFFIC VOLUMES

EXISTING ROAD

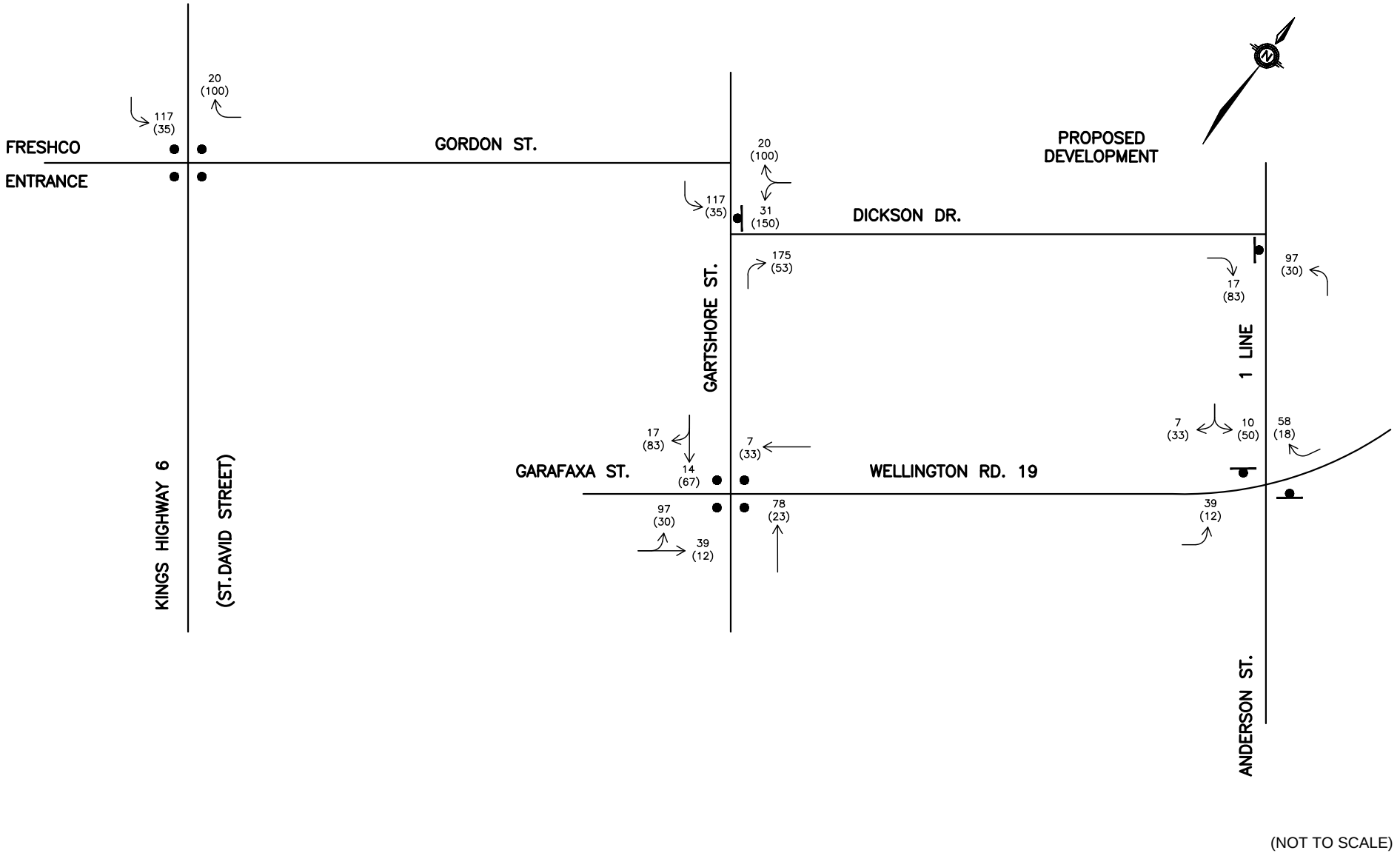
TRAFFIC FLOW

TRAFFIC SIGNALS

PROPOSED ENTRANCE

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FIGURE 5:
SITE GENERATED TRAFFIC DISTRIBUTION

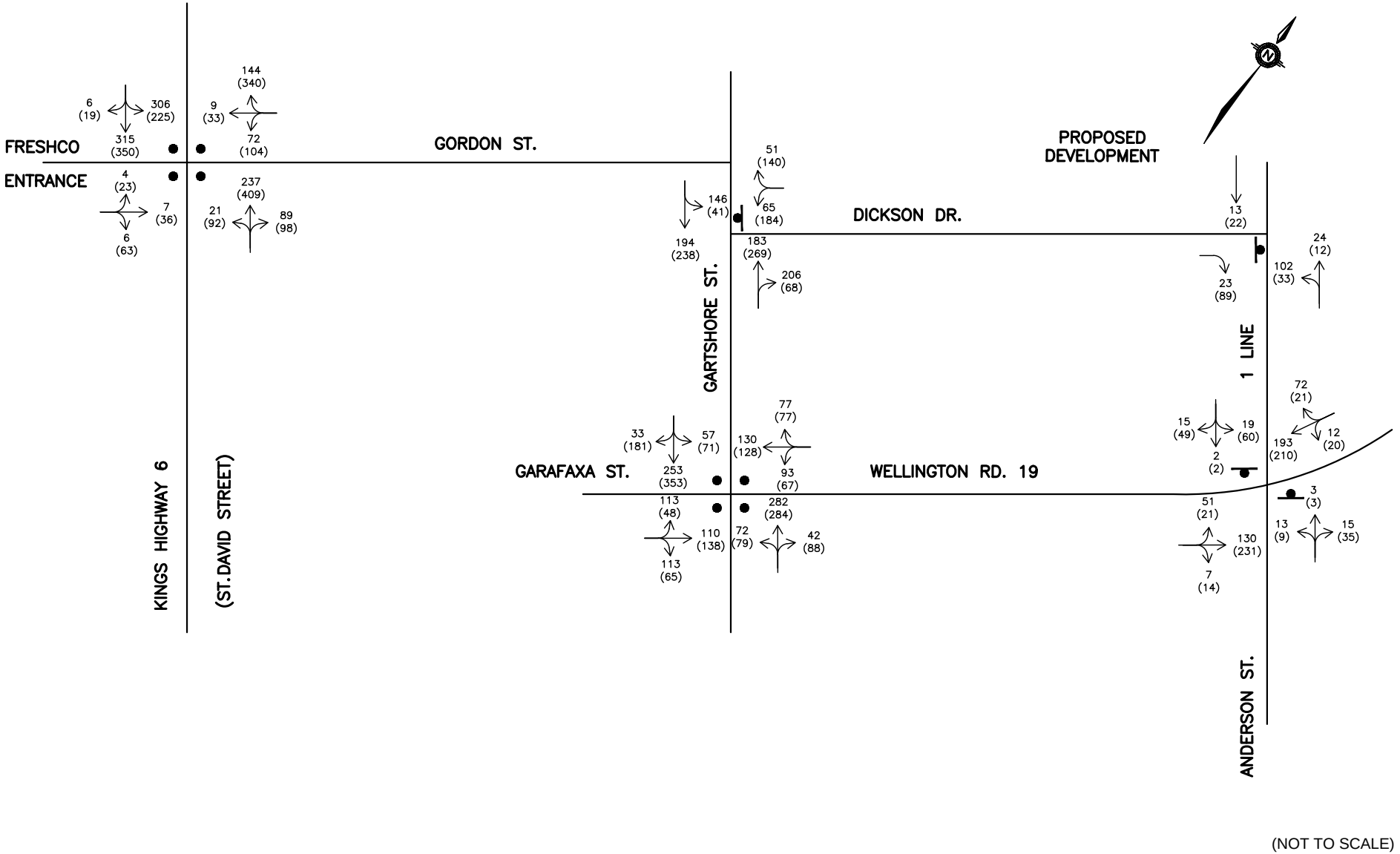


LEGEND:

STOP CONTROL	25 (25)	AM PEAK HOUR PM PEAK HOUR	TRAFFIC VOLUMES	EXISTING ROAD	
TRAFFIC FLOW		TRAFFIC SIGNALS		PROPOSED ENTRANCE	

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FIGURE 6:
SITE GENERATED TRAFFIC



(NOT TO SCALE)

LEGEND:

STOP CONTROL

25 (25) AM PEAK HOUR / PM PEAK HOUR TRAFFIC VOLUMES

EXISTING ROAD

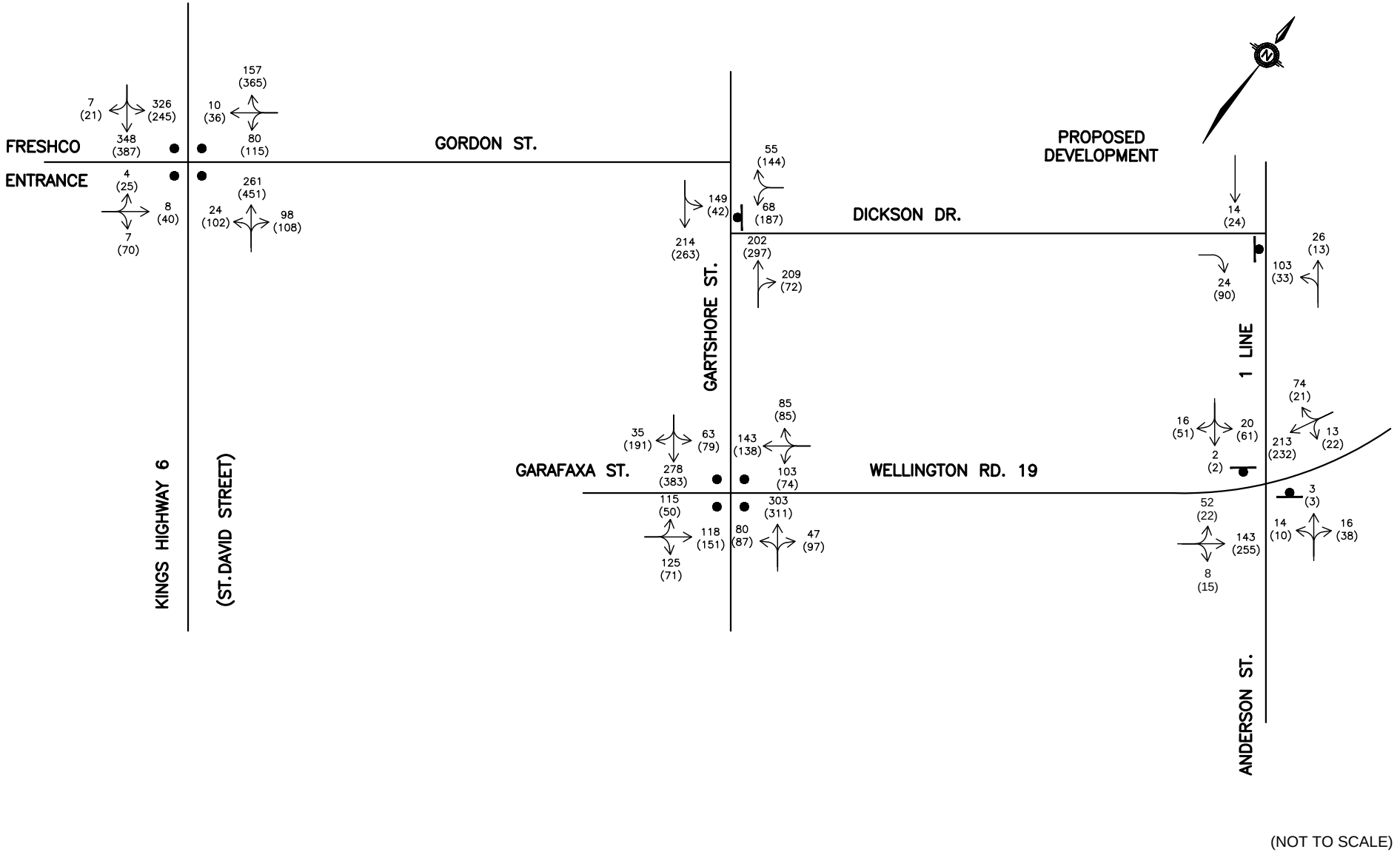
TRAFFIC FLOW

TRAFFIC SIGNALS

PROPOSED ENTRANCE

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FIGURE 7:
2026 FUTURE PEAK HOUR TRAFFIC



(NOT TO SCALE)

LEGEND:

STOP CONTROL	25 (25)	AM PEAK HOUR PM PEAK HOUR	TRAFFIC VOLUMES	EXISTING ROAD	
TRAFFIC FLOW		TRAFFIC SIGNALS		PROPOSED ENTRANCE	

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FIGURE 8:
2031 FUTURE PEAK HOUR TRAFFIC

APPENDIX A

PRELIMINARY SITE PLAN

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE

Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	Impact on Minor Street Traffic
A	≤ 10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	> 20 – 35	Stable Flow (acceptable delays)
D	> 35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	> 55 – 80	Unstable Flow (intolerable delay)
F	> 80	Forced Flow (jammed)

Source: Highway Capacity Manual, 2000.

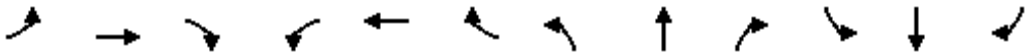
Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)	Impact on Minor Street Traffic
A	≤ 10	Little or no delay
B	>10-15	Short traffic delays
C	> 15-25	Average traffic delays
D	> 25-35	Long traffic delays
E	> 35-50	Very long traffic delays
F	> 50	Unacceptable traffic delays

Source: Transportation Research Board, 2000.

APPENDIX C

LEVEL OF SERVICE OUTPUTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	6	5	65	8	112	19	214	80	171	285	5
Future Volume (vph)	3	6	5	65	8	112	19	214	80	171	285	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.86		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1758		1703	1446		1719	1668		1719	1884	
Flt Permitted	0.60	1.00		0.75	1.00		0.56	1.00		0.46	1.00	
Satd. Flow (perm)	1147	1758		1339	1446		1010	1668		833	1884	
Peak-hour factor, PHF	0.38	0.75	0.63	0.71	0.50	0.74	0.68	0.81	0.69	0.74	0.88	0.42
Adj. Flow (vph)	8	8	8	92	16	151	28	264	116	231	324	12
RTOR Reduction (vph)	0	7	0	0	130	0	0	14	0	0	1	0
Lane Group Flow (vph)	8	9	0	92	37	0	28	366	0	231	335	0
Heavy Vehicles (%)	0%	0%	0%	6%	0%	15%	5%	9%	8%	5%	0%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	10.6	10.6		10.6	10.6		43.6	41.6		53.3	47.3	
Effective Green, g (s)	10.6	10.6		10.6	10.6		43.6	41.6		53.3	47.3	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.57	0.54		0.69	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	158	242		184	199		591	902		666	1158	
v/s Ratio Prot		0.01			0.03		0.00	c0.22		c0.03	0.18	
v/s Ratio Perm	0.01			c0.07			0.03			0.21		
v/c Ratio	0.05	0.04		0.50	0.18		0.05	0.41		0.35	0.29	
Uniform Delay, d1	28.8	28.7		30.7	29.3		7.3	10.4		4.5	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		2.1	0.5		0.0	1.4		0.1	0.6	
Delay (s)	28.9	28.8		32.8	29.8		7.3	11.7		4.7	7.6	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		28.8			30.9			11.4			6.4	
Approach LOS		C			C			B			A	

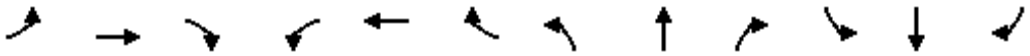
Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	28	165	32	26	175
Future Volume (Veh/h)	36	28	165	32	26	175
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.88	0.75	0.89	0.65	0.89
Hourly flow rate (vph)	48	32	220	36	40	197
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	515	238			256	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	515	238			256	
tC, single (s)	6.6	6.7			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.7			2.3	
p0 queue free %	90	95			97	
cM capacity (veh/h)	471	704			1275	

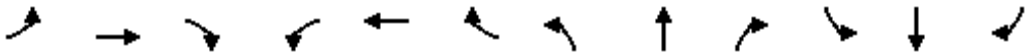
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	80	256	237
Volume Left	48	0	40
Volume Right	32	36	0
cSH	543	1700	1275
Volume to Capacity	0.15	0.15	0.03
Queue Length 95th (m)	4.1	0.0	0.8
Control Delay (s)	12.8	0.0	1.6
Lane LOS	B		A
Approach Delay (s)	12.8	0.0	1.6
Approach LOS	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	35.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	64	102	84	111	69	65	184	38	51	216	14
Future Volume (vph)	14	64	102	84	111	69	65	184	38	51	216	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1719	1650		1719	1749		1641	1741	
Flt Permitted	0.60	1.00		0.56	1.00		0.59	1.00		0.56	1.00	
Satd. Flow (perm)	1139	1632		1014	1650		1061	1749		965	1741	
Peak-hour factor, PHF	0.70	0.76	0.59	0.68	0.75	0.78	0.49	0.71	0.50	0.71	0.82	0.70
Adj. Flow (vph)	20	84	173	124	148	88	133	259	76	72	263	20
RTOR Reduction (vph)	0	130	0	0	38	0	0	14	0	0	4	0
Lane Group Flow (vph)	20	127	0	124	198	0	133	321	0	72	279	0
Heavy Vehicles (%)	0%	6%	4%	5%	5%	15%	5%	4%	8%	10%	7%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		30.1	30.1		30.1	30.1	
Effective Green, g (s)	14.2	14.2		14.2	14.2		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	286	410		254	414		565	931		514	927	
v/s Ratio Prot		0.08			0.12			c0.18			0.16	
v/s Ratio Perm	0.02			c0.12			0.13			0.07		
v/c Ratio	0.07	0.31		0.49	0.48		0.24	0.34		0.14	0.30	
Uniform Delay, d1	16.1	17.2		18.0	18.0		7.1	7.6		6.7	7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.9		3.1	1.8		0.2	0.2		0.1	0.2	
Delay (s)	16.3	18.1		21.1	19.8		7.3	7.8		6.8	7.5	
Level of Service	B	B		C	B		A	A		A	A	
Approach Delay (s)		18.0			20.3			7.6			7.4	
Approach LOS		B			C			A			A	

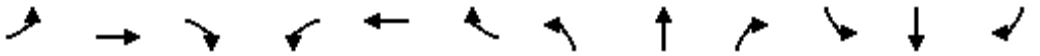
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	117	6	10	174	8	11	2	13	2	1	7
Future Volume (Veh/h)	10	117	6	10	174	8	11	2	13	2	1	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.94	0.50	0.50	0.85	0.50	0.92	0.50	0.81	0.25	0.25	0.58
Hourly flow rate (vph)	20	124	12	20	205	16	12	4	16	8	4	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	221			136			423	425	124	427	421	205
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	221			136			423	425	124	427	421	205
tC, single (s)	4.1			4.2			7.2	6.5	6.2	7.1	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.0	3.3	3.5	4.9	3.3
p0 queue free %	99			99			98	99	98	98	99	99
cM capacity (veh/h)	1360			1400			506	509	932	517	390	841

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	144	12	225	16	32	24
Volume Left	20	0	20	0	12	8
Volume Right	0	12	0	16	16	12
cSH	1360	1700	1400	1700	657	600
Volume to Capacity	0.01	0.01	0.01	0.01	0.05	0.04
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.2	1.0
Control Delay (s)	1.2	0.0	0.8	0.0	10.8	11.2
Lane LOS	A		A		B	B
Approach Delay (s)	1.1		0.7		10.8	11.2
Approach LOS					B	B

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	26.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	32	57	94	29	217	83	370	88	172	317	17
Future Volume (vph)	20	32	57	94	29	217	83	370	88	172	317	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.87		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1702		1805	1603		1805	1810		1656	1806	
Flt Permitted	0.34	1.00		0.69	1.00		0.55	1.00		0.34	1.00	
Satd. Flow (perm)	644	1702		1306	1603		1040	1810		598	1806	
Peak-hour factor, PHF	0.83	0.80	0.84	0.84	0.73	0.95	0.86	0.86	0.81	0.90	0.95	0.71
Adj. Flow (vph)	24	40	68	112	40	228	97	430	109	191	334	24
RTOR Reduction (vph)	0	57	0	0	193	0	0	9	0	0	2	0
Lane Group Flow (vph)	24	51	0	112	75	0	97	530	0	191	356	0
Heavy Vehicles (%)	0%	3%	0%	0%	0%	4%	0%	2%	1%	9%	4%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.8	11.8		11.8	11.8		44.8	40.0		50.0	42.6	
Effective Green, g (s)	11.8	11.8		11.8	11.8		44.8	40.0		50.0	42.6	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.59	0.52		0.66	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	99	263		202	248		659	950		495	1009	
v/s Ratio Prot		0.03			0.05		0.01	c0.29		c0.04	0.20	
v/s Ratio Perm	0.04			c0.09			0.08			0.22		
v/c Ratio	0.24	0.19		0.55	0.30		0.15	0.56		0.39	0.35	
Uniform Delay, d1	28.3	28.0		29.8	28.6		6.8	12.2		6.1	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4		3.3	0.7		0.0	2.4		0.2	1.0	
Delay (s)	29.6	28.4		33.0	29.3		6.9	14.5		6.3	10.2	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		28.6			30.4			13.4			8.8	
Approach LOS		C			C			B			A	

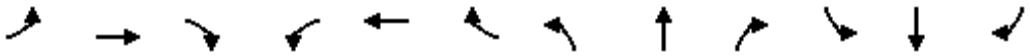
Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	36	36	243	18	5	215
Future Volume (Veh/h)	36	36	243	18	5	215
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.82	0.88	0.75	0.42	0.79
Hourly flow rate (vph)	48	44	276	24	12	272
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	584	288			300	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	584	288			300	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	90	94			99	
cM capacity (veh/h)	472	749			993	

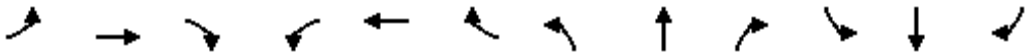
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	92	300	284
Volume Left	48	0	12
Volume Right	44	24	0
cSH	573	1700	993
Volume to Capacity	0.16	0.18	0.01
Queue Length 95th (m)	4.5	0.0	0.3
Control Delay (s)	12.5	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	12.5	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	26.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	114	58	60	86	69	71	236	79	64	259	88
Future Volume (vph)	16	114	58	60	86	69	71	236	79	64	259	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1757		1770	1742		1805	1783		1752	1727	
Flt Permitted	0.64	1.00		0.63	1.00		0.38	1.00		0.51	1.00	
Satd. Flow (perm)	1146	1757		1165	1742		725	1783		942	1727	
Peak-hour factor, PHF	0.67	0.75	0.97	0.71	0.83	0.82	0.89	0.82	0.73	0.84	0.97	0.31
Adj. Flow (vph)	24	152	60	85	104	84	80	288	108	76	267	284
RTOR Reduction (vph)	0	26	0	0	53	0	0	17	0	0	50	0
Lane Group Flow (vph)	24	186	0	85	135	0	80	379	0	76	501	0
Heavy Vehicles (%)	6%	3%	5%	2%	0%	4%	0%	3%	0%	3%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.0	13.0		13.0	13.0		30.1	30.1		30.1	30.1	
Effective Green, g (s)	13.0	13.0		13.0	13.0		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.54	0.54		0.54	0.54	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	269	413		273	409		394	970		512	940	
v/s Ratio Prot		c0.11			0.08			0.21			c0.29	
v/s Ratio Perm	0.02			0.07			0.11			0.08		
v/c Ratio	0.09	0.45		0.31	0.33		0.20	0.39		0.15	0.53	
Uniform Delay, d1	16.5	18.1		17.5	17.5		6.5	7.3		6.2	8.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.6		1.4	1.0		0.3	0.3		0.1	0.6	
Delay (s)	16.8	19.7		18.8	18.5		6.7	7.6		6.4	8.7	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		19.4			18.6			7.4			8.4	
Approach LOS		B			B			A			A	

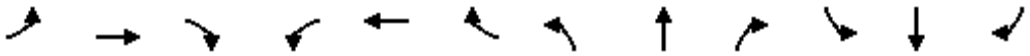
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	12.2
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	209	12	18	190	0	8	2	31	3	1	14
Future Volume (Veh/h)	8	209	12	18	190	0	8	2	31	3	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.92	0.75	0.64	0.75	0.25	0.50	0.50	0.70	0.38	0.25	0.88
Hourly flow rate (vph)	12	227	16	28	253	0	16	4	44	8	4	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	253			243			578	560	227	606	576	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	253			243			578	560	227	606	576	253
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			96	99	95	98	99	98
cM capacity (veh/h)	1324			1335			409	427	817	378	418	791

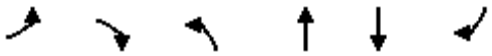
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	239	16	281	0	64	28
Volume Left	12	0	28	0	16	8
Volume Right	0	16	0	0	44	16
cSH	1324	1700	1335	1700	625	549
Volume to Capacity	0.01	0.01	0.02	0.01	0.10	0.05
Queue Length 95th (m)	0.2	0.0	0.5	0.0	2.7	1.3
Control Delay (s)	0.5	0.0	0.9	0.0	11.4	11.9
Lane LOS	A		A		B	B
Approach Delay (s)	0.4		0.9		11.4	11.9
Approach LOS					B	B

Intersection Summary				
Average Delay	2.3			
Intersection Capacity Utilization	35.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	3	6	5	65	8	112	19	214	80	171	285	5
Future Volume (vph)	3	6	5	65	8	112	19	214	80	171	285	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.86		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1758		1703	1446		1719	1668		1719	1884	
Flt Permitted	0.60	1.00		0.75	1.00		0.56	1.00		0.46	1.00	
Satd. Flow (perm)	1147	1758		1339	1446		1010	1668		833	1884	
Peak-hour factor, PHF	0.38	0.75	0.63	0.71	0.50	0.74	0.68	0.81	0.69	0.74	0.88	0.42
Adj. Flow (vph)	8	8	8	92	16	151	28	264	116	231	324	12
RTOR Reduction (vph)	0	7	0	0	130	0	0	14	0	0	1	0
Lane Group Flow (vph)	8	9	0	92	37	0	28	366	0	231	335	0
Heavy Vehicles (%)	0%	0%	0%	6%	0%	15%	5%	9%	8%	5%	0%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	10.6	10.6		10.6	10.6		43.6	41.6		53.3	47.3	
Effective Green, g (s)	10.6	10.6		10.6	10.6		43.6	41.6		53.3	47.3	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.57	0.54		0.69	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	158	242		184	199		591	902		666	1158	
v/s Ratio Prot		0.01			0.03		0.00	c0.22		c0.03	0.18	
v/s Ratio Perm	0.01			c0.07			0.03			0.21		
v/c Ratio	0.05	0.04		0.50	0.18		0.05	0.41		0.35	0.29	
Uniform Delay, d1	28.8	28.7		30.7	29.3		7.3	10.4		4.5	6.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.1		2.1	0.5		0.0	1.4		0.1	0.6	
Delay (s)	28.9	28.8		32.8	29.8		7.3	11.7		4.7	7.6	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		28.8			30.9			11.4			6.4	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	5	24	13	0
Future Volume (Veh/h)	0	5	5	24	13	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	5	26	14	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	50	14	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	14	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	956	1066	1604			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	31	14
Volume Left	0	5	0
Volume Right	5	0	0
cSH	1066	1604	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	8.4	1.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.2	0.0
Approach LOS	A		

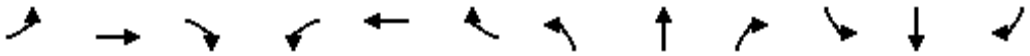
Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	28	165	27	26	175
Future Volume (Veh/h)	31	28	165	27	26	175
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.88	0.75	0.89	0.65	0.89
Hourly flow rate (vph)	41	32	220	30	40	197
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	512	235			250	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	512	235			250	
tC, single (s)	6.6	6.7			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.7			2.3	
p0 queue free %	91	95			97	
cM capacity (veh/h)	473	707			1281	

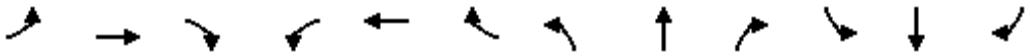
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	73	250	237
Volume Left	41	0	40
Volume Right	32	30	0
cSH	553	1700	1281
Volume to Capacity	0.13	0.15	0.03
Queue Length 95th (m)	3.6	0.0	0.8
Control Delay (s)	12.5	0.0	1.6
Lane LOS	B		A
Approach Delay (s)	12.5	0.0	1.6
Approach LOS	B		

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	64	102	84	111	69	65	184	38	51	216	14
Future Volume (vph)	14	64	102	84	111	69	65	184	38	51	216	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1719	1650		1719	1749		1641	1741	
Flt Permitted	0.60	1.00		0.56	1.00		0.59	1.00		0.56	1.00	
Satd. Flow (perm)	1139	1632		1014	1650		1061	1749		965	1741	
Peak-hour factor, PHF	0.70	0.76	0.59	0.68	0.75	0.78	0.49	0.71	0.50	0.71	0.82	0.70
Adj. Flow (vph)	20	84	173	124	148	88	133	259	76	72	263	20
RTOR Reduction (vph)	0	130	0	0	38	0	0	14	0	0	4	0
Lane Group Flow (vph)	20	127	0	124	198	0	133	321	0	72	279	0
Heavy Vehicles (%)	0%	6%	4%	5%	5%	15%	5%	4%	8%	10%	7%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.2	14.2		14.2	14.2		30.1	30.1		30.1	30.1	
Effective Green, g (s)	14.2	14.2		14.2	14.2		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	286	410		254	414		565	931		514	927	
v/s Ratio Prot		0.08			0.12			c0.18			0.16	
v/s Ratio Perm	0.02			c0.12			0.13			0.07		
v/c Ratio	0.07	0.31		0.49	0.48		0.24	0.34		0.14	0.30	
Uniform Delay, d1	16.1	17.2		18.0	18.0		7.1	7.6		6.7	7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.9		3.1	1.8		0.2	0.2		0.1	0.2	
Delay (s)	16.3	18.1		21.1	19.8		7.3	7.8		6.8	7.5	
Level of Service	B	B		C	B		A	A		A	A	
Approach Delay (s)		18.0			20.3			7.6			7.4	
Approach LOS		B			C			A			A	

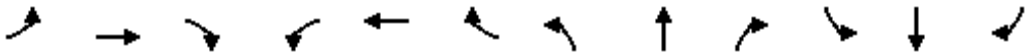
Intersection Summary			
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	56.5	Sum of lost time (s)	12.2
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	117	6	10	174	13	11	2	13	7	1	7
Future Volume (Veh/h)	10	117	6	10	174	13	11	2	13	7	1	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.94	0.50	0.50	0.85	0.50	0.92	0.50	0.81	0.25	0.25	0.58
Hourly flow rate (vph)	20	124	12	20	205	26	12	4	16	28	4	12
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	231			136			423	435	124	427	421	205
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	231			136			423	435	124	427	421	205
tC, single (s)	4.1			4.2			7.2	6.5	6.2	7.1	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.0	3.3	3.5	4.9	3.3
p0 queue free %	99			99			98	99	98	95	99	99
cM capacity (veh/h)	1349			1400			506	503	932	517	390	841

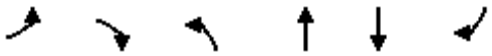
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	144	12	225	26	32	44
Volume Left	20	0	20	0	12	28
Volume Right	0	12	0	26	16	12
cSH	1349	1700	1400	1700	655	559
Volume to Capacity	0.01	0.01	0.01	0.02	0.05	0.08
Queue Length 95th (m)	0.4	0.0	0.3	0.0	1.2	2.0
Control Delay (s)	1.2	0.0	0.8	0.0	10.8	12.0
Lane LOS	A		A		B	B
Approach Delay (s)	1.1		0.7		10.8	12.0
Approach LOS					B	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	26.4%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	32	57	94	29	217	83	370	88	172	317	17
Future Volume (vph)	20	32	57	94	29	217	83	370	88	172	317	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.87		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1702		1805	1603		1805	1810		1656	1806	
Flt Permitted	0.34	1.00		0.69	1.00		0.55	1.00		0.34	1.00	
Satd. Flow (perm)	644	1702		1306	1603		1040	1810		598	1806	
Peak-hour factor, PHF	0.83	0.80	0.84	0.84	0.73	0.95	0.86	0.86	0.81	0.90	0.95	0.71
Adj. Flow (vph)	24	40	68	112	40	228	97	430	109	191	334	24
RTOR Reduction (vph)	0	57	0	0	193	0	0	9	0	0	2	0
Lane Group Flow (vph)	24	51	0	112	75	0	97	530	0	191	356	0
Heavy Vehicles (%)	0%	3%	0%	0%	0%	4%	0%	2%	1%	9%	4%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.8	11.8		11.8	11.8		44.8	40.0		50.0	42.6	
Effective Green, g (s)	11.8	11.8		11.8	11.8		44.8	40.0		50.0	42.6	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.59	0.52		0.66	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	99	263		202	248		659	950		495	1009	
v/s Ratio Prot		0.03			0.05		0.01	c0.29		c0.04	0.20	
v/s Ratio Perm	0.04			c0.09			0.08			0.22		
v/c Ratio	0.24	0.19		0.55	0.30		0.15	0.56		0.39	0.35	
Uniform Delay, d1	28.3	28.0		29.8	28.6		6.8	12.2		6.1	9.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.4		3.3	0.7		0.0	2.4		0.2	1.0	
Delay (s)	29.6	28.4		33.0	29.3		6.9	14.5		6.3	10.2	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		28.6			30.4			13.4			8.8	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	76.2	Sum of lost time (s)	17.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	5	3	12	22	0
Future Volume (Veh/h)	0	5	3	12	22	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	5	3	13	24	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	24	24			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	24	24			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	966	1052	1591			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	5	16	24
Volume Left	0	3	0
Volume Right	5	0	0
cSH	1052	1591	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	8.4	1.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.4	0.0
Approach LOS	A		

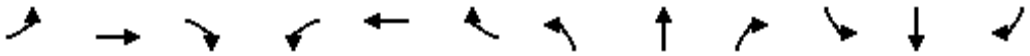
Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	31	36	243	15	5	215
Future Volume (Veh/h)	31	36	243	15	5	215
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.82	0.88	0.75	0.42	0.79
Hourly flow rate (vph)	41	44	276	20	12	272
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	582	286			296	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	582	286			296	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	91	94			99	
cM capacity (veh/h)	473	751			997	

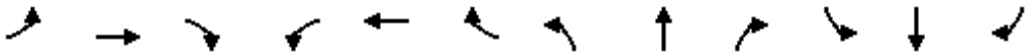
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	85	296	284
Volume Left	41	0	12
Volume Right	44	20	0
cSH	585	1700	997
Volume to Capacity	0.15	0.17	0.01
Queue Length 95th (m)	4.0	0.0	0.3
Control Delay (s)	12.2	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	12.2	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	114	58	60	86	69	71	236	79	64	259	88
Future Volume (vph)	16	114	58	60	86	69	71	236	79	64	259	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1757		1770	1742		1805	1783		1752	1727	
Flt Permitted	0.64	1.00		0.63	1.00		0.38	1.00		0.51	1.00	
Satd. Flow (perm)	1146	1757		1165	1742		725	1783		942	1727	
Peak-hour factor, PHF	0.67	0.75	0.97	0.71	0.83	0.82	0.89	0.82	0.73	0.84	0.97	0.31
Adj. Flow (vph)	24	152	60	85	104	84	80	288	108	76	267	284
RTOR Reduction (vph)	0	26	0	0	53	0	0	17	0	0	50	0
Lane Group Flow (vph)	24	186	0	85	135	0	80	379	0	76	501	0
Heavy Vehicles (%)	6%	3%	5%	2%	0%	4%	0%	3%	0%	3%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.0	13.0		13.0	13.0		30.1	30.1		30.1	30.1	
Effective Green, g (s)	13.0	13.0		13.0	13.0		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.54	0.54		0.54	0.54	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	269	413		273	409		394	970		512	940	
v/s Ratio Prot		c0.11			0.08			0.21			c0.29	
v/s Ratio Perm	0.02			0.07			0.11			0.08		
v/c Ratio	0.09	0.45		0.31	0.33		0.20	0.39		0.15	0.53	
Uniform Delay, d1	16.5	18.1		17.5	17.5		6.5	7.3		6.2	8.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.6		1.4	1.0		0.3	0.3		0.1	0.6	
Delay (s)	16.8	19.7		18.8	18.5		6.7	7.6		6.4	8.7	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		19.4			18.6			7.4			8.4	
Approach LOS		B			B			A			A	

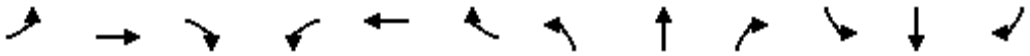
Intersection Summary			
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	12.2
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	209	12	18	190	3	8	2	31	8	1	14
Future Volume (Veh/h)	8	209	12	18	190	3	8	2	31	8	1	14
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.92	0.75	0.64	0.75	0.25	0.50	0.50	0.70	0.38	0.25	0.88
Hourly flow rate (vph)	12	227	16	28	253	12	16	4	44	21	4	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	265			243			578	572	227	606	576	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	265			243			578	572	227	606	576	253
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			96	99	95	94	99	98
cM capacity (veh/h)	1311			1335			409	420	817	378	418	791

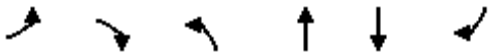
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	239	16	281	12	64	41
Volume Left	12	0	28	0	16	21
Volume Right	0	16	0	12	44	16
cSH	1311	1700	1335	1700	624	480
Volume to Capacity	0.01	0.01	0.02	0.01	0.10	0.09
Queue Length 95th (m)	0.2	0.0	0.5	0.0	2.7	2.2
Control Delay (s)	0.5	0.0	0.9	0.0	11.4	13.2
Lane LOS	A		A		B	B
Approach Delay (s)	0.4		0.9		11.4	13.2
Approach LOS					B	B

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	34.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	7	6	72	9	124	21	237	89	189	315	6
Future Volume (vph)	4	7	6	72	9	124	21	237	89	189	315	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.86		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1750		1703	1447		1719	1668		1719	1884	
Flt Permitted	0.54	1.00		0.75	1.00		0.54	1.00		0.42	1.00	
Satd. Flow (perm)	1033	1750		1335	1447		977	1668		768	1884	
Peak-hour factor, PHF	0.38	0.75	0.63	0.71	0.50	0.74	0.68	0.81	0.69	0.74	0.88	0.42
Adj. Flow (vph)	11	9	10	101	18	168	31	293	129	255	358	14
RTOR Reduction (vph)	0	9	0	0	144	0	0	14	0	0	1	0
Lane Group Flow (vph)	11	10	0	101	42	0	31	408	0	255	371	0
Heavy Vehicles (%)	0%	0%	0%	6%	0%	15%	5%	9%	8%	5%	0%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.2	11.2		11.2	11.2		43.7	41.7		53.7	47.7	
Effective Green, g (s)	11.2	11.2		11.2	11.2		43.7	41.7		53.7	47.7	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.56	0.54		0.69	0.61	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	148	251		191	208		567	892		627	1153	
v/s Ratio Prot		0.01			0.03		0.00	c0.24		c0.04	0.20	
v/s Ratio Perm	0.01			c0.08			0.03			0.24		
v/c Ratio	0.07	0.04		0.53	0.20		0.05	0.46		0.41	0.32	
Uniform Delay, d1	28.9	28.7		30.9	29.4		7.6	11.1		5.0	7.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		2.6	0.5		0.0	1.7		0.2	0.7	
Delay (s)	29.1	28.8		33.5	29.9		7.7	12.8		5.1	8.0	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		28.9			31.2			12.5			6.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	5	24	13	0
Future Volume (Veh/h)	0	6	5	24	13	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	7	5	26	14	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	50	14	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	14	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	956	1066	1604			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	31	14
Volume Left	0	5	0
Volume Right	7	0	0
cSH	1066	1604	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.1	0.0
Control Delay (s)	8.4	1.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.2	0.0
Approach LOS	A		

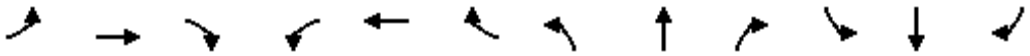
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	15.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	31	183	31	29	194
Future Volume (Veh/h)	34	31	183	31	29	194
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.88	0.75	0.89	0.65	0.89
Hourly flow rate (vph)	45	35	244	35	45	218
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	570	262			279	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	570	262			279	
tC, single (s)	6.6	6.7			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.7			2.3	
p0 queue free %	90	95			96	
cM capacity (veh/h)	435	682			1250	

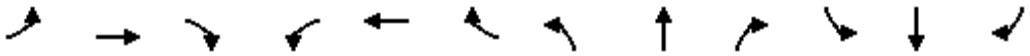
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	80	279	263
Volume Left	45	0	45
Volume Right	35	35	0
cSH	517	1700	1250
Volume to Capacity	0.15	0.16	0.04
Queue Length 95th (m)	4.4	0.0	0.9
Control Delay (s)	13.2	0.0	1.6
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	1.6
Approach LOS	B		

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	71	113	93	123	77	72	204	42	57	239	16
Future Volume (vph)	16	71	113	93	123	77	72	204	42	57	239	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1719	1648		1719	1750		1641	1740	
Flt Permitted	0.55	1.00		0.51	1.00		0.57	1.00		0.52	1.00	
Satd. Flow (perm)	1050	1632		930	1648		1031	1750		900	1740	
Peak-hour factor, PHF	0.70	0.76	0.59	0.68	0.75	0.78	0.49	0.71	0.50	0.71	0.82	0.70
Adj. Flow (vph)	23	93	192	137	164	99	147	287	84	80	291	23
RTOR Reduction (vph)	0	129	0	0	37	0	0	14	0	0	4	0
Lane Group Flow (vph)	23	156	0	137	226	0	147	357	0	80	310	0
Heavy Vehicles (%)	0%	6%	4%	5%	5%	15%	5%	4%	8%	10%	7%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.5	15.5		15.5	15.5		30.2	30.2		30.2	30.2	
Effective Green, g (s)	15.5	15.5		15.5	15.5		30.2	30.2		30.2	30.2	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.52	0.52		0.52	0.52	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	281	436		248	441		537	912		469	907	
v/s Ratio Prot		0.10			0.14			c0.20			0.18	
v/s Ratio Perm	0.02			c0.15			0.14			0.09		
v/c Ratio	0.08	0.36		0.55	0.51		0.27	0.39		0.17	0.34	
Uniform Delay, d1	15.9	17.2		18.2	18.0		7.7	8.3		7.3	8.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.1		4.5	2.0		0.3	0.3		0.2	0.2	
Delay (s)	16.1	18.2		22.7	20.0		8.0	8.6		7.4	8.3	
Level of Service	B	B		C	B		A	A		A	A	
Approach Delay (s)		18.1			20.9			8.4			8.1	
Approach LOS		B			C			A			A	

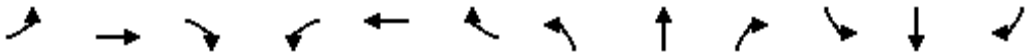
Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	12.2
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	130	7	12	193	14	13	3	15	9	2	8
Future Volume (Veh/h)	12	130	7	12	193	14	13	3	15	9	2	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.94	0.50	0.50	0.85	0.50	0.92	0.50	0.81	0.25	0.25	0.58
Hourly flow rate (vph)	24	138	14	24	227	28	14	6	19	36	8	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	255			152			479	489	138	483	475	227
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	255			152			479	489	138	483	475	227
tC, single (s)	4.1			4.2			7.2	6.5	6.2	7.1	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.0	3.3	3.5	4.9	3.3
p0 queue free %	98			98			97	99	98	92	98	98
cM capacity (veh/h)	1322			1381			456	465	916	469	358	817

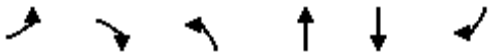
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	162	14	251	28	39	58
Volume Left	24	0	24	0	14	36
Volume Right	0	14	0	28	19	14
cSH	1322	1700	1381	1700	606	499
Volume to Capacity	0.02	0.01	0.02	0.02	0.06	0.12
Queue Length 95th (m)	0.4	0.0	0.4	0.0	1.6	3.1
Control Delay (s)	1.3	0.0	0.9	0.0	11.3	13.2
Lane LOS	A		A		B	B
Approach Delay (s)	1.2		0.8		11.3	13.2
Approach LOS					B	B

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	30.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	36	63	104	33	240	92	409	98	190	350	19
Future Volume (vph)	23	36	63	104	33	240	92	409	98	190	350	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.87		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1703		1805	1604		1805	1810		1656	1806	
Flt Permitted	0.31	1.00		0.68	1.00		0.53	1.00		0.29	1.00	
Satd. Flow (perm)	598	1703		1292	1604		1004	1810		510	1806	
Peak-hour factor, PHF	0.83	0.80	0.84	0.84	0.73	0.95	0.86	0.86	0.81	0.90	0.95	0.71
Adj. Flow (vph)	28	45	75	124	45	253	107	476	121	211	368	27
RTOR Reduction (vph)	0	63	0	0	212	0	0	9	0	0	2	0
Lane Group Flow (vph)	28	57	0	124	86	0	107	588	0	211	393	0
Heavy Vehicles (%)	0%	3%	0%	0%	0%	4%	0%	2%	1%	9%	4%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	12.7	12.7		12.7	12.7		45.1	40.1		50.5	42.8	
Effective Green, g (s)	12.7	12.7		12.7	12.7		45.1	40.1		50.5	42.8	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.58	0.52		0.65	0.55	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	97	279		211	262		635	936		446	997	
v/s Ratio Prot		0.03			0.05		0.01	c0.33		c0.05	0.22	
v/s Ratio Perm	0.05			c0.10			0.09			0.26		
v/c Ratio	0.29	0.21		0.59	0.33		0.17	0.63		0.47	0.39	
Uniform Delay, d1	28.4	28.0		30.0	28.6		7.2	13.4		7.2	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4		4.1	0.7		0.0	3.2		0.3	1.2	
Delay (s)	30.1	28.4		34.1	29.4		7.2	16.6		7.5	11.1	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		28.7			30.8			15.1			9.8	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	77.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	6	3	12	22	0
Future Volume (Veh/h)	0	6	3	12	22	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	7	3	13	24	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	43	24	24			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	43	24	24			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	966	1052	1591			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	16	24
Volume Left	0	3	0
Volume Right	7	0	0
cSH	1052	1591	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.4	1.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.4	0.0
Approach LOS	A		

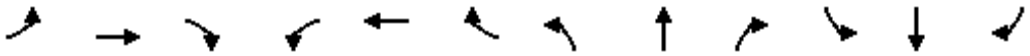
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	40	269	15	6	238
Future Volume (Veh/h)	34	40	269	15	6	238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.82	0.88	0.75	0.42	0.79
Hourly flow rate (vph)	45	49	306	20	14	301
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	645	316			326	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	645	316			326	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	90	93			99	
cM capacity (veh/h)	434	722			969	

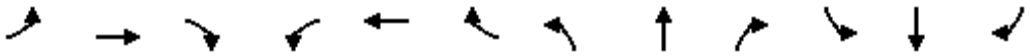
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	94	326	315
Volume Left	45	0	14
Volume Right	49	20	0
cSH	548	1700	969
Volume to Capacity	0.17	0.19	0.01
Queue Length 95th (m)	4.9	0.0	0.4
Control Delay (s)	12.9	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	12.9	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	126	65	67	95	77	79	261	88	71	286	98
Future Volume (vph)	18	126	65	67	95	77	79	261	88	71	286	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1756		1770	1740		1805	1783		1752	1726	
Flt Permitted	0.63	1.00		0.60	1.00		0.33	1.00		0.47	1.00	
Satd. Flow (perm)	1125	1756		1120	1740		626	1783		867	1726	
Peak-hour factor, PHF	0.67	0.75	0.97	0.71	0.83	0.82	0.89	0.82	0.73	0.84	0.97	0.31
Adj. Flow (vph)	27	168	67	94	114	94	89	318	121	85	295	316
RTOR Reduction (vph)	0	26	0	0	53	0	0	18	0	0	51	0
Lane Group Flow (vph)	27	209	0	94	155	0	89	421	0	85	560	0
Heavy Vehicles (%)	6%	3%	5%	2%	0%	4%	0%	3%	0%	3%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.7	13.7		13.7	13.7		30.1	30.1		30.1	30.1	
Effective Green, g (s)	13.7	13.7		13.7	13.7		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.54	0.54		0.54	0.54	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	275	429		274	425		336	958		466	927	
v/s Ratio Prot		c0.12			0.09			0.24			c0.32	
v/s Ratio Perm	0.02			0.08			0.14			0.10		
v/c Ratio	0.10	0.49		0.34	0.36		0.26	0.44		0.18	0.60	
Uniform Delay, d1	16.4	18.1		17.4	17.5		7.0	7.8		6.6	8.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.8		1.6	1.1		0.4	0.3		0.2	1.1	
Delay (s)	16.7	20.0		19.0	18.7		7.4	8.2		6.8	10.0	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		19.6			18.8			8.0			9.6	
Approach LOS		B			B			A			A	

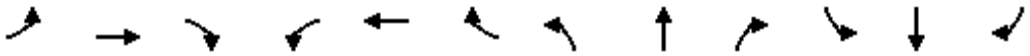
Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	56.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	231	14	20	210	3	9	3	35	10	2	16
Future Volume (Veh/h)	9	231	14	20	210	3	9	3	35	10	2	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.92	0.75	0.64	0.75	0.25	0.50	0.50	0.70	0.38	0.25	0.88
Hourly flow rate (vph)	13	251	19	31	280	12	18	6	50	26	8	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	292			270			641	631	251	672	638	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292			270			641	631	251	672	638	280
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			95	98	94	92	98	98
cM capacity (veh/h)	1281			1305			366	387	793	336	384	764

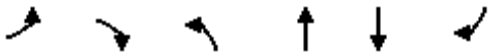
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	264	19	311	12	74	52
Volume Left	13	0	31	0	18	26
Volume Right	0	19	0	12	50	18
cSH	1281	1700	1305	1700	579	427
Volume to Capacity	0.01	0.01	0.02	0.01	0.13	0.12
Queue Length 95th (m)	0.2	0.0	0.6	0.0	3.5	3.3
Control Delay (s)	0.5	0.0	1.0	0.0	12.1	14.6
Lane LOS	A		A		B	B
Approach Delay (s)	0.4		0.9		12.1	14.6
Approach LOS					B	B

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	37.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	7	80	10	137	24	261	98	209	348	7
Future Volume (vph)	4	8	7	80	10	137	24	261	98	209	348	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.86		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1758		1703	1447		1719	1668		1719	1882	
Flt Permitted	0.49	1.00		0.74	1.00		0.52	1.00		0.39	1.00	
Satd. Flow (perm)	940	1758		1332	1447		942	1668		700	1882	
Peak-hour factor, PHF	0.38	0.75	0.63	0.71	0.50	0.74	0.68	0.81	0.69	0.74	0.88	0.42
Adj. Flow (vph)	11	11	11	113	20	185	35	322	142	282	395	17
RTOR Reduction (vph)	0	9	0	0	157	0	0	15	0	0	1	0
Lane Group Flow (vph)	11	13	0	113	48	0	35	449	0	282	411	0
Heavy Vehicles (%)	0%	0%	0%	6%	0%	15%	5%	9%	8%	5%	0%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.8	11.8		11.8	11.8		44.0	40.9		53.3	46.2	
Effective Green, g (s)	11.8	11.8		11.8	11.8		44.0	40.9		53.3	46.2	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.56	0.52		0.68	0.59	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	142	265		201	218		561	873		587	1113	
v/s Ratio Prot		0.01			0.03		0.00	c0.27		c0.05	0.22	
v/s Ratio Perm	0.01			c0.08			0.03			0.28		
v/c Ratio	0.08	0.05		0.56	0.22		0.06	0.51		0.48	0.37	
Uniform Delay, d1	28.5	28.3		30.8	29.1		7.6	12.1		5.6	8.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		3.6	0.5		0.0	2.2		0.2	0.9	
Delay (s)	28.7	28.4		34.3	29.6		7.6	14.3		5.9	9.3	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		28.5			31.3			13.8			7.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	6	26	14	0
Future Volume (Veh/h)	0	7	6	26	14	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	8	7	28	15	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	57	15	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	57	15	15			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	946	1065	1603			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	35	15
Volume Left	0	7	0
Volume Right	8	0	0
cSH	1065	1603	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (m)	0.2	0.1	0.0
Control Delay (s)	8.4	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	1.5	0.0
Approach LOS	A		

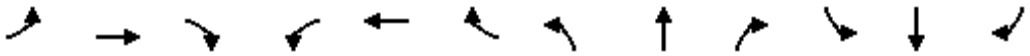
Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	16.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	35	202	34	32	214
Future Volume (Veh/h)	37	35	202	34	32	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.88	0.75	0.89	0.65	0.89
Hourly flow rate (vph)	49	40	269	38	49	240
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	626	288			307	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	626	288			307	
tC, single (s)	6.6	6.7			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.7			2.3	
p0 queue free %	88	94			96	
cM capacity (veh/h)	401	658			1220	

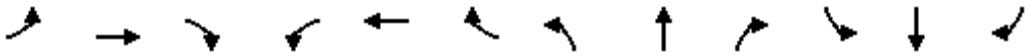
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	89	307	289
Volume Left	49	0	49
Volume Right	40	38	0
cSH	486	1700	1220
Volume to Capacity	0.18	0.18	0.04
Queue Length 95th (m)	5.3	0.0	1.0
Control Delay (s)	14.1	0.0	1.7
Lane LOS	B		A
Approach Delay (s)	14.1	0.0	1.7
Approach LOS	B		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	18	79	125	103	136	85	80	225	47	63	264	18
Future Volume (vph)	18	79	125	103	136	85	80	225	47	63	264	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.90		1.00	0.94		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1633		1719	1648		1719	1749		1641	1739	
Flt Permitted	0.51	1.00		0.47	1.00		0.54	1.00		0.48	1.00	
Satd. Flow (perm)	969	1633		846	1648		973	1749		829	1739	
Peak-hour factor, PHF	0.70	0.76	0.59	0.68	0.75	0.78	0.49	0.71	0.50	0.71	0.82	0.70
Adj. Flow (vph)	26	104	212	151	181	109	163	317	94	89	322	26
RTOR Reduction (vph)	0	125	0	0	37	0	0	15	0	0	4	0
Lane Group Flow (vph)	26	191	0	151	253	0	163	396	0	89	344	0
Heavy Vehicles (%)	0%	6%	4%	5%	5%	15%	5%	4%	8%	10%	7%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.5	16.5		16.5	16.5		30.2	30.2		30.2	30.2	
Effective Green, g (s)	16.5	16.5		16.5	16.5		30.2	30.2		30.2	30.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.51	0.51		0.51	0.51	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	271	457		236	461		498	896		425	891	
v/s Ratio Prot		0.12			0.15			c0.23			0.20	
v/s Ratio Perm	0.03			c0.18			0.17			0.11		
v/c Ratio	0.10	0.42		0.64	0.55		0.33	0.44		0.21	0.39	
Uniform Delay, d1	15.7	17.3		18.6	18.0		8.4	9.0		7.8	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.3		7.7	2.4		0.4	0.4		0.2	0.3	
Delay (s)	16.0	18.6		26.3	20.4		8.8	9.4		8.1	9.0	
Level of Service	B	B		C	C		A	A		A	A	
Approach Delay (s)		18.4			22.4			9.2			8.8	
Approach LOS		B			C			A			A	

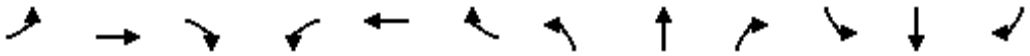
Intersection Summary			
HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	12.2
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	143	8	13	213	16	14	3	16	10	2	9
Future Volume (Veh/h)	13	143	8	13	213	16	14	3	16	10	2	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.94	0.50	0.50	0.85	0.50	0.92	0.50	0.81	0.25	0.25	0.58
Hourly flow rate (vph)	26	152	16	26	251	32	15	6	20	40	8	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	283			168			527	539	152	530	523	251
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	283			168			527	539	152	530	523	251
tC, single (s)	4.1			4.2			7.2	6.5	6.2	7.1	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.0	3.3	3.5	4.9	3.3
p0 queue free %	98			98			96	99	98	91	98	98
cM capacity (veh/h)	1291			1363			421	434	900	434	332	793

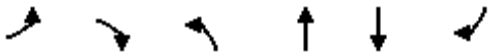
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	178	16	277	32	41	64
Volume Left	26	0	26	0	15	40
Volume Right	0	16	0	32	20	16
cSH	1291	1700	1363	1700	572	469
Volume to Capacity	0.02	0.01	0.02	0.02	0.07	0.14
Queue Length 95th (m)	0.5	0.0	0.5	0.0	1.8	3.8
Control Delay (s)	1.3	0.0	0.9	0.0	11.8	13.9
Lane LOS	A		A		B	B
Approach Delay (s)	1.2		0.8		11.8	13.9
Approach LOS					B	B

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	31.9%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	40	70	115	36	365	102	451	108	210	387	21
Future Volume (vph)	25	40	70	115	36	365	102	451	108	210	387	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.87		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1703		1805	1591		1805	1810		1656	1806	
Flt Permitted	0.29	1.00		0.67	1.00		0.49	1.00		0.23	1.00	
Satd. Flow (perm)	547	1703		1277	1591		933	1810		409	1806	
Peak-hour factor, PHF	0.83	0.80	0.84	0.84	0.73	0.95	0.86	0.86	0.81	0.90	0.95	0.71
Adj. Flow (vph)	30	50	83	137	49	384	119	524	133	233	407	30
RTOR Reduction (vph)	0	69	0	0	317	0	0	9	0	0	2	0
Lane Group Flow (vph)	30	64	0	137	116	0	119	648	0	233	435	0
Heavy Vehicles (%)	0%	3%	0%	0%	0%	4%	0%	2%	1%	9%	4%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	13.9	13.9		13.9	13.9		45.5	40.2		51.9	43.4	
Effective Green, g (s)	13.9	13.9		13.9	13.9		45.5	40.2		51.9	43.4	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.57	0.51		0.65	0.55	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	95	297		222	277		591	914		399	984	
v/s Ratio Prot		0.04			0.07		0.01	c0.36		c0.06	0.24	
v/s Ratio Perm	0.05			c0.11			0.10			0.32		
v/c Ratio	0.32	0.22		0.62	0.42		0.20	0.71		0.58	0.44	
Uniform Delay, d1	28.7	28.2		30.4	29.3		7.8	15.2		8.9	10.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.4		5.0	1.0		0.1	4.6		1.4	1.4	
Delay (s)	30.6	28.6		35.4	30.3		7.9	19.8		10.3	12.3	
Level of Service	C	C		D	C		A	B		B	B	
Approach Delay (s)		28.9			31.5			18.0			11.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	17.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	3	13	24	0
Future Volume (Veh/h)	0	7	3	13	24	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	8	3	14	26	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	46	26	26			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	46	26	26			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	962	1050	1588			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	17	26
Volume Left	0	3	0
Volume Right	8	0	0
cSH	1050	1588	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (m)	0.2	0.0	0.0
Control Delay (s)	8.5	1.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	1.3	0.0
Approach LOS	A		

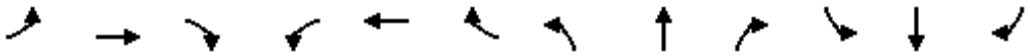
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	44	297	19	7	263
Future Volume (Veh/h)	37	44	297	19	7	263
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.82	0.88	0.75	0.42	0.79
Hourly flow rate (vph)	49	54	338	25	17	333
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	718	350			363	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	718	350			363	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	87	92			98	
cM capacity (veh/h)	392	691			936	

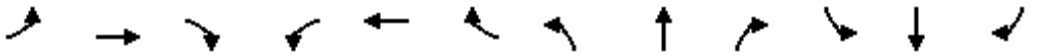
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	103	363	350
Volume Left	49	0	17
Volume Right	54	25	0
cSH	507	1700	936
Volume to Capacity	0.20	0.21	0.02
Queue Length 95th (m)	6.0	0.0	0.4
Control Delay (s)	13.9	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	13.9	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	139	71	74	105	85	87	288	97	79	316	108
Future Volume (vph)	20	139	71	74	105	85	87	288	97	79	316	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.96		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1757		1770	1740		1805	1783		1752	1727	
Flt Permitted	0.61	1.00		0.56	1.00		0.28	1.00		0.43	1.00	
Satd. Flow (perm)	1092	1757		1041	1740		523	1783		789	1727	
Peak-hour factor, PHF	0.67	0.75	0.97	0.71	0.83	0.82	0.89	0.82	0.73	0.84	0.97	0.31
Adj. Flow (vph)	30	185	73	104	127	104	98	351	133	94	326	348
RTOR Reduction (vph)	0	25	0	0	52	0	0	18	0	0	51	0
Lane Group Flow (vph)	30	233	0	104	179	0	98	466	0	94	623	0
Heavy Vehicles (%)	6%	3%	5%	2%	0%	4%	0%	3%	0%	3%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.4	14.4		14.4	14.4		30.1	30.1		30.1	30.1	
Effective Green, g (s)	14.4	14.4		14.4	14.4		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	277	446		264	441		277	946		418	916	
v/s Ratio Prot		c0.13			0.10			0.26			c0.36	
v/s Ratio Perm	0.03			0.10			0.19			0.12		
v/c Ratio	0.11	0.52		0.39	0.41		0.35	0.49		0.22	0.68	
Uniform Delay, d1	16.2	18.2		17.5	17.6		7.7	8.4		7.1	9.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	2.1		2.0	1.3		0.8	0.4		0.3	2.0	
Delay (s)	16.6	20.3		19.6	18.9		8.5	8.9		7.4	11.8	
Level of Service	B	C		B	B		A	A		A	B	
Approach Delay (s)		19.9			19.1			8.8			11.2	
Approach LOS		B			B			A			B	

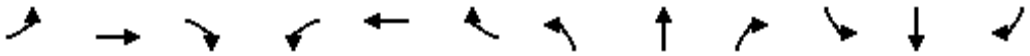
Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	56.7	Sum of lost time (s)	12.2
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	255	15	22	232	3	10	3	38	11	2	18
Future Volume (Veh/h)	10	255	15	22	232	3	10	3	38	11	2	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.92	0.75	0.64	0.75	0.25	0.50	0.50	0.70	0.38	0.25	0.88
Hourly flow rate (vph)	15	277	20	34	309	12	20	6	54	29	8	20
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	321			297			708	696	277	741	704	309
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	321			297			708	696	277	741	704	309
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			97			94	98	93	90	98	97
cM capacity (veh/h)	1250			1276			327	354	767	298	350	736

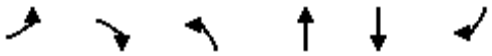
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	292	20	343	12	80	57
Volume Left	15	0	34	0	20	29
Volume Right	0	20	0	12	54	20
cSH	1250	1700	1276	1700	538	387
Volume to Capacity	0.01	0.01	0.03	0.01	0.15	0.15
Queue Length 95th (m)	0.3	0.0	0.7	0.0	4.2	4.1
Control Delay (s)	0.5	0.0	1.0	0.0	12.9	15.9
Lane LOS	A		A		B	C
Approach Delay (s)	0.5		1.0		12.9	15.9
Approach LOS					B	C

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	40.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	7	6	72	9	144	21	237	89	306	315	6
Future Volume (vph)	4	7	6	72	9	144	21	237	89	306	315	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.92		1.00	0.86		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1750		1703	1441		1719	1668		1719	1884	
Flt Permitted	0.45	1.00		0.75	1.00		0.54	1.00		0.42	1.00	
Satd. Flow (perm)	851	1750		1335	1441		977	1668		758	1884	
Peak-hour factor, PHF	0.38	0.75	0.63	0.71	0.50	0.74	0.68	0.81	0.69	0.74	0.88	0.42
Adj. Flow (vph)	11	9	10	101	18	195	31	293	129	414	358	14
RTOR Reduction (vph)	0	9	0	0	168	0	0	15	0	0	1	0
Lane Group Flow (vph)	11	10	0	101	45	0	31	407	0	414	371	0
Heavy Vehicles (%)	0%	0%	0%	6%	0%	15%	5%	9%	8%	5%	0%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.2	11.2		11.2	11.2		43.8	41.7		55.3	49.2	
Effective Green, g (s)	11.2	11.2		11.2	11.2		43.8	41.7		55.3	49.2	
Actuated g/C Ratio	0.14	0.14		0.14	0.14		0.55	0.52		0.70	0.62	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	119	246		188	203		557	874		643	1165	
v/s Ratio Prot		0.01			0.03		0.00	0.24		c0.08	0.20	
v/s Ratio Perm	0.01			c0.08			0.03			c0.37		
v/c Ratio	0.09	0.04		0.54	0.22		0.06	0.47		0.64	0.32	
Uniform Delay, d1	29.7	29.5		31.7	30.3		8.2	11.9		5.7	7.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		2.9	0.6		0.0	1.8		1.7	0.7	
Delay (s)	30.1	29.6		34.7	30.9		8.2	13.7		7.3	7.9	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		29.8			32.1			13.3			7.6	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	79.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	23	102	24	13	0
Future Volume (Veh/h)	0	23	102	24	13	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	25	111	26	14	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	262	14	14			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	262	14	14			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	93			
cM capacity (veh/h)	677	1066	1604			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	25	137	14
Volume Left	0	111	0
Volume Right	25	0	0
cSH	1066	1604	1700
Volume to Capacity	0.02	0.07	0.01
Queue Length 95th (m)	0.6	1.8	0.0
Control Delay (s)	8.5	6.1	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	6.1	0.0
Approach LOS	A		

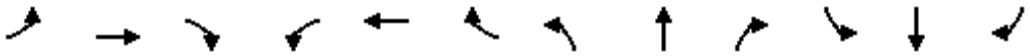
Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	65	51	183	206	146	194
Future Volume (Veh/h)	65	51	183	206	146	194
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.88	0.75	0.89	0.65	0.89
Hourly flow rate (vph)	87	58	244	231	225	218
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	1028	360			475	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1028	360			475	
tC, single (s)	6.6	6.7			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.7			2.3	
p0 queue free %	54	90			79	
cM capacity (veh/h)	187	597			1056	

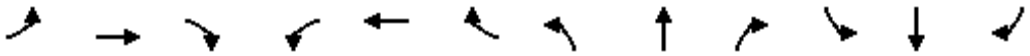
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	145	475	443
Volume Left	87	0	225
Volume Right	58	231	0
cSH	258	1700	1056
Volume to Capacity	0.56	0.28	0.21
Queue Length 95th (m)	25.1	0.0	6.4
Control Delay (s)	35.4	0.0	5.9
Lane LOS	E		A
Approach Delay (s)	35.4	0.0	5.9
Approach LOS	E		

Intersection Summary			
Average Delay	7.3		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	110	113	93	130	77	72	282	42	57	253	33
Future Volume (vph)	113	110	113	93	130	77	72	282	42	57	253	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1657		1719	1653		1719	1767		1641	1711	
Flt Permitted	0.54	1.00		0.43	1.00		0.53	1.00		0.42	1.00	
Satd. Flow (perm)	1025	1657		782	1653		962	1767		724	1711	
Peak-hour factor, PHF	0.70	0.76	0.59	0.68	0.75	0.78	0.49	0.71	0.50	0.71	0.82	0.70
Adj. Flow (vph)	161	145	192	137	173	99	147	397	84	80	309	47
RTOR Reduction (vph)	0	82	0	0	35	0	0	11	0	0	8	0
Lane Group Flow (vph)	161	255	0	137	237	0	147	470	0	80	348	0
Heavy Vehicles (%)	0%	6%	4%	5%	5%	15%	5%	4%	8%	10%	7%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.3	16.3		16.3	16.3		30.2	30.2		30.2	30.2	
Effective Green, g (s)	16.3	16.3		16.3	16.3		30.2	30.2		30.2	30.2	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.51	0.51		0.51	0.51	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	284	460		217	459		494	909		372	880	
v/s Ratio Prot		0.15			0.14			c0.27			0.20	
v/s Ratio Perm	0.16			c0.18			0.15			0.11		
v/c Ratio	0.57	0.56		0.63	0.52		0.30	0.52		0.22	0.40	
Uniform Delay, d1	18.2	18.1		18.6	17.9		8.2	9.4		7.8	8.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	2.5		8.1	1.9		0.3	0.5		0.3	0.3	
Delay (s)	22.4	20.6		26.6	19.8		8.5	9.9		8.1	9.0	
Level of Service	C	C		C	B		A	A		A	A	
Approach Delay (s)		21.2			22.1			9.6			8.8	
Approach LOS		C			C			A			A	

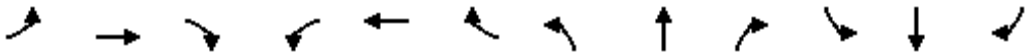
Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	12.2
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	130	7	12	193	72	13	3	15	19	2	15
Future Volume (Veh/h)	51	130	7	12	193	72	13	3	15	19	2	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.94	0.50	0.50	0.85	0.50	0.92	0.50	0.81	0.25	0.25	0.58
Hourly flow rate (vph)	102	138	14	24	227	144	14	6	19	76	8	26
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	371			152			647	761	138	639	631	227
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371			152			647	761	138	639	631	227
tC, single (s)	4.1			4.2			7.2	6.5	6.2	7.1	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.0	3.3	3.5	4.9	3.3
p0 queue free %	91			98			96	98	98	78	97	97
cM capacity (veh/h)	1199			1381			327	303	916	349	264	817

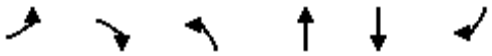
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	240	14	251	144	39	110
Volume Left	102	0	24	0	14	76
Volume Right	0	14	0	144	19	26
cSH	1199	1700	1381	1700	468	393
Volume to Capacity	0.09	0.01	0.02	0.08	0.08	0.28
Queue Length 95th (m)	2.2	0.0	0.4	0.0	2.2	9.0
Control Delay (s)	4.0	0.0	0.9	0.0	13.4	17.7
Lane LOS	A		A		B	C
Approach Delay (s)	3.7		0.6		13.4	17.7
Approach LOS					B	C

Intersection Summary				
Average Delay	4.6			
Intersection Capacity Utilization	33.8%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	36	63	104	33	340	92	409	98	225	350	19
Future Volume (vph)	23	36	63	104	33	340	92	409	98	225	350	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.87		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1703		1805	1590		1805	1810		1656	1806	
Flt Permitted	0.31	1.00		0.68	1.00		0.53	1.00		0.29	1.00	
Satd. Flow (perm)	598	1703		1292	1590		1005	1810		498	1806	
Peak-hour factor, PHF	0.83	0.80	0.84	0.84	0.73	0.95	0.86	0.86	0.81	0.90	0.95	0.71
Adj. Flow (vph)	28	45	75	124	45	358	107	476	121	250	368	27
RTOR Reduction (vph)	0	63	0	0	300	0	0	9	0	0	2	0
Lane Group Flow (vph)	28	57	0	124	103	0	107	588	0	250	393	0
Heavy Vehicles (%)	0%	3%	0%	0%	0%	4%	0%	2%	1%	9%	4%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	12.7	12.7		12.7	12.7		45.1	40.1		51.7	43.4	
Effective Green, g (s)	12.7	12.7		12.7	12.7		45.1	40.1		51.7	43.4	
Actuated g/C Ratio	0.16	0.16		0.16	0.16		0.58	0.51		0.66	0.56	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	97	276		210	258		631	929		452	1003	
v/s Ratio Prot		0.03			0.06		0.01	c0.33		c0.06	0.22	
v/s Ratio Perm	0.05			c0.10			0.09			0.31		
v/c Ratio	0.29	0.21		0.59	0.40		0.17	0.63		0.55	0.39	
Uniform Delay, d1	28.7	28.3		30.3	29.3		7.4	13.7		7.4	9.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.4		4.4	1.0		0.0	3.3		0.8	1.2	
Delay (s)	30.4	28.7		34.7	30.3		7.5	17.0		8.3	11.0	
Level of Service	C	C		C	C		A	B		A	B	
Approach Delay (s)		29.0			31.3			15.5			9.9	
Approach LOS		C			C			B			A	

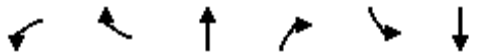
Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	17.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	89	33	12	22	0
Future Volume (Veh/h)	0	89	33	12	22	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	97	36	13	24	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	109	24	24			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109	24	24			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	98			
cM capacity (veh/h)	868	1052	1591			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	97	49	24
Volume Left	0	36	0
Volume Right	97	0	0
cSH	1052	1591	1700
Volume to Capacity	0.09	0.02	0.01
Queue Length 95th (m)	2.4	0.6	0.0
Control Delay (s)	8.8	5.4	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	5.4	0.0
Approach LOS	A		

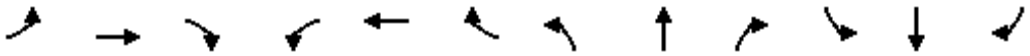
Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	184	140	269	68	41	238
Future Volume (Veh/h)	184	140	269	68	41	238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.82	0.88	0.75	0.42	0.79
Hourly flow rate (vph)	245	171	306	91	98	301
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	848	352			397	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	848	352			397	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	18	75			89	
cM capacity (veh/h)	298	690			907	

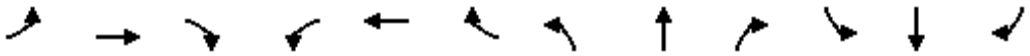
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	416	397	399
Volume Left	245	0	98
Volume Right	171	91	0
cSH	389	1700	907
Volume to Capacity	1.07	0.23	0.11
Queue Length 95th (m)	114.4	0.0	2.9
Control Delay (s)	98.6	0.0	3.3
Lane LOS	F		A
Approach Delay (s)	98.6	0.0	3.3
Approach LOS	F		

Intersection Summary			
Average Delay	34.9		
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	138	65	67	128	77	79	284	88	71	353	181
Future Volume (vph)	48	138	65	67	128	77	79	284	88	71	353	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.94		1.00	0.96		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1762		1770	1765		1805	1786		1752	1697	
Flt Permitted	0.58	1.00		0.57	1.00		0.13	1.00		0.44	1.00	
Satd. Flow (perm)	1035	1762		1065	1765		252	1786		817	1697	
Peak-hour factor, PHF	0.67	0.75	0.97	0.71	0.83	0.82	0.89	0.82	0.73	0.84	0.97	0.31
Adj. Flow (vph)	72	184	67	94	154	94	89	346	121	85	364	584
RTOR Reduction (vph)	0	23	0	0	39	0	0	17	0	0	77	0
Lane Group Flow (vph)	72	228	0	94	209	0	89	450	0	85	871	0
Heavy Vehicles (%)	6%	3%	5%	2%	0%	4%	0%	3%	0%	3%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	14.3	14.3		14.3	14.3		30.1	30.1		30.1	30.1	
Effective Green, g (s)	14.3	14.3		14.3	14.3		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.25	0.25		0.25	0.25		0.53	0.53		0.53	0.53	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	261	445		269	445		134	949		434	902	
v/s Ratio Prot		c0.13			0.12			0.25			c0.51	
v/s Ratio Perm	0.07			0.09			0.35			0.10		
v/c Ratio	0.28	0.51		0.35	0.47		0.66	0.47		0.20	0.97	
Uniform Delay, d1	17.0	18.2		17.3	17.9		9.6	8.3		6.9	12.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	2.0		1.6	1.6		11.7	0.4		0.2	21.8	
Delay (s)	18.2	20.1		19.0	19.6		21.3	8.7		7.1	34.6	
Level of Service	B	C		B	B		C	A		A	C	
Approach Delay (s)		19.7			19.4			10.7			32.3	
Approach LOS		B			B			B			C	

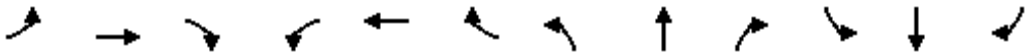
Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	56.6	Sum of lost time (s)	12.2
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	231	14	20	210	21	9	3	35	60	2	49
Future Volume (Veh/h)	21	231	14	20	210	21	9	3	35	60	2	49
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.92	0.75	0.64	0.75	0.25	0.50	0.50	0.70	0.38	0.25	0.88
Hourly flow rate (vph)	31	251	19	31	280	84	18	6	50	158	8	56
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	364			270			715	739	251	708	674	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	364			270			715	739	251	708	674	280
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			98			94	98	94	50	98	93
cM capacity (veh/h)	1206			1305			306	331	793	313	360	764

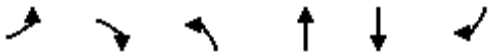
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	282	19	311	84	74	222
Volume Left	31	0	31	0	18	158
Volume Right	0	19	0	84	50	56
cSH	1206	1700	1305	1700	528	370
Volume to Capacity	0.03	0.01	0.02	0.05	0.14	0.60
Queue Length 95th (m)	0.6	0.0	0.6	0.0	3.9	29.9
Control Delay (s)	1.1	0.0	1.0	0.0	12.9	28.3
Lane LOS	A		A		B	D
Approach Delay (s)	1.0		0.8		12.9	28.3
Approach LOS					B	D

Intersection Summary				
Average Delay	7.9			
Intersection Capacity Utilization	48.6%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	8	7	80	10	157	24	261	98	326	348	7
Future Volume (vph)	4	8	7	80	10	157	24	261	98	326	348	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.86		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1758		1703	1442		1719	1668		1719	1882	
Flt Permitted	0.41	1.00		0.74	1.00		0.52	1.00		0.38	1.00	
Satd. Flow (perm)	771	1758		1332	1442		942	1668		687	1882	
Peak-hour factor, PHF	0.38	0.75	0.63	0.71	0.50	0.74	0.68	0.81	0.69	0.74	0.88	0.42
Adj. Flow (vph)	11	11	11	113	20	212	35	322	142	441	395	17
RTOR Reduction (vph)	0	9	0	0	180	0	0	15	0	0	1	0
Lane Group Flow (vph)	11	13	0	113	52	0	35	449	0	441	411	0
Heavy Vehicles (%)	0%	0%	0%	6%	0%	15%	5%	9%	8%	5%	0%	8%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	11.9	11.9		11.9	11.9		43.9	40.8		54.8	47.7	
Effective Green, g (s)	11.9	11.9		11.9	11.9		43.9	40.8		54.8	47.7	
Actuated g/C Ratio	0.15	0.15		0.15	0.15		0.55	0.51		0.69	0.60	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	115	262		198	215		549	853		601	1126	
v/s Ratio Prot		0.01			0.04		0.00	0.27		c0.09	0.22	
v/s Ratio Perm	0.01			c0.08			0.03			c0.41		
v/c Ratio	0.10	0.05		0.57	0.24		0.06	0.53		0.73	0.36	
Uniform Delay, d1	29.3	29.0		31.5	29.9		8.2	13.0		6.6	8.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		3.9	0.6		0.0	2.3		4.0	0.9	
Delay (s)	29.6	29.1		35.5	30.5		8.2	15.3		10.6	9.1	
Level of Service	C	C		D	C		A	B		B	A	
Approach Delay (s)		29.3			32.1			14.8			9.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	79.7	Sum of lost time (s)	17.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	24	103	26	14	0
Future Volume (Veh/h)	0	24	103	26	14	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	26	112	28	15	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	267	15	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	267	15	15			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	93			
cM capacity (veh/h)	672	1065	1603			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	26	140	15
Volume Left	0	112	0
Volume Right	26	0	0
cSH	1065	1603	1700
Volume to Capacity	0.02	0.07	0.01
Queue Length 95th (m)	0.6	1.8	0.0
Control Delay (s)	8.5	6.0	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	6.0	0.0
Approach LOS	A		

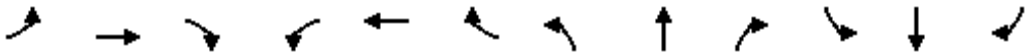
Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	23.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	68	55	202	209	149	214
Future Volume (Veh/h)	68	55	202	209	149	214
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.88	0.75	0.89	0.65	0.89
Hourly flow rate (vph)	91	63	269	235	229	240
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	1084	386			504	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1084	386			504	
tC, single (s)	6.6	6.7			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.7			2.3	
p0 queue free %	47	89			78	
cM capacity (veh/h)	171	575			1030	

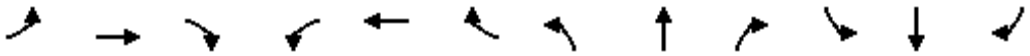
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	154	504	469
Volume Left	91	0	229
Volume Right	63	235	0
cSH	240	1700	1030
Volume to Capacity	0.64	0.30	0.22
Queue Length 95th (m)	31.5	0.0	6.8
Control Delay (s)	43.5	0.0	5.9
Lane LOS	E		A
Approach Delay (s)	43.5	0.0	5.9
Approach LOS	E		

Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	60.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	118	125	103	143	85	80	303	47	63	278	35
Future Volume (vph)	115	118	125	103	143	85	80	303	47	63	278	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.95		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1655		1719	1654		1719	1765		1641	1713	
Flt Permitted	0.50	1.00		0.39	1.00		0.50	1.00		0.38	1.00	
Satd. Flow (perm)	946	1655		712	1654		898	1765		654	1713	
Peak-hour factor, PHF	0.70	0.76	0.59	0.68	0.75	0.78	0.49	0.71	0.50	0.71	0.82	0.70
Adj. Flow (vph)	164	155	212	151	191	109	163	427	94	89	339	50
RTOR Reduction (vph)	0	83	0	0	35	0	0	11	0	0	7	0
Lane Group Flow (vph)	164	284	0	151	265	0	163	510	0	89	382	0
Heavy Vehicles (%)	0%	6%	4%	5%	5%	15%	5%	4%	8%	10%	7%	21%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.3	17.3		17.3	17.3		30.2	30.2		30.2	30.2	
Effective Green, g (s)	17.3	17.3		17.3	17.3		30.2	30.2		30.2	30.2	
Actuated g/C Ratio	0.29	0.29		0.29	0.29		0.51	0.51		0.51	0.51	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	274	479		206	479		454	892		330	866	
v/s Ratio Prot		0.17			0.16			c0.29			0.22	
v/s Ratio Perm	0.17			c0.21			0.18			0.14		
v/c Ratio	0.60	0.59		0.73	0.55		0.36	0.57		0.27	0.44	
Uniform Delay, d1	18.2	18.2		19.1	17.9		8.9	10.3		8.4	9.4	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.2	3.0		15.1	2.3		0.5	0.9		0.4	0.4	
Delay (s)	23.5	21.1		34.2	20.3		9.4	11.1		8.9	9.7	
Level of Service	C	C		C	C		A	B		A	A	
Approach Delay (s)		21.9			25.0			10.7			9.6	
Approach LOS		C			C			B			A	

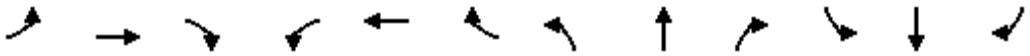
Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	12.2
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	143	8	13	213	74	14	3	16	20	2	16
Future Volume (Veh/h)	52	143	8	13	213	74	14	3	16	20	2	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.94	0.50	0.50	0.85	0.50	0.92	0.50	0.81	0.25	0.25	0.58
Hourly flow rate (vph)	104	152	16	26	251	148	15	6	20	80	8	28
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	399			168			695	811	152	686	679	251
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	399			168			695	811	152	686	679	251
tC, single (s)	4.1			4.2			7.2	6.5	6.2	7.1	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.0	3.3	3.5	4.9	3.3
p0 queue free %	91			98			95	98	98	75	97	96
cM capacity (veh/h)	1171			1363			300	282	900	322	245	793

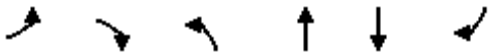
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	256	16	277	148	41	116
Volume Left	104	0	26	0	15	80
Volume Right	0	16	0	148	20	28
cSH	1171	1700	1363	1700	439	367
Volume to Capacity	0.09	0.01	0.02	0.09	0.09	0.32
Queue Length 95th (m)	2.3	0.0	0.5	0.0	2.5	10.7
Control Delay (s)	3.9	0.0	0.9	0.0	14.0	19.3
Lane LOS	A		A		B	C
Approach Delay (s)	3.7		0.6		14.0	19.3
Approach LOS					B	C

Intersection Summary				
Average Delay	4.7			
Intersection Capacity Utilization	35.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	40	70	115	36	365	102	451	108	245	387	21
Future Volume (vph)	25	40	70	115	36	365	102	451	108	245	387	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.91		1.00	0.87		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1703		1805	1591		1805	1810		1656	1806	
Flt Permitted	0.29	1.00		0.67	1.00		0.50	1.00		0.23	1.00	
Satd. Flow (perm)	547	1703		1277	1591		955	1810		394	1806	
Peak-hour factor, PHF	0.83	0.80	0.84	0.84	0.73	0.95	0.86	0.86	0.81	0.90	0.95	0.71
Adj. Flow (vph)	30	50	83	137	49	384	119	524	133	272	407	30
RTOR Reduction (vph)	0	69	0	0	318	0	0	9	0	0	2	0
Lane Group Flow (vph)	30	64	0	137	115	0	119	648	0	272	435	0
Heavy Vehicles (%)	0%	3%	0%	0%	0%	4%	0%	2%	1%	9%	4%	6%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2			6		
Actuated Green, G (s)	13.9	13.9		13.9	13.9		45.5	40.2		53.6	44.3	
Effective Green, g (s)	13.9	13.9		13.9	13.9		45.5	40.2		53.6	44.3	
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.57	0.50		0.67	0.55	
Clearance Time (s)	6.0	6.0		6.0	6.0		4.0	7.0		4.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		2.0	5.0		2.0	5.0	
Lane Grp Cap (vph)	94	294		220	274		595	903		409	993	
v/s Ratio Prot		0.04			0.07		0.01	c0.36		c0.08	0.24	
v/s Ratio Perm	0.05			c0.11			0.10			0.36		
v/c Ratio	0.32	0.22		0.62	0.42		0.20	0.72		0.67	0.44	
Uniform Delay, d1	29.2	28.6		30.9	29.7		8.1	15.7		9.4	10.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.4		5.4	1.0		0.1	4.9		3.1	1.4	
Delay (s)	31.1	29.0		36.3	30.8		8.2	20.6		12.6	12.1	
Level of Service	C	C		D	C		A	C		B	B	
Approach Delay (s)		29.4			32.1			18.7			12.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	17.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	90	33	13	24	0
Future Volume (Veh/h)	0	90	33	13	24	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	98	36	14	26	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	112	26	26			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	112	26	26			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	91	98			
cM capacity (veh/h)	865	1050	1588			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	98	50	26
Volume Left	0	36	0
Volume Right	98	0	0
cSH	1050	1588	1700
Volume to Capacity	0.09	0.02	0.02
Queue Length 95th (m)	2.5	0.6	0.0
Control Delay (s)	8.8	5.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.8	5.3	0.0
Approach LOS	A		

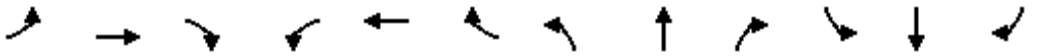
Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	187	144	297	72	42	263
Future Volume (Veh/h)	187	144	297	72	42	263
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.75	0.82	0.88	0.75	0.42	0.79
Hourly flow rate (vph)	249	176	338	96	100	333
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)			273			
pX, platoon unblocked						
vC, conflicting volume	919	386			434	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	919	386			434	
tC, single (s)	6.4	6.2			4.7	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.7	
p0 queue free %	7	73			89	
cM capacity (veh/h)	269	660			875	

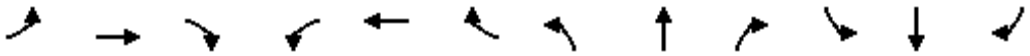
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	425	434	433
Volume Left	249	0	100
Volume Right	176	96	0
cSH	356	1700	875
Volume to Capacity	1.19	0.26	0.11
Queue Length 95th (m)	141.0	0.0	3.1
Control Delay (s)	143.9	0.0	3.3
Lane LOS	F		A
Approach Delay (s)	143.9	0.0	3.3
Approach LOS	F		

Intersection Summary			
Average Delay	48.4		
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	151	71	74	163	85	87	311	97	79	383	191
Future Volume (vph)	50	151	71	74	163	85	87	311	97	79	383	191
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.95		1.00	0.96		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1762		1770	1777		1805	1786		1752	1699	
Flt Permitted	0.49	1.00		0.53	1.00		0.13	1.00		0.40	1.00	
Satd. Flow (perm)	878	1762		995	1777		252	1786		731	1699	
Peak-hour factor, PHF	0.67	0.75	0.97	0.71	0.83	0.82	0.89	0.82	0.73	0.84	0.97	0.31
Adj. Flow (vph)	75	201	73	104	196	104	98	379	133	94	395	616
RTOR Reduction (vph)	0	23	0	0	33	0	0	17	0	0	76	0
Lane Group Flow (vph)	75	251	0	104	267	0	98	495	0	94	935	0
Heavy Vehicles (%)	6%	3%	5%	2%	0%	4%	0%	3%	0%	3%	1%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.7	15.7		15.7	15.7		30.2	30.2		30.2	30.2	
Effective Green, g (s)	15.7	15.7		15.7	15.7		30.2	30.2		30.2	30.2	
Actuated g/C Ratio	0.27	0.27		0.27	0.27		0.52	0.52		0.52	0.52	
Clearance Time (s)	6.1	6.1		6.1	6.1		6.1	6.1		6.1	6.1	
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	237	476		268	480		130	928		379	883	
v/s Ratio Prot		0.14			c0.15			0.28			c0.55	
v/s Ratio Perm	0.09			0.10			0.39			0.13		
v/c Ratio	0.32	0.53		0.39	0.56		0.75	0.53		0.25	1.06	
Uniform Delay, d1	16.9	18.0		17.3	18.2		11.0	9.3		7.7	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	2.0		1.9	2.4		21.6	0.6		0.3	47.0	
Delay (s)	18.5	20.1		19.2	20.6		32.7	9.9		8.0	60.9	
Level of Service	B	C		B	C		C	A		A	E	
Approach Delay (s)		19.7			20.2			13.5			56.4	
Approach LOS		B			C			B			E	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	12.2
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	255	15	22	232	21	10	3	38	61	2	51
Future Volume (Veh/h)	22	255	15	22	232	21	10	3	38	61	2	51
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.67	0.92	0.75	0.64	0.75	0.25	0.50	0.50	0.70	0.38	0.25	0.88
Hourly flow rate (vph)	33	277	20	34	309	84	20	6	54	161	8	58
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	393			297			782	804	277	777	740	309
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	393			297			782	804	277	777	740	309
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			93	98	93	42	98	92
cM capacity (veh/h)	1177			1276			272	302	767	278	328	736

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	310	20	343	84	80	227
Volume Left	33	0	34	0	20	161
Volume Right	0	20	0	84	54	58
cSH	1177	1700	1276	1700	488	333
Volume to Capacity	0.03	0.01	0.03	0.05	0.16	0.68
Queue Length 95th (m)	0.7	0.0	0.7	0.0	4.6	38.0
Control Delay (s)	1.1	0.0	1.0	0.0	13.8	36.2
Lane LOS	A		A		B	E
Approach Delay (s)	1.0		0.8		13.8	36.2
Approach LOS					B	E

Intersection Summary				
Average Delay	9.4			
Intersection Capacity Utilization	51.3%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	68	55	202	209	149	214
Future Volume (vph)	68	55	202	209	149	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5		5.5		5.5	5.5
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.94		0.94		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1323		1641		1671	1727
Flt Permitted	0.97		1.00		0.43	1.00
Satd. Flow (perm)	1323		1641		760	1727
Peak-hour factor, PHF	0.75	0.88	0.75	0.89	0.65	0.89
Adj. Flow (vph)	91	62	269	235	229	240
RTOR Reduction (vph)	28	0	35	0	0	0
Lane Group Flow (vph)	126	0	469	0	229	240
Heavy Vehicles (%)	22%	46%	8%	9%	8%	10%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	18.3		60.7		60.7	60.7
Effective Green, g (s)	18.3		60.7		60.7	60.7
Actuated g/C Ratio	0.20		0.67		0.67	0.67
Clearance Time (s)	5.5		5.5		5.5	5.5
Lane Grp Cap (vph)	269		1106		512	1164
v/s Ratio Prot	c0.10		0.29			0.14
v/s Ratio Perm					c0.30	
v/c Ratio	0.47		0.42		0.45	0.21
Uniform Delay, d1	31.6		6.7		6.8	5.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	5.8		1.2		2.8	0.4
Delay (s)	37.3		7.9		9.6	5.9
Level of Service	D		A		A	A
Approach Delay (s)	37.3		7.9			7.7
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	187	144	297	72	42	263
Future Volume (vph)	187	144	297	72	42	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		5.5		5.5	5.5
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.94		0.97		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1721		1673		1128	1827
Flt Permitted	0.97		1.00		0.45	1.00
Satd. Flow (perm)	1721		1673		539	1827
Peak-hour factor, PHF	0.75	0.82	0.88	0.75	0.42	0.79
Adj. Flow (vph)	249	176	338	96	100	333
RTOR Reduction (vph)	51	0	15	0	0	0
Lane Group Flow (vph)	374	0	419	0	100	333
Heavy Vehicles (%)	0%	3%	2%	39%	60%	4%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	15.9		24.7		24.7	24.7
Effective Green, g (s)	15.9		24.7		24.7	24.7
Actuated g/C Ratio	0.31		0.49		0.49	0.49
Clearance Time (s)	4.5		5.5		5.5	5.5
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	540		816		263	891
v/s Ratio Prot	c0.22		c0.25			0.18
v/s Ratio Perm					0.19	
v/c Ratio	0.69		0.51		0.38	0.37
Uniform Delay, d1	15.2		8.8		8.1	8.1
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	3.8		2.3		0.9	0.3
Delay (s)	19.0		11.2		9.1	8.4
Level of Service	B		B		A	A
Approach Delay (s)	19.0		11.2			8.5
Approach LOS	B		B			A

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	50.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Section 12

Notice of PIC and Related Correspondence

Registration for kindergarten at UGDSB is now available

By Advertiser Staff

GUELPH – Kindergarten registration at the Upper Grand District School Board (UGDSB) is now available.

UGDSB is reminding families the registration for new UGDSB junior kindergarten and senior kindergarten students for September 2022 will take place between Jan. 4 to 21.

Families can pre-register online at www.ugdsb.ca/Kindergarten.

Once registered, make sure that you have received a confirmation email to your inbox (the board asks that you check your spam folder if you do not receive it in your main inbox folder).

From there, families must make an appointment online with your school to provide the required documents.

"The online pre-registration process allows families to fill out the pre-registration form when it's convenient for them," UGDSB official's state.

"If parents and guardians require assistance pre-registering online or do not have access to technology, they are asked to contact their child's home school."

If English is not your family's first language, the UGDSB website can be translated by selecting the preferred language from the "Select Language" button on the top right-hand side of the website.

If applying to French immersion (FI), you must complete the application process, including submission of all required documents by 4pm on Jan. 21.

All UGDSB schools that offer FI at the junior kindergarten level have an enrolment cap.

All parents/guardians wishing to apply for the program must complete their pre-registration and FI application by Jan. 21 at 4pm in order to be considered 'on time.'

For more information on the junior kindergarten FI application and selection process, visit www.ugdsb.ca/jkfi.

Currently all registrations for the 2022-23 school year are for in-person learning. For more information about kindergarten registration, visit the board website.

Top Wellington Advertiser tweets for 2021

JANUARY

A program launched by local paramedics in 2016 to monitor patients with chronic diseases in their homes, is helping to fill a gap in staffing at Caressant Care Arthur as #COVID19 spreads through the facility. bit.ly/3sa5L0c

JAN. 8

FEBRUARY

Centre Wellington councillor Steven VanLeeuwen has joined the 'End the Lockdowns Caucus,' a group of current and former politicians opposed to #COVID19 restrictions imposed by the province. bit.ly/36OzeE1

FEB. 5

MARCH

Centre Wellington Fire Chief Brad Patton retiring next month. bit.ly/3w0UqS8

MARCH 25

APRIL

For the second consecutive year, The Wellington Advertiser has been named the top community newspaper in Ontario in its circulation class. bit.ly/32JfejF

APRIL 24

MAY

Wellington County is seeking public input on an environmental assessment of four bridges southeast of Arthur. Replacement is recommended for the Wellington Road 109 bridges spanning the Conestogo River. bit.ly/3hUvmYx

MAY 27

JUNE

Wellington OPP Staff Sergeant Bruce Aitken retiring after more than three decades. bit.ly/3zKDNfo

JUNE 23

JULY

Fergus boy's Canada Day lemonade sale raises $1200 for autism services. bit.ly/3hkjuyl

JULY 6

AUGUST

A 31-year-old Fergus man is dead and an OPP officer is seriously injured following an incident on Belsyde Avenue in Fergus today. bit.ly/3jQkjyU

AUG. 15

SEPTEMBER

Dozens of classic and classy vehicles on display at Drayton Rotary cruise night. Event includes fundraising barbecue. Show on till 8pm in municipal parking lot downtown.

SEPT. 6

OCTOBER

'Wellington County has lost a great man': Advertiser founder Bill Adsett dies at 86. bit.ly/3FtLedE

OCT. 7

NOVEMBER

Wellington residents placed remembrance candles at memorial markers commemorating the county's war dead on the front lawn of the Wellington County Museum and Archives on the evening of Nov. 10. Candles will remain lit until November 12. #LestWeForget

NOV. 10

DECEMBER

Deceased in fatal collision in Wellington North identified. bit.ly/3GpevWF

DEC. 8

FOLLOW US ON TWITTER FOR LOCAL STORIES AND BREAKING NEWS
@WellyAdvertiser

NOTICES

Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON
CLASS ENVIRONMENTAL ASSESSMENT
DICKSON DRIVE EXTENSION
NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

Project Background:
The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Study Process:
The Township initiated a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015).



Public Information Centre (PIC) No. 1:
Consultation with the public, key stakeholders, indigenous groups and regulatory agencies is an important component of the Class EA Process. The purpose of this PIC is to solicit feedback and input on the Study, as well as provide an overview of the Study process and discuss the evaluation of alternative solutions and the preliminary preferred alternative. The Virtual Public Open House will provide background and display information materials inviting public response and be open for comments from **Monday, January 17th – January 31st, 2022**. The virtual consultation platform can be accessed online through the Township's website at https://www.connectcw.ca/

How to Respond:
If you have any questions, comments, require further information, and/or would like to be added to the project contact list, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This notice first issued on **January 6th, 2022**.

NEWS AS IT HAPPENS
Follow the Advertiser on twitter.com @WellyAdvertiser

NOTICES



TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

Project Background:
The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Study Process:
The Township initiated a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015).



Public Information Centre (PIC) No. 1:
Consultation with the public, key stakeholders, indigenous groups and regulatory agencies is an important component of the Class EA Process. The purpose of this PIC is to solicit feedback and input on the Study, as well as provide an overview of the Study process and discuss the evaluation of alternative solutions and the preliminary preferred alternative. The Virtual Public Open House will provide background and display information materials inviting public response and be open for comments from **Monday, January 17th – January 31st, 2022**. The virtual consultation platform can be accessed online through the Township's website at https://www.connectcw.ca/

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Lee Wheildon, C.E.T.,rcca
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Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This notice first issued on **January 6th, 2022.**

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

April 21, 2022

ADDRESS 1
ADDRESS 2
ADDRESS 3
ADDRESS 4

ATTENTION: NAME

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear NAME,

You are invited to the first virtual *Public Information Centre (PIC)* for the above noted project so that we can update you on the Dickson Drive Extension, Class Environmental Assessment (Class EA). Formal notice of this information centre has been included. Details for the invite are as follows:

Monday, January 17th, 2022 – January 31st, 2022
Virtually (online)
Township of Centre Wellington's website
https://www.connectcw.ca

Project Background
The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington has commenced with a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property and the alternative being considered is contained on the attached Notice of Public Information Centre for your reference.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township."*

Purpose of Public Consultation
The purpose of this Public Information Centre is to update all stakeholders, approval agencies and First Nation communities on the progress of the project, discuss the evaluation of alternative solutions, and invite you to provide your comments and feedback on a preferred alternative. From **Monday, January 17th to January 31st, 2022**, you will be able to view a display of background information and materials regarding the project on the Township's website noted.

We look forward to receiving your comments and should you have any questions regarding this public consultation, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre
cc: Lee Wheildon, Township of Centre Wellington

DRAFT

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • GRAVENHURST • HARRISTON

January 12, 2022

Township of Centre Wellington
Civic Centre
1 MacDonald Square
ELORA, Ontario
N0B 1S0

Attention: Lee Wheildon, C.E.T., rcca

RE: TOWNSHIP OF CENTRE WELLINGTON,
CLASS ENVIRONMENTAL ASSESSMENT
(CLASS EA), SCHEDULE 'B',
DICKSON DRIVE EXTENSION, FERGUS
NOTICE OF VIRTUAL PUBLIC INFORMATION
CENTRE (PIC)
CONTRACT NO.: 6468-21
OUR FILE: M6468C

Dear Lee:

The attached *Notice of Project Virtual Public Information Centre (PIC)* and sample letter for the *Township of Centre Wellington, Class Environmental Assessment (Class EA), Schedule 'B', Proposed Dickson Drive Extension, Town of Fergus* was sent to the following Agencies, Property Owners and Area Residents. The *Notice of Project Virtual Public Information Centre (PIC)* was also sent to Municipal staff and is being advertised in The Wellington Advertiser for two (2) consecutive weeks starting Thursday, January 6th and January 13th, 2022 (attached).

AGENCIES

	Name & Address	Contact Information
1	Ministry of Environment, Conservation and Parks (MECP) Environmental Assessment and Approvals Branch (EAAB) 135 St. Clair Avenue West, 1st Floor Toronto, Ontario M4V 1P5	Director, Class EA's and Declaration Section E: EAASIBgen@ontario.ca 1-800-461-6290
2	Ministry of Environment, Conservation and Parks (MECP), Hamilton Regional Office Ellen Fairclough Building 12th Floor, 119 King Street West Hamilton, Ontario L8P 4Y7	General -- 905-521-7640 E: Mark.Badali1@ontario.ca Tel: (416) 457-2155 E: eanotification.wcregion@ontario.ca EA Planning Co-ordinator (West Central Region) cc: Del Villar Cuicas, Joan (MECP) Joan.DelVillarCuicas@ontario.ca

3	Ministry of Environment, Conservation and Parks (MECP) Guelph District Office 1 Stone Road West Guelph, Ontario N1G 4Y2	Nicole Ainlay, District Water Inspector E: Nicole.Ainlay@ontario.ca Tel: (519) 546-9301
4	Ministry of Municipal Affairs & Housing Community Planning and Development 659 Exeter Road, 2nd Floor London, Ontario N6E 1L3	Erick Boyd, RPP, MCIP, Manager, Community Planning and Development, Municipal Services E: erick.boyd@ontario.ca Tel: (519) 873-4025
5	Ministry of Heritage, Sport, Tourism and Culture Culture Division, Heritage Planning Unit 401 Bay Street, Suite 1700 Toronto, Ontario M7A 0A7	Dan Minkin, Heritage Planner E: dan.minkin@ontario.ca Tel: (416) 786-7553 cc: Joseph Harvey joseph.harvey@ontario.ca cc: Karla Barboza T: 613-242-3743 karla.barboza@ontario.ca
6	Ministry of Natural Resources and Forestry (MNRF) Guelph District Office 1 Stone Road West Guelph, Ontario N1G 4Y2	Ian Thornton, Resources Operations Supervisor E: ian.thornton@ontario.ca General Tel: 226-820-5050
7	Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Guelph District Office 1 Stone Road West Guelph, Ontario N1G 4Y2	Karina Cerniavskaja, District Planner E: MNRF.Ayl.Planners@ontario.ca
8	Ministry of Transportation 659 Exeter Road London, Ontario N6E1L3	Tom Hewitt, Head, Corridor Management (West) tom.hewitt@ontario.ca Tel: (416) 235-3744
9	Grand River Conservation Authority 400 Clyde Road Box 729 Cambridge, Ontario N1R 5W6	Laura Warner E: lwarner@grandriver.ca Tel: (519) 621-2763 Ext. 2231 Dwight Boyd, Director Engineering E: dboyd@grandriver.ca Tel: (519) 621-2763 Ext. 2225
10	County of Wellington 74 Woolwich Street Guelph, Ontario N1H 3T9	Aldo Salis, Director of Planning & Development E: aldos@wellington.ca Tel: (519) 837-2600 Ext. 2100 Don Kudo, County Engineer Tel: (519) 837-2600 Ext.2280 E: donk@wellington.ca Joe de Konig, County Engineer Tel: (519) 837-2600 Ext. 2270 E: joedk@wellington.ca Meagan Ferris, Manager of Planning and Environment E: meaganf@wellington.ca
11	Six Nations Land and Resources 2498 Chiefswood Road P.O. Box 5000	Lonny Bomberry, Land & Resources Director E: lonnybomberry@sixnations.ca Joanne Thomas, Consultation Supervisor

	Ohsweken, Ontario N0A 1M0	E: jthomas@sixnations.ca
12	Mississauga of the Credit First Nation (MNCFN) 2789 Mississauga Road. R.R. #6 Hagersville, Ontario N0A 1H0	Chief R. Stacey Laforme E: stacey.laforme@mncfn.ca Tel: (905) 768-1133 Mark Laforme, DOCA E: mark.laforme@mncfn.ca Tel: (905) 768-4260 Fawn Sault, Consultation Manager E: Fawn.Sault@mncfn.ca
13	Mississauga of the Credit First Nation (MNCFN) 2789 Mississauga Road. R.R. #6 Hagersville, Ontario N0A 1H0	Megan DeVries, M.A., Archaeological Operations Supervisor E: Megan.DeVries@mncfn.ca Tel: (905) 768-4260 Joelle Williams, Consultation Manager Dept. of Consultation and Accommodation E: joelle.williams@mncfn.ca
14	Six Nations of the Grand River Territory 1695 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Chief Mark B. Hill E: markhill@sixnations.ca Tel: (519) 445-2201
15	Six Nations of the Grand River Territory 1695 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Tanya Hill-Montour, Archaeological Supervisor E: tanyahill-montour@sixnations.ca Tel: (519) 753-0665
16	Ministry of Aboriginal Affairs Aboriginal Relations/Ministry Partnerships Branch 9th Floor, 160 Bloor Street East Toronto, Ontario M7A 2E6	Pauline Wakegijig, Exec. Assistant (Acting) Policy and Consultation Unit, 4th Floor Tel: (416) 526-7202 E: Pauline.wakegijig@ontario.ca Heather Levecque, Director E:heather.levecque@ontario.ca
17	Ministry of Indigenous Relations and Reconciliation 160 Bloor Street East, 4th 9th Floor Toronto, Ontario M7A 2E6	Jessica Hill, Senior Advisor, Indigenous Relations Unit E: jessica.hill2@ontario.ca Tel: (416) 326-4744 Sarah Zelcer, Manager (Acting), Indigenous Relations Unit E: sarah.zelcer@ontario.ca Tel: (647) 964-4095
18	Haudenosaunee Confederacy Chiefs Council 16 Sunrise Court, Suite 600 P.O. Box 714 Ohsweken, Ontario N0A 1M0	Hohahes Leroy Hill Secretary to Haudenosaunee Confederacy Chiefs Council E: jocko@sixnationsns.com Tel: (519) 445-4222 Wayne Hill E: tworowarchaeology@gmail.com Tel: (226) 388-7135 Todd Williams E: williams.todde@gmail.com
19	Metis Nation of Ontario Suite 1100, 66 Slater Street Ottawa, Ontario K1P 5H1	E: consultations@metisnation.org

20	Ministry of Agriculture, Food and Rural Affairs (OMAFRA) Elora Resource Center, Centre Regional Office 6484 Wellington Road 7, Unit 10 Elora, Ontario N0B 1S0	Tammy Armstrong, Manager (Acting) E: tammy.armstrong@ontario.ca Tel: (519) 400-4242 General Tel: (519) 846-0941
21	Natalie Kelloway, Facility Manager CBRE Limited l Global Workplace Solutions IO Property and Land Management Services	Kelloway, Natalie @ CBRE GCS Canada E: Natalie.Kelloway@cbre.com Cell: 226 203 0183
22	Department of Fisheries & Oceans Canada Burlington Office 3027 Harvester Road, Unit 304 Burlington, Ontario L7R 4K3	TRIAGE Group E: fisheriesprotection@dfo-mpo.gc.ca Tel: 1-855-852-8320

TOWNSHIP OF CENTRE WELLINGTON

	Name & Address	Contact Information
23	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Mayor Kelly Linton mayor@centrewellington.ca 519-846-9691 Ext. 294
24	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Kerri O'Kane, Manager of Legislative Services / Municipal Clerk kokane@centrewellington.ca 519-846-9691 Ext. 243
25	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Dan Wilson, Chief Administrative Officer dwilson@centrewellington.ca 519-846-9691 Ext. 234
26	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Managing Director of Corporate Services / Treasurer 519-846-9691 Ext. 224
27	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Kyle Davis, Risk Management Official, Source Water Protection kdavis@centrewellington.ca
28	Township of Centre Wellington Planning & Development Department 1 MacDonald Square Elora, Ontario N0B 1S0	Mariana Iglesias, Senior Planner miglesias@centrewellington.ca 519-846-9691 Ext. 289 cc: Brett Salmon, Managing Director of Planning & Development bsalmon@centrewellington.ca 519-846-9691 Ext. 297
29	Township of Centre Wellington Public Works Department 7444 Wellington Road 21 Elora, Ontario N0B 1S0	Colin Baker, Managing Director of Infrastructure Services cbaker@centrewellington.ca 519-846-9691 Ext. 357
30	Township of Centre Wellington Public Works Department 7444 Wellington Road 21 Elora, Ontario N0B 1S0	John Gaddye, Superintendent of Public Works jgaddye@centrewellington.ca 519-846-9691 Ext. 363
31	Township of Centre Wellington Fire Department	Tom Mulvey, Fire Chief 519-846-9691 Ext. 389

	250 Queen Street West Fergus, Ontario N1M 1S8	tmulvey@centrewellington.ca
32	Township of Centre Wellington Emergency Services 1 MacDonald Square Elora, Ontario N0B 1S0	Chantalle Pellizzari, Community Emergency Management Coordinator 519-846-9691 Ext. 241 cpellizzari@centrewellington.ca Shannon Koestner, Community Emergency Management Coordinator 519-846-9691 Ext. 249 skoestner@centrewellington.ca
33	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Kendra Martin, Communications Officer kmartin@centrewellington.ca 519-846-9691 Ext. 220
34	Township of Centre Wellington 1 MacDonald Square Elora, Ontario N0B 1S0	Pat Newson, Managing Director of Community Services pnewson@centrewellington.ca 519-846-9691 Ext. 319
35	Township of Centre Wellington Councillors	Bob Foster bobfoster2@hotmail.com
		Neil Dunsmore neildunsmore@neildunsmore.com
		Ian MacRae ianmacrae@ianmacrae.org
		Kirk McElwain inverhaugh@gmail.com
		Steven VanLeeuwen asem.inc@gmail.com
		Stephen Kitras skitras@kitras.com

RESIDENTS AND STAKEHOLDERS

	Name & Address	Contact Information
36	BLUHM, Audrey Mary BLUHM, Larry Otto 6502 First Line West Garafraxa, RR3 Fergus, Ontario N1M 2W4	
37	LUNN, Gordon Gregory MADORE Donna Marie 6504 First Line Fergus, Ontario N1M 2W4	E: gordonlunn@bellnet.ca Tel: (519) 831-6376
38	LANDONI, Peter Vincent LANDONI, Carol Jean 6506 First Line West Garafraxa, RR3 Fergus, Ontario N1M 2W4	E: plandoni@sympatico.ca
39	THALEN, Alexander THALEN, Laura Leigh 6507 First Line Fergus, Ontario N1M 2W4	

40	Anchor Canadian Reformed ASN For The Handicapped 6528 First Line, RR3 Fergus, Ontario N1M 2W4	
41	REEVES, Robert William REEVES, Doreen Marilyn 6546 First Line RR3 STN MAIN Fergus, Ontario N1M 2W4	
42	EWEN, Barry and Nancy 8105 Wellington Road 19 RR 3 STN MAIN Fergus, Ontario N1M 2W4	
43	LINDSEY, Andrea Kathleen Ruth LINDSEY, Donald Paul 8166 Wellington Road 19 Fergus, Ontario N1M 2W4	
44	MEDEMBLIK, Cornelius Henry MEDEMBLIK, Arlene Joanne 8154 Wellington Road 19 RR 3, STN MAIN Fergus, Ontario N1M 2W4	
45	COULTER, Kelsye 6570 First Line Fergus, ON N1M 2W4	E: kelsye.coulter@icloud.com
46	ALTON, Eddie Allan FLEMING, Cynthia Lee 8140 Wellington Road 19 RR3 Fergus, Ontario N1M 2W4	
47	MILLARD, Lawrence 8144 Wellington Road 19 Fergus, Ontario N1M 2W4	
48	BUNA, Richard David BUNA, Jenna Marie 8146 Wellington Road 19 Fergus, Ontario N1M 2W4	
49	RYAN, Michael Patrick O'NEILL, Courtney Erin 8132 Wellington Road 19 Fergus, Ontario N1M 2W4	
50	JACKSON, Alfreda and Peter 8124 Wellington Road 19 RR 3 Fergus, Ontario N1M 2W4	
51	KROPF, Tyler Joseph Patrick 8103 Wellington Road 19 RR 3 Fergus, Ontario N1M 2W4	
52	Canadian Reformed Church of Fergus North P.O. Box 277, Fergus, Ontario N1M 2W7	

53	1581650 ONTARIO LTD. c/o Leonard Burns 8 Gow Street Fergus, Ontario N1M 3L2	
54	2224171 ONTARIO INC. 5332 Fourth Line, RR 3 Rockwood, Ontario N0B 2K0	
55	ERGO ADVANTAGE INC. P.O. Box 352 Fergus, Ontario N1M 3E2	
56	AVERTEX UTIITY SOLUTIONS INC. 205235 County Road 109 Amaranth, Ontario L9W 0T8	
57	JOHN BURT ENTERPRISES LTD. 5662 Wellington Road 24 P.O. Box 539 Hillsburgh, Ontario N0B 1Z0	E: johnburt@sympatico.ca
58	RADAJA INC. c/o Ralph Gorgi 5954 Wellington Road 7, RR 5 Guelph, Ontario N1H 6J2	
59	1254887 Ontario Ltd. c/o Andy Vandermarel Box 127, 655 Dickson Drive Fergus, Ontario N1M 2W7	
60	BNR Architectural c/o The Bar Store 640 Dickson Drive, Box 205 Fergus, Ontario N1M 2W7	
61	R& K.POPE HOLDINGS LTD. 770 Glengarry Crescent Fergus, Ontario N1M 2W7	
62	RBS & EJS FERGUS G.P. INC. 3700 Steeles Avenue West Suite 800 Woodbridge, Ontario L4L 8M9	
63	Taylor E-Tech MFG Inc. 185 Curtis Drive Guelph, Ontario N1K 1S9	
64	2075589 ONTARIO INC. 260 Forfar Street East Fergus, Ontario N1M 2X7	
65	7-M PROPERTIES LTD. c/o Voyageur Transportation Services 573 Admiral Court London, Ontario N5V 4L3	

We trust you will find the enclosed to be in order. Should you have any questions or require additional information, please do not hesitate to contact our office.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin Lyttle, P. Eng.
Project Manager

DCL/sjp
Encl.
cc: Ray Kirtz, Triton Engineering Services Limited

Student

From: Dustin Lyttle
Sent: January 28, 2022 1:48 PM
To: Shari Page
Subject: Dickson Drive Development 6518 First Line - CW Dog Park Committee

For file.

From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: January 28, 2022 1:47 PM
To: Lee Wheildon <LWheildon@centrewellington.ca>
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>; Karen Hurson <karenhurson@gmail.com>
Subject: Thoughts on Industrial Development on 6518 1st Line from the CW Dog Park Committee

Hi Lee and Dustin,

Thanks for your replies. I'm responding now on behalf of the Dog Park Committee. You're right, of course, Lee — the pond on the property that's being developed is not officially part of the dog park. It's just that historically, Bob Reeves has welcomed dog park users on his property which is adjacent to 6518 1st Line and the pond was accessible from Bob's property. The previous owners of 6518 1st Line never objected to the dog park users walking along the path (and the dogs swimming in the pond) probably because they were absentee landlords and were unaware of us using it. Nevertheless, for longer than a decade, that pond has become a much loved spot for many park goers. Then TCW purchased the property and it certainly didn't feel like trespassing as it was now public property. But, yes, I suppose dogs should be leashed while there.

The industrial development of this property now, makes it pressing for the Dog Park Committee to approach TCW council to propose that the pond officially become part of the Park. This undoubtedly will be a lengthy process but I would hope that until a decision is made, it would be prudent to not go ahead with a multi use pathway that skirts the pond and (perhaps) ends at the CW dog park. (Even if the pond does not become part of the dog park, there are many unleashed dogs within the border of the existing dog park, who could feasibly leave the dog park boundary and (inadvertently) interfere with the adjacent trail users — we think it's asking for trouble!)

So, to summarize, the Dog Park Committee recommends that the industrial development of 6518 1st Line not include a multi use pathway (at least at this time). We also think that the 30 metre buffer zone between natural wetlands and any land development should be considered a minimum setback distance. Within this 30 metre buffer zone, we support the plantings of native trees, shrubs and flora.

_____
Kelsye Coulter (Dog Park Committee member)
kelsye.coulter@icloud.com

From: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Sent: February 2, 2022 10:51 AM
To: Dustin Lyttle; Shannon Davison
Cc: Lee Wheildon; Shari Page
Subject: RE: Thoughts on Industrial Development on 6518 1st Line from the CW Dog Park Committee

Hi Dustin,

Including the pond within the dog park limits would not be a sound decision from an environmental perspective. GRCA would not be supportive of this, as it is included as part of the PSW boundary, and provides amphibian breeding habitat for several species.

If anything, we should be working on closing all the unsanctioned trails leading from the dog park into the wetland feature as a whole, as dogs are far more likely to be destructive to flora, spread invasive species and disturb wildlife during important life processes (nesting, breeding, overwintering etc.) . We've only suggested a reduced buffer with the recommendation to create a landscape plan to reduce access and improve the buffer around the entire wetland, including the pond, as its currently almost completely surrounded by a well worn, unsanctioned, trail from the dog park, a reduced buffer is going to be an improvement over the existing conditions.

I understand this is what they've been doing for years, but that doesn't mean its not bad for the flora and fauna present there, and ultimately, the dog park should be limited from entering the wetland at all, either through fencing, or a deterrent based buffer plan (think lots of raspberry and brambles).

Dogs in off leash parks should also be under control by their owners at all times, dogs wandering off site shouldn't be occurring at all, but that's just my soap box on untrained dogs at the dog park with zero recall.

Cheryl-Anne Ross
Ecology Lead & Wildlife Ecologist
519-822-6839 x 321

From: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Sent: February 2, 2022 10:29 AM
To: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Shannon Davison <sdavison@aboudtng.com>
Cc: Lee Wheildon <LWheildon@centrewellington.ca>; Shari Page <spage@tritoneng.on.ca>
Subject: FW: Thoughts on Industrial Development on 6518 1st Line from the CW Dog Park Committee

Unverified Sender

Good Morning Cheryl-Anne and Shannon,

Please see below response we received from Kelsye Coulter, an active member of the CW Dog Park Committee. As she indicates, they are looking to expand the existing dog park to include the pond in the north corner of the property. Discussions regarding this do not fall under the scope of the Municipal

Class EA and as such we intend to continue discussions regarding the changes to the dog park boundaries during detailed Design.

However; before we respond and/or take this idea much further we wanted to touch base with your team regarding the pond and its current and future use as a "dog pond". If the Township were to expand the dog park to include this area, that would be, in a sense, promoting the use of that pond for dog swimming etc. Based on the EIS, this pond is included within the PSW area, and so is it your opinion that using this pond for dog play is not recommended as it presents hazards to the flora and fauna?

Thanks,
Dustin Lyttle

From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: January 28, 2022 1:47 PM
To: Lee Wheildon <LWheildon@centrewellington.ca>
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>; Karen Hurson <karenhurson@gmail.com>
Subject: Thoughts on Industrial Development on 6518 1st Line from the CW Dog Park Committee

Hi Lee and Dustin,

Thanks for your replies. I'm responding now on behalf of the Dog Park Committee. You're right, of course, Lee — the pond on the property that's being developed is not officially part of the dog park. It's just that historically, Bob Reeves has welcomed dog park users on his property which is adjacent to 6518 1st Line and the pond was accessible from Bob's property. The previous owners of 6518 1st Line never objected to the dog park users walking along the path (and the dogs swimming in the pond) probably because they were absentee landlords and were unaware of us using it. Nevertheless, for longer than a decade, that pond has become a much loved spot for many park goers. Then TCW purchased the property and it certainly didn't feel like trespassing as it was now public property. But, yes, I suppose dogs should be leashed while there.

The industrial development of this property now, makes it pressing for the Dog Park Committee to approach TCW council to propose that the pond officially become part of the Park. This undoubtedly will be a lengthy process but I would hope that until a decision is made, it would be prudent to not go ahead with a multi use pathway that skirts the pond and (perhaps) ends at the CW dog park. (Even if the pond does not become part of the dog park, there are many unleashed dogs within the border of the existing dog park, who could feasibly leave the dog park boundary and (inadvertently) interfere with the adjacent trail users — we think it's asking for trouble!)

So, to summarize, the Dog Park Committee recommends that the industrial development of 6518 1st Line not include a multi use pathway (at least at this time). We also think that the 30 metre buffer zone between natural wetlands and any land development should be considered a minimum setback distance. Within this 30 metre buffer zone, we support the plantings of native trees, shrubs and flora.

_____
Kelsye Coulter (Dog Park Committee member)
kelsye.coulter@icloud.com

Student

From: Dustin Lyttle
Sent: January 28, 2022 7:28 AM
To: Shari Page
Subject: FW: Dickson Drive extension

Good morning Shari,

Please see below for the file.

Thanks,
Dustin Lyttle

From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: January 27, 2022 10:07 PM
To: Lee Wheildon <LWheildon@centrewellington.ca>
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>; Karen Hurson <karenhurson@gmail.com>
Subject: Re: Dickson Drive extension

Lee and Dustin,

Thanks for your replies. I am talking with fellow Dog Park committee members and will respond to your comments on behalf of the committee. But I had a further question regarding the map on page 69 of the EIS. I see the 30 metre set back from environmental lands (purple line) on the south side of the map. But I don't see any purple line indicating the 30 metre set back on the west side of the map close to the pond. Could you clarify this for me please?

Thanks!

_____
Kelsye
kelsye.coulter@icloud.com

> On Jan 26, 2022, at 4:45 PM, Lee Wheildon <LWheildon@centrewellington.ca> wrote:
>
> Kelsye,
>
> Again, thank you for your comments. As it relates to the MUP, its patrons and their interaction with dogs from the off leash dog park, as per Dustin's previous response, the exact details of how the MUP will connect to the existing municipal features will be determined during detailed design. Works beyond the subject property limits are not specifically part of the Municipal Class EA.
>
> Please note, that the existing pond and the surrounding property limits of 6518 First Line do not make up any part of the existing off leash dog park. Dogs are expected to be leashed as per Township By-Law 2019-70 (Section 6) when outside the limits of the off leash dog park.

The MUP is proposed to skirt around the western edge of the existing pond however, the MUP cannot be offset to a 30m setback as this would put the MUP outside the limits of the subject property. The proposed design location of the MUP is focused on limiting disturbance in this area and by proposing the MUP further to the west may result in vegetation removal which the Township is attempting to limit as per the EIS.

Should you have any other questions or concerns, please do not hesitate to contact Dustin Lyttle or myself.

Regards,

Lee Wheildon C.E.T.,rcca | Engineering Technologist - Development

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Sent: January 26, 2022 12:02 PM
To: Kelsye Coulter <kelsye.coulter@icloud.com>
Cc: Karen Hurson <karenhurson@gmail.com>; Lee Wheildon <LWheildon@centrewellington.ca>
Subject: RE: Dickson Drive extension

Hi Kelsye,

We have taken your comment into further consideration and will discuss internally with other Township staff to provide a response.

It may take a few days for us to provide a reply, however this discussion can continue as needed beyond the 31st date noted within the notice of Public Information Centre.

In the meantime, if you have any other comments or concerns, please do not hesitate to send them to Lee and myself.

Thanks again,

Dustin C. Lyttle, P. Eng.

<image001.jpg>Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: January 25, 2022 2:50 PM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Cc: Karen Hurson <karenhurson@gmail.com>; Lee Wheildon <LWheildon@centrewellington.ca>
Subject: Re: Dickson Drive extension

HI Dustin,

Thanks for addressing my questions. I'm still confused as to how a MUP will function in such a close proximity to a leash-free dog park. I can foresee issues with dogs interacting with folks walking/cycling on the trail. There has to be some sort of interface. That's why it may be important to maintain a 30 metre distance from the pond. If an MUP skirted the pond at a 30 metre distance and the area in between was planted with native trees and shrubs, I think it could work. It may be important to first develop the interface and then construct the MUP. What is your vision for this? How would you propose to keep pedestrians and cyclists separated from unleashed dogs in this area?

_____

Kelsye
kelsye.coulter@icloud.com

On Jan 25, 2022, at 10:25 AM, Dustin Lyttle <dlyttle@tritoneng.on.ca> wrote:

Hi Kelsye,

We are pleased to offer the following answers to your questions.

1. From the environmental review it seems that the recommended distance of 30 metres will not be respected. I saw nowhere the actual distance between the psw and, for example the mup. Can you please clarify?

   Answer: The MUP has been proposed within the 30m setback however is not anticipated to have an impact to the wetland function. The MUP will be a granular (i.e., limestone chips, gravel etc.) and continue to allow the existing drainage patterns to go unaltered.

2. It says in one of the documents that the mup will connect the E-C trail way and the CW dog park. But I don't see the end of the mup on the map. Does it skirt the pond and then head west on the road allowance just south of the dog park?

   Answer: This recommendation will be taken into consideration. However, the exact details of how the MUP will connect to the existing municipal pedestrian features will be determined during detailed design. Works beyond the limits of this property are not specifically a part of this Municipal Class EA.

3. There is currently a pathway which heads south from Bob and Doreen Reeves's property and encircles the pond. For a very long time (at least a decade, perhaps longer) unleashed dogs (who are welcome on the Reeves's property) race down to their beloved pond regularly and dog park visitors often walk around the southern edge of said pond. In the documents, it was mentioned that these paths may be "closed". Could you please elaborate on that?

   Answer: The Environmental Study found that there were a number of trails running directly into the wetland within the subject property. The Study suggested that these be closed, however changes to those trails are not

anticipated as a part of this project. Additionally, the trails that are within other private property (Reeve's) will not be adjusted as a part of this project.

4. I have contacted you both in the past on behalf of the dog park committee and even submitted the suggestion that a berm be created between the industrial park and the pond area. This, if planted with native trees and shrubs would provide a beautiful interface between unleashed dogs and a mup and/or light industrial lots. But, of course, there would have to be a good distance as well. Can you please explain why I was not contacted for input about this interface after we submitted suggestions?

   Answer: There may be an opportunity for tree plantings along the MUP that could be completed outside of the scope of this project. Constructing a berm within the wetland, or its buffer is not recommended as it would result in changes to the drainage patterns. The wetland 30m buffer will not allow development (i.e., buildings etc.) close to the existing pond and/or proposed MUP. Given this, it is expected that a visual buffer between any development that may happen on the properties and the MUP will be provided. The intention of the MUP is to be an inclusive (cyclist, hikers, strollers, dog walking etc.) use system that will provide connectivity to the CW Off-Leash dog park.

If you require any further clarification, please do not hesitate to contact either of us.

Thank you,

Dustin C. Lyttle, P. Eng.

<image001.jpg>Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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-----Original Message-----
From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: January 24, 2022 4:27 PM
To: Lee Wheildon <LWheildon@centrewellington.ca>
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>; Karen Hurson <karenhurson@gmail.com>
Subject: Dickson Drive extension

Hi,
I've left a voice mail with both of you with no response today, which wouldn't normally be an issue except that there is a short window in which we can make comments and I need some clarifications about the various documents.
1. From the environmental review it seems that the recommended distance of 30 metres will not be respected. I saw nowhere the actual distance between the psw and, for example the mup. Can you please clarify?
2. It says in one of the documents that the mup will connect the E-C trail way and the CW dog park. But I don't see the end of the mup on the map. Does it skirt the pond and then head west on the road allowance just south of the dog park?

3. There is currently a pathway which heads south from Bob and Doreen Reeves's property and encircles the pond. For a very long time (at least a decade, perhaps longer) unleashed dogs (who are welcome on the Reeves's property) race down to their beloved pond regularly and dog park visitors often walk around the southern edge of said pond. In the documents, it was mentioned that these paths may be "closed". Could you please elaborate on that?
4. I have contacted you both in the past on behalf of the dog park committee and even submitted the suggestion that a berm be created between the industrial park and the pond area. This, if planted with native trees and shrubs would provide a beautiful interface between unleashed dogs and a mup and/or light industrial lots. But, of course, there would have to be a good distance as well. Can you please explain why I was not contacted for input about this interface after we submitted suggestions?

Thanks for your time. I look forward to your response in good time as I would like to formally submit comments on behalf of the dog park.

Sent from my iPhone

Student

From: Gordon Lunn <gordonlunn@bellnet.ca>
Sent: January 3, 2022 4:04 PM
To: Shari Page
Subject: Re: Notice of Project Public Information Centre - Class EA, Schedule B, Proposed Extension of Dickson Drive, Fergus

Hello.

Can you advise if there are specific times during the day from Jan. 17th-31st. How can we possibly contribute on what appears to be a done deal is obvious you are not asking for our suggestions for alternatives. However, I will offer my suggestion. Do not have a road extend all the way to the First Line at all. We do not wish to have our property values lowered because of the industrial truck traffic. No road at all to the First Line is my suggestion.

We do not want the road to be extended to the First Line at all because it will create major traffic and destroy the road and lower our property value.

Yes, we do have a suggestion; we disagree with it totally and suggest it never get extended to the First Line at all.

Regards,

Donna Madore

On 2022-01-03 2:47 p.m., Shari Page wrote:

> Good afternoon,
>
> On behalf of the Township of Centre Wellington, please find attached, *'Notice of Project Virtual Public Information Centre', Class Environmental Assessment, Schedule B'* for the *Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus.*
>
> This Notice will also appear in the next two (2) consecutive editions of The Wellington Advertiser, January 6th and January 13th, 2022.
>
> Should you have any questions or concerns, please refer to the attached notice for appropriate contacts.
>
> Kind regards,
> Shari
>
> Shari Page
>
> Triton Engineering Services Limited
> 105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
> Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

Student

From: Dustin Lyttle
Sent: January 28, 2022 11:26 AM
To: Shari Page
Subject: FW: regarding Fergus dog park

Hi Shari,

For the project file.

Thanks,
Dustin Lyttle

From: Lee Wheildon <LWheildon@centrewellington.ca>
Sent: January 28, 2022 11:23 AM
To: guelph@preschoolcanada.com
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: regarding Fergus dog park

Good Morning Ericka,

Thank you for your questions/comments below as it relates to the Dickson Drive Extension EA. These have been received and will form part of the project file and be taken into further consideration.

We are pleased to provide the following responses for your consideration.

The details on how the MUP will connect to the existing municipal features (pathways, roads or parking areas, etc.) and how it will interface with the existing off-leash dog park will be determined during detailed design. Works beyond the subject property limits of 6518 First Line are not specifically part of the Municipal Class EA.

Please note, that the existing pond, trailways and the surrounding property limits of 6518 First Line do not make up any part of the existing off leash dog park. Dogs are expected to be leashed as per Township By-Law 2019-70 (Section 6) when outside the limits of the off-leash dog park (840 Glengarry Crescent).

Should you have any further questions, comments, or concerns, please do not hesitate to contact Dustin or myself.

Regards,

Lee Wheildon C.E.T.,rcca | Engineering Technologist - Development

Township of Centre Wellington | 1 MacDonald Square, Elora, ON N0B 1S0
519.846.9691 x253 CentreWellington.ca

From: Guelph Director <guelph@preschoolcanada.com>
Sent: January 27, 2022 10:53 AM
To: Lee Wheildon <LWheildon@centrewellington.ca>; dlyttle@tritoneng.on.ca
Subject: regarding Fergus dog park

You don't often get email from guelph@preschoolcanada.com. Learn why this is important

I'm emailing you in regards to a project you are completing; the extension of Dickson drive east of glengarry. From what I understand, it is to create a multi use path for continued economic growth which is great, I realize that the more the population grows the demand increases for outdoor space to accommodate hobbies or just safer routes for outdoor activities. However, I do have one concern. How will this affect the Fergus dog park? I recently moved to Fergus and I take both my dogs to the off leash trail and the pond, it's a safe space for our animals to be off free without other members of the community being concerned with our pets not being on a leash. If you create this multi use path, is there a plan in place where this won't affect the dog park? I'm concerned, simply because not everyone likes dogs & that small piece of path is already being used by the animal community in Fergus & Elora.

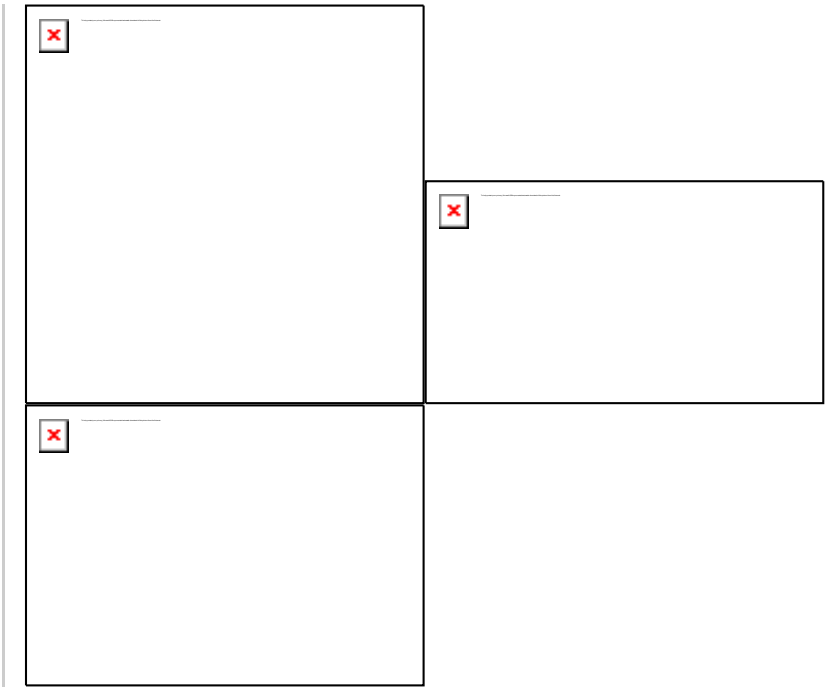
To create this multi use trail, will this create conflict with dog owners and people who potentially will be using the trail? There is no other dog park in Fergus and a large percentage of the fergus community own animals and there will be more families in the future who move to Elora or Fergus and potentially will be looking for the same safe space for their animals to run free.

This is my go to place with my animals and although they are well behaved, there are people who do not like dogs and this path if by chance interferes with the park I do not want to run into conflict with someone who may accuse my animal of causing harm or exaggerating if an incident were to occur. The trail is a great idea for bikers and more but please is there a way to accommodate both your plans and our safe space. I need this park.

I hope to hear from you soon to gain further clarity on the development.

Kind Regards,

Ericka Barahona, RECE (She/Her)
Owner/Operator
Preschool Canada
322 Eastview Rd.



Student

From: Dustin Lyttle
Sent: January 28, 2022 10:52 AM
To: plandoni plandoni
Cc: lwheildon@centrewellington.ca
Subject: RE: Dickison Drive Extension

Hello Peter and Carol Landoni,

Thank you for your questions and comments. These have been received and will form part of the project file and be taken into further consideration.

In addition to this, we offer the following responses for your consideration.

- **Question/Comment:** Industrial commercial development encroaching on residential properties and the issues this can causes including noise pollution, environmental pollution, from business operations, increased traffic, and waste disposal.
    - **Response:** Comment has been received and added to the project file. Please note; the Township is intending to ensure the lands fronting onto this proposed road are developed in a responsible manner, in accordance with the applicable zoning bylaws and environmental protection laws and to ensure the necessary infrastructure (including garbage disposal). Given the lands fronting onto the proposed roads will be available for development and their close proximity to existing residential areas, the necessary provisions will be made to protect against negative impacts on a site plan control level if/when these lands develop.

- **Question/Comment*:*** Water related issues including effect on water table levels, drainage and distribution. The lower section of this proposed development (south/east corner) is very low and wet. this directly across from my property and I would submit not ideal for any construction. I have concerns about how any development in this section would have on my property relating to water issues.
    - **Response:** Areas of significant wetland have been delineated and will not be available for future development. The proposed road and MUP has been placed such that there is no interference with these wetlands. A hydrogeologist has been retained and continues to monitor the area to ensure that there are no impacts to existing water.

- **Question/Comment:** The negative effect this development would have on the environmental, health and leisure experience relating to the many citizens who now enjoy the walking hiking trail.
    - **Response:** The lands fronting onto the proposed road will be limited to light industrial and commercial type development with the intention of the lands being developed to promote a good health and leisure use of the nearby multi-use pathway (MUP). Additionally, the MUP's provided will increase the areas available for hiking, walking and cycling.

- **Question/Comment:** This is just one more example of agricultural land be taken over by commercial development.
    - **Response:** The lands fronting the proposed road will be required to develop in accordance with provincial and municipal planning policies which are designed to manage the loss of high yielding farm land.

- **Questions/Comment:** I also have a real concern on how this development will have a negative impact on residential property values.

- **Response:** The provision of greater connectivity to the existing town of Fergus and increased developable land in proximity to the neighbouring properties presents the opportunity for the increase of property value. Property value is based on a number of factors including access to amenities, which will be increased by the road provided and the MUP.

- **Question/Comment:** A recent development by the GRCA resulted in the clear cutting of hundreds of ash trees along the trail. I understand the logic behind the action relating to health of the trees but they did provide somewhat of a buffer between this proposed development and the trail and the residential properties.
  - **Response:** The work completed by the GRCA is outside of the Townships control or prerogative. The lands fronting onto the proposed road will be required to develop in accordance with applicable zoning bylaws which will provide for the appropriate buffering between the type of propose development and nearby residential properties.

If you have any further comments or questions, please do not hesitate to contact myself and Lee Wheildon.

Thank you for engaging in the Municipal Class EA Process.

Dustin C. Lyttle, P. Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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From: plandoni plandoni <plandoni@sympatico.ca>
Sent: January 27, 2022 10:03 AM
To: lwheildon@centrewellington.ca
Cc: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Dickison Drive Extension

Thank you for the opportunity to provide input to the proposed development known as Dickson Drive Extension.

As a residential owner of property adjacent to the development I do have concerns. I understand that the township needs to expand and grow and with it comes trade offs, negotiations etc.

My concerns relate to the following:

- Industrial commercial development encroaching on residential properties and the issues this can causes including noise pollution, environmental pollution, from business operations, increased traffic, and waste disposal.
- Water related issues including effect on water table levels, drainage and distribution. The lower section of this proposed development (south/east corner) is very low and wet. this directly across from my property and I would submit not ideal for any construction. I have concerns about how any development in this section would have on my property relating to water issues.

- The negative effect this development would have on the environmental, health and leisure experience relating to the many citizens who now enjoy the walking hiking trail.
- This is just one more example of agricultural land be taken over by commercial development.
- I also have a real concern on how this development will have a negative impact on residential property values.
- A recent development by the GRCA resulted in the clear cutting of hundreds of ash trees along the trail. I understand the logic behind the action relating to health of the trees but they did provide somewhat of a buffer between this proposed development and the trail and the residential properties.

My preference of course is that this development not proceed in this particular location for the reasons stated above.

Yours truly,

Peter & Carol Landoni

6506 First Line

Fergus, ON N1M2W4

From: Dustin Lyttle
Sent: January 31, 2022 2:36 PM
To: Doreen Henderson
Cc: LWheildon@centrewellington.ca
Subject: RE: Feedback regarding Industrial Development on 6518 Ist Line

Hi Doreen,

Thank you for providing your comments. These have been added to the project file.

Consultation with the volunteer committee is on-going.

Thank you for engaging in the Municipal Class EA process.

Dustin C. Lyttle, P. Eng.

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105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
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From: Doreen Henderson <doreenjane@live.com>
Sent: January 31, 2022 1:14 PM
To: LWheildon@centrewellington.ca; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Feedback regarding Industrial Development on 6518 Ist Line

Hello

We understand that plans are underway that may impact on the use of land in the area of the Fergus Dog Park, specifically the introduction of a multi use pathway. We commend Centre Wellington Township for its extensive trails plan, but are concerned about inevitable negative and potentially dangerous interactions. Additionally, dogs that have run free on the adjoining property owned by Bob Reeves, as well as the nearby pond, will not observe a new boundry.

We understand there is a volunteer committee actively involved in administration and improvement activities for the dog park and hope that you will consult with them regarding any development. Our Centre Wellington dog park is the envy of other communities and used by many residents daily. Please ensure that it remains a positive place for dogs and their owners and that we can still proudly claim to have the best dog park in Ontario.

Best regards,

Brad and Doreen Henderson

From: Dustin Lyttle
Sent: February 1, 2022 8:00 AM
To: Allyson Morgan
Cc: lwheildon@centrewellington.ca
Subject: RE: Dickson Drive Extension

Hi Allyson,

Thank you for providing your comments. These have been added to the project file.

Consultation with the existing dog park volunteer committee is on-going.

Thank you for engaging in the Municipal Class EA process.

Dustin C. Lyttle, P. Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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-----Original Message-----
From: Allyson Morgan <allysonpick@hotmail.com>
Sent: January 31, 2022 6:27 PM
To: lwheildon@centrewellington.ca; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Dickson Drive Extension

Good evening
In regards to the extension proposal just wanted to mention a few points to consider as someone who uses the CW Dog Park Daily. I think that having a public trail that close to the Dog Park without any fence could be very problematic. The dogs go near the pond and are used to going near the pond. My fear would be if there are people walking/biking by on the public trail without a barrier between the two there would be nothing to stop them from going on the trail. I think this would cause a lot of problems and could be potentially dangerous especially for young kids.

Thanks
Allyson (Salem resident)

Sent from my iPhone

Student

From: Dustin Lyttle
Sent: February 3, 2022 3:36 PM
To: Staci Barron; C. Barron
Cc: lwheildon@centrewellington.ca
Subject: RE: Dog park: trails/ public input dickson dr

Hi Staci,

Thank you for your comments. We are pleased to offer the following responses.

Question/Comment: *I'm not sure about stormwater and how that should all go but I would just like to make sure that the dog park pond continues to be accessible. If you can organize that the trail meet up with that back pond or that we can still have access to that back pond that would be great.*

There are chairs there and its a peaceful space. If there can be considered space and access given that would be greatly appreciated.

Response: Stormwater Management of the road will be managed by way of two Stormwater Management Facilities, one is located at the north end of the property and the other at the south. Neither of these facilities are expected to have any impact on the existing pond at the north west quadrant of the property. Regarding the continued use of the ponds; the pond is not within the existing dog park boundary, however consultation with the existing dog park volunteer committee is on-going.

Question/Comment: *I believe that if you put in Dickson Road connecting Gordon Street to first line it will only enhance the number of trucks running through a residential neighborhood. Gordon Street is already inundated with transport trucks. Perhaps you should not consider this as a viable?*

Force them to use Garafraxa to first line to access future business parks.

I'm surprised that none of the options include a workaround from Gordon Street?

Response: Gordon Street is classified as a collector road in the Township's Official Plan. It provides a connection between two arterial roads (St. David Street/Hwy 6 and Gartshore Street/County Road 43), and has always functioned as an important link to the established industrial lands on the northwest of Fergus. Traffic counts performed at the intersection of St. David Street and Gordon Street in Fall 2021 identified that trucks represent of 6-8% of traffic, which correlates with the collector road designation. Based on the land use permitted by this site, as stated in the Centre Wellington Business Park Strategy report prepared by McSweeney, the truck percentage is not expected to increase due to the development lands adjacent to the Dickson Drive extension. The McSweeney Report further identifies that the proposed developments would be categorized as Category 1 in Ontario's land use planning guide. The Class 1 category has an operation intensity of "Daytime Operations Only" and " Infrequent movement of products and/or heavy trucks.

Question/Comment: *Have you done your due diligence informing the neighbourhood with the boundaries of Gordon Street Gzowski Peglar etc?*
This project will have a massive impact on truck volumes.

Response: We have made every effort to ensure that all reasonably impacted residents and users have been contacted regarding the project. Additionally, the notice of the project has been posted on multiple public platforms, including publications in the Wellington Advertiser. As mentioned above, there is not expected to be an impact to the truck

volumes. The expected vehicle production from the potential future businesses that may occupy the lands fronting this road will be reviewed and controlled at a site plan approval level.

We trust these address your concerns.

Thank you for engaging in the Municipal Class EA process.

Dustin C. Lyttle, P. Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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From: Staci Barron <elorapottery@gmail.com>
Sent: January 30, 2022 12:09 AM
To: C. Barron <barron.colin@gmail.com>; Dustin Lyttle <dlyttle@tritoneng.on.ca>; lwheildon@centrewellington.ca
Subject: Dog park: trails/ public input dickson dr

Hi township staff:
I'm just submitting comments with regards to the video I watched on YouTube. (Deadline jan 31- colin)

I'm not sure about stormwater and how that should all go but I would just like to make sure that the dog park pond continues to be accessible. If you can organize that the trail meet up with that back pond or that we can still have access to that back pond that would be great.

There are chairs there and its a peaceful space. If there can be considered space and access given that would be greatly appreciated.

I believe that if you put in Dickson Road connecting Gordon Street to first line it will only enhance the number of trucks running through a residential neighborhood. Gordon Street is already inundated with transport trucks. Perhaps you should not consider this as a viable?

Force them to use Garafraxa to first line to access future business parks.

I'm surprised that none of the options include a workaround from Gordon Street?

Have you done your due diligence informing the neighbourhood with the boundaries of Gordon Street Gzowski Peglar etc?
This project will have a massive impact on truck volumes.

https://youtu.be/nCWrw4GhdkU

Staci Barron
519-846-0586

--
Staci Barron

January 31, 2022

Mr. Lee Wheildon, C.E.T., rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0

Mr, Dustin Lyttle, P. Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON N1M 1S6

RE: Written Submission Regarding the Proposed Dickson Drive Extension

Comments are made in reference to the Notice of Virtual Public Information Centre initiated on January 6, 2022. Comments are restricted to the Dickson Drive Extension, Township of Wellington Traffic Impact Study dated January, 2022 ("the Study").

Summary comment

The Study did not make light that the intersection at Highway 6/St. Andrews Street and Gordon Street, which provides access to the proposed Dickson Drive from points north and west of Fergus, has deficiencies in both southbound left turn storage (onto Gordon Street) and north bound left hand storage onto 19 Side Road.

The Study does not indicate that the Highway 6/St Andrews Street southbound left turn storage onto Gordon Street is too short for left turning semi-transport trailers and 'b' trains which may service some of the proposed uses for the Development Land.

The Study's Site Generated Trips is inconsistent with the Business Park Strategy Report as presented to Council by the Manager of Economic Development and prepared by McSweeney and Associates dated May 2021.

The Study's baseline traffic study did not take into consideration the reduction of traffic experienced during the current Covid 19 Pandemic.

1. Sideroad 19/Highway 6 Gordon Street Intersection

The Intersection at Sideroad 19, Highway 6 and Gordon Street is an offset intersection with corresponding left hand turn lanes. Both turn lanes have limited storage that are not separated by a barrier and thus southbound traffic turning left onto Gordon regularly cross into the northbound left turn Sideroad 19 storage risking a head on collision with a northbound vehicle intending on turning left onto Sideroad 19.

Council as well as staff for the Township of Centre Wellington including the Managing Director of Planning and the Managing Director of Infrastructure Service, the Wellington County Planning and

Development staff, the Ontario Provincial Police, the Ministry of Transport and the proponent contacts herein (and addressed above) have been made aware of this issue.

This issue is relevant to the proposed Dickson Drive extension as the Study indicates approximately that the business park would generate an additional 389 trips entering of which 30% would rely on the Gordon/St. David Street(Hwy 6) Intersection. Thus based on the study, the Dickson Drive Extension will increase southbound Highway 6 left turning by 70% . increase the traffic from 171 to (389 x 30% = 117) for a total of 288 turns per hour (reference Table 6 and Figure 1).

2. Highway 6/St. Andrews Street – Gordon Street Left turn storage inadequate for trucks

I had noted to Township staff in correspondence of July 21 2021 that southbound left hand turn storage is inadequate for Transports and B Trains being 18 meters in length when legally permitted transports (semi trailors) is 23 metres and legally permitted B-Train is 27 metres. This has the effect of forcing southbound left turning transports to cross the yellow lines and rely on the northbound left turn storage. Alternatively, they can block all southbound St. Andrews Street traffic while waiting for the left hand turn lane. Attachment 1 is a drawing of measurements taken at the intersection showing the storage deficiencies which contribute to the hazardous traffic situation.

This was reiterated by the Centre Wellington Public works department which indicated this intersection had “limited storage”.

The Dickson Drive extension will increase Semi and ‘B’ Train traffic to support the intended uses as outlined in the McSweeney and Associates

3. Site Generated Trips inconsistent with the Business Park Strategy Report

The McSweeney and Associates report reference that “The employment base is forecast to grow by an additional 11,000 jobs, with 35% of these jobs to be accommodated in the employment lands.” (reference Page 10 Bullet 5) Thus conceivably the Business Park would add 3,850 jobs and presumably one way trips daily. If 30% of the trip entry’s are generated through the southbound Highway 6/Gordon Street intersection this would increase traffic at this intersection (assuming a two hour peak) from the baseline of 171 to ((3,850 x 30% = 1,155/2 hrs peak time) = 578 for a total of 749 turns per hour (a 430% increase).

The Study did not include reference Transport traffic to service the Business Park, deliver raw materials and ship finished goods.

The Study however references 389 trips thus under-estimates the traffic impact by a factor of 10 (reference Table 6: Trip Generation).

4. The Study’s baseline traffic study and Covid 19

The Study undertook the traffic studies of Gordon/St. David Street (Highway 6) on December 8, 2021 but did not reference that the Covid 19 Pandemic could affect baseline traffic. This is in contrast with

the Mc Sweeney Associates Business Park Strategy Report which stated *"COVID has negatively impacted the retail and office-type businesses …"* reference 2.1 Market Analysis, 1st bullet. At the time of the study, Ontario Traffic would be still a significant percentage below pre-COVID 19 levels.

Other sources suggest urban traffic was reduced by up to 60% during COVID 19. Current levels in Ontario (Toronto) are estimated at 75% pre-COVID 19 pandemic.

Request for Relief

Whereas:

The Provincial Policy Statement and the Centre Wellington Official Plan require that public safety with respect to infrastructure be addressed prior to approving new development; and

The Ministry of Transport has jurisdiction and liability over the character and location of the intersection at Sideroad 19 and Highway 6; and

Centre Wellington has shared jurisdiction on the intersection at Gordon Street and Highway 6; and

Sideroad 19 and Gordon Street exists as an offset intersection; and

the Centre Wellington Public Works Department has identified that there is limited storage for additional vehicles turning left onto Sideroad 19 from Highway 6; and

the Gordon Street intersection is unsuited for southbound transport traffic; and

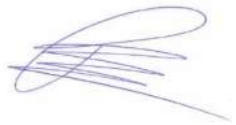
and the need to protect the safety of the residents of and those relying on Sideroad 19 for access; and

additional development and traffic associated with the Dickson Drive Extension must adequately address storage and safety issues at the Gordon/St. Andrews/Sideroad 19 offset intersection.

Therefore:

1. The Study should be amended and estimate impacts on the full offset Intersection at St. Andrews Street and Gordon Street including Sideroad 19.
2. The Study should be amended to include a statement Highway 6 Southbound semi-trailors and 'B'-Trains do not have adequate storage for a left hand turn onto Gordon Street to access the proposed Dickson Drive Extension.
3. The Study should be amended and rely on the McSweeney Associates report on employment and the associated service/supply/shipping traffic.
4. The baseline traffic study should be amended to anticipated 'post COVIC-19' traffic levels.

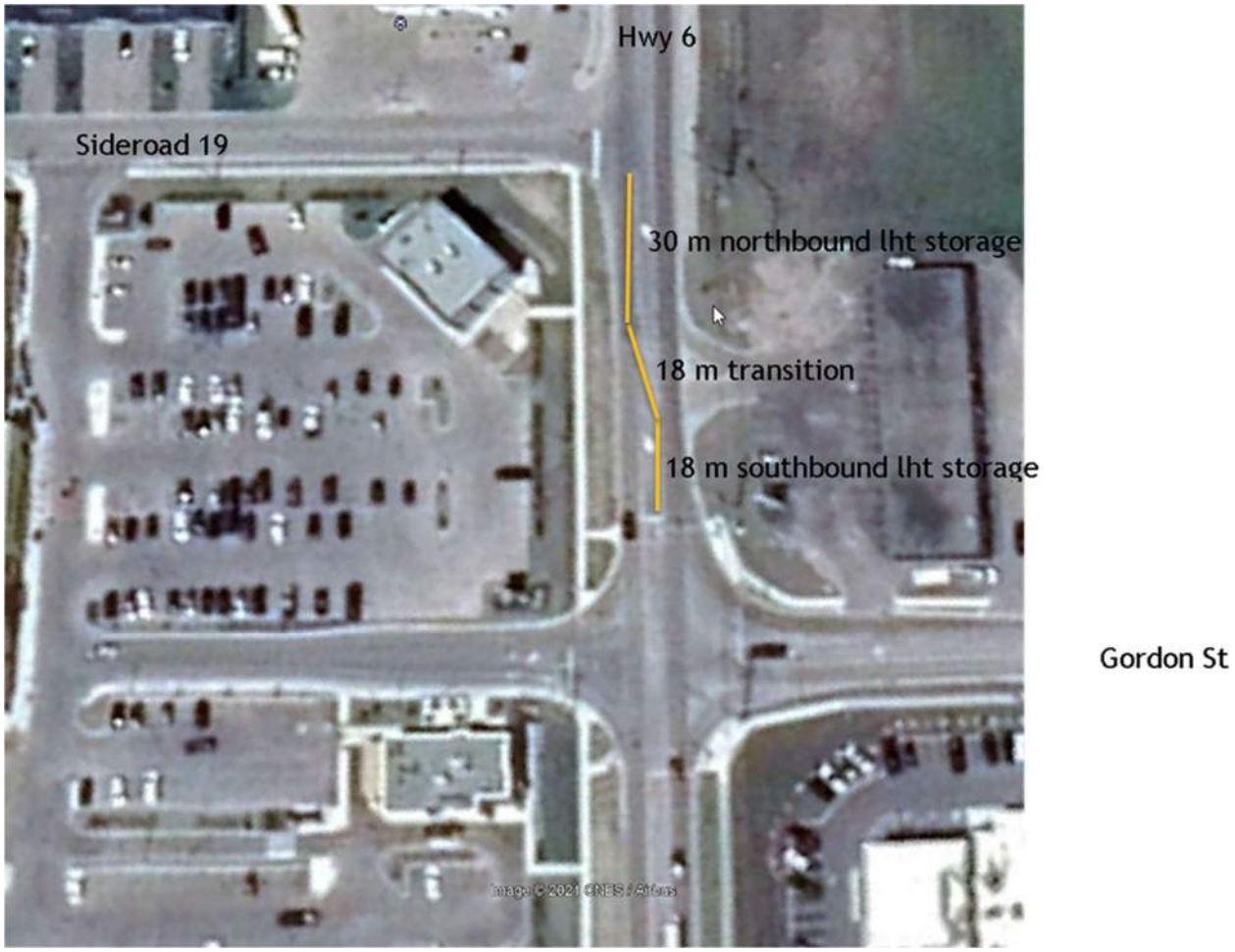
Signed



Paul Krabbe
19 Burnett Crt Fergus ON

Cc
Kerri O'Kane, Clerk Township of Centre Wellington 1 MacDonald Square, Elora ON N0B 1S0
Megan Ferris, Senior Planner, County of Wellington Planning & Development

Attachment 1 Measurements taken at the Sideroad 19 and Highway 6 Intersection



TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

February 11, 2022

Eiforest Consulting Ltd.
19 Burnett Court
Fergus, Ontario
N1M 2W3

Attention: Paul Krabbe

RE: Comments to Dickson Drive Extension Traffic Impact Study

The following comments are made in response to the comments submitted by Mr. Paul Krabbe (attached) regarding the Dickson Drive Extension Township of Centre Wellington Traffic Impact Study.

1. **Regarding the Sideroad 19/Highway 6 Gordon Street intersection.**

   It is acknowledged that the left turn lanes have limited storage, however this situation is not unusual in a constrained urban setting. The traffic operations and pavement markings in this area are being reviewed by the Township, in consultation with the Ministry of Transportation who have jurisdiction from the Sideroad 19 intersection northerly.

   The Traffic Impact Study has identified that this intersection will continue to operate at a good level of service with a very minor increase in delay times, following the completion of the Dickson Drive Extension.

2. **Regarding Highway 6/St. Andrew Street to Gordon Street left turn storage being inadequate for trucks.**

   The length of the southbound left turn lane on Hwy 6/St. David Street is being reviewed as noted above. Options include lengthening the lane slightly, or implementing a two-way common left turn lane as is in use elsewhere on this roadway.

   The *Centre Wellington Business Park Strategy Report* prepared by McSweeney and Associates identified that the proposed industrial park developments would be categorized as Category 1 in Ontario's land use planning guide. The Class 1 category has an operation intensity of "Daytime Operations Only" and "Infrequent movement of products and/or heavy trucks". As such, a significant increase in the number of trucks accessing the industrial area is not anticipated.

3. **Regarding the concern that site generated trips are inconsistent with the Business Park Strategy Report.**

The McSweeney Report makes reference to the *Township of Centre Wellington Municipal Development of Elora/Fergus Employment Areas – Business Case Report (2018)* prepared by Watson & Associates. This report makes reference to 11,000 jobs with 35% to be accommodated within "the Township's existing, planned and future Employment Areas." This refers to all Employment Areas with the Township as a whole. The lands adjacent to the Dickson Road extension would provide approximately 10 percent of the forecast requirement for new employment lands and jobs in the Township.

The Trip Generation has been based on the developable land available in accordance with Institute of Transportation Engineers (ITE) data and procedures.

4. **Regarding the Studies baseline traffic study and COVID 19.**

   COVID 19 restrictions had a significant impact on traffic volumes when measures were first implemented in the Spring of 2020. Those impacts have lessened considerably over time as businesses re-opened. Traffic volumes have been observed to return to at or near pre-covid levels as restrictions were eased. The long-term impact of changes in business operations arising from the pandemic are not yet known. For some businesses and classes of workers, work from home may become a more permanent employment feature, which will result in some overall reductions in traffic volumes.

   The base traffic counts were undertaken in September and early December 2021. At those times, schools were open and businesses were permitted to operate at 100 percent capacity. It is considered that these traffic counts are representative of baseline conditions.

If you have any questions or concerns, please do not hesitate to contact us.

Respectfully,

Triton Engineering Services Limited

Dustin C. Lyttle, P. Eng.
Project Manager

Encl.
Cc. Howard Wray, Triton Engineering
Lee Wheildon, Township of Centre Wellington

January 31, 2022

Mr. Lee Wheildon, C.E.T., rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0

Mr, Dustin Lyttle, P. Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON N1M 1S6

RE: Written Submission Regarding the Proposed Dickson Drive Extension

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COPY

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This issue is relevant to the proposed Dickson Drive extension as the Study indicates approximately that the business park would generate an additional 389 trips entering of which 30% would rely on the Gordon/St. David Street(Hwy 6) Intersection. Thus based on the study, the Dickson Drive Extension will increase southbound Highway 6 left turning by 70% . increase the traffic from 171 to (389 x 30% = 117) for a total of 288 turns per hour (reference Table 6 and Figure 1).

2. Highway 6/St. Andrews Street – Gordon Street Left turn storage inadequate for trucks

I had noted to Township staff in correspondence of July 21 2021 that southbound left hand turn storage is inadequate for Transports and B Trains being 18 meters in length when legally permitted transports (semi trailors) is 23 metres and legally permitted B-Train is 27 metres. This has the effect of forcing southbound left turning transports to cross the yellow lines and rely on the northbound left turn storage. Alternatively, they can block all southbound St. Andrews Street traffic while waiting for the left hand turn lane. Attachment 1 is a drawing of measurements taken at the intersection showing the storage deficiencies which contribute to the hazardous traffic situation.

This was reiterated by the Centre Wellington Public works department which indicated this intersection had “limited storage”.

COPY

The Dickson Drive extension will increase Semi and ‘B’ Train traffic to support the intended uses as outlined in the McSweeney and Associates

3. Site Generated Trips inconsistent with the Business Park Strategy Report

The McSweeney and Associates report reference that “The employment base is forecast to grow by an additional 11,000 jobs, with 35% of these jobs to be accommodated in the employment lands.” (reference Page 10 Bullet 5) Thus conceivably the Business Park would add 3,850 jobs and presumably one way trips daily. If 30% of the trip entry’s are generated through the southbound Highway 6/Gordon Street intersection this would increase traffic at this intersection (assuming a two hour peak) from the baseline of 171 to ((3,850 x 30% = 1,155/2 hrs peak time) = 578 for a total of 749 turns per hour (a 430% increase).

The Study did not include reference Transport traffic to service the Business Park, deliver raw materials and ship finished goods.

The Study however references 389 trips thus under-estimates the traffic impact by a factor of 10 (reference Table 6: Trip Generation).

4. The Study’s baseline traffic study and Covid 19

The Study undertook the traffic studies of Gordon/St. David Street (Highway 6) on December 8, 2021 but did not reference that the Covid 19 Pandemic could affect baseline traffic. This is in contrast with

the Mc Sweeney Associates Business Park Strategy Report which stated *"COVID has negatively impacted the retail and office-type businesses …"* reference 2.1 Market Analysis, 1st bullet. At the time of the study, Ontario Traffic would be still a significant percentage below pre-COVID 19 levels.

Other sources suggest urban traffic was reduced by up to 60% during COVID 19. Current levels in Ontario (Toronto) are estimated at 75% pre-COVID 19 pandemic.

Request for Relief

Whereas:

The Provincial Policy Statement and the Centre Wellington Official Plan require that public safety with respect to infrastructure be addressed prior to approving new development; and

The Ministry of Transport has jurisdiction and liability over the character and location of the intersection at Sideroad 19 and Highway 6; and

Centre Wellington has shared jurisdiction on the intersection at Gordon Street and Highway 6; and

Sideroad 19 and Gordon Street exists as an offset intersection; and

the Centre Wellington Public Works Department has identified that there is limited storage for additional vehicles turning left onto Sideroad 19 from Highway 6; and

the Gordon Street intersection is unsuited for southbound transport traffic; and

and the need to protect the safety of the residents of and those relying on Sideroad 19 for access; and

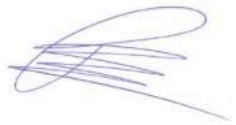
additional development and traffic associated with the Dickson Drive Extension must adequately address storage and safety issues at the Gordon/St. Andrews/Sideroad 19 offset intersection.

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Therefore:

1. The Study should be amended and estimate impacts on the full offset Intersection at St. Andrews Street and Gordon Street including Sideroad 19.
2. The Study should be amended to include a statement Highway 6 Southbound semi-trailors and 'B'-Trains do not have adequate storage for a left hand turn onto Gordon Street to access the proposed Dickson Drive Extension.
3. The Study should be amended and rely on the McSweeney Associates report on employment and the associated service/supply/shipping traffic.
4. The baseline traffic study should be amended to anticipated 'post COVIC-19' traffic levels.

Signed

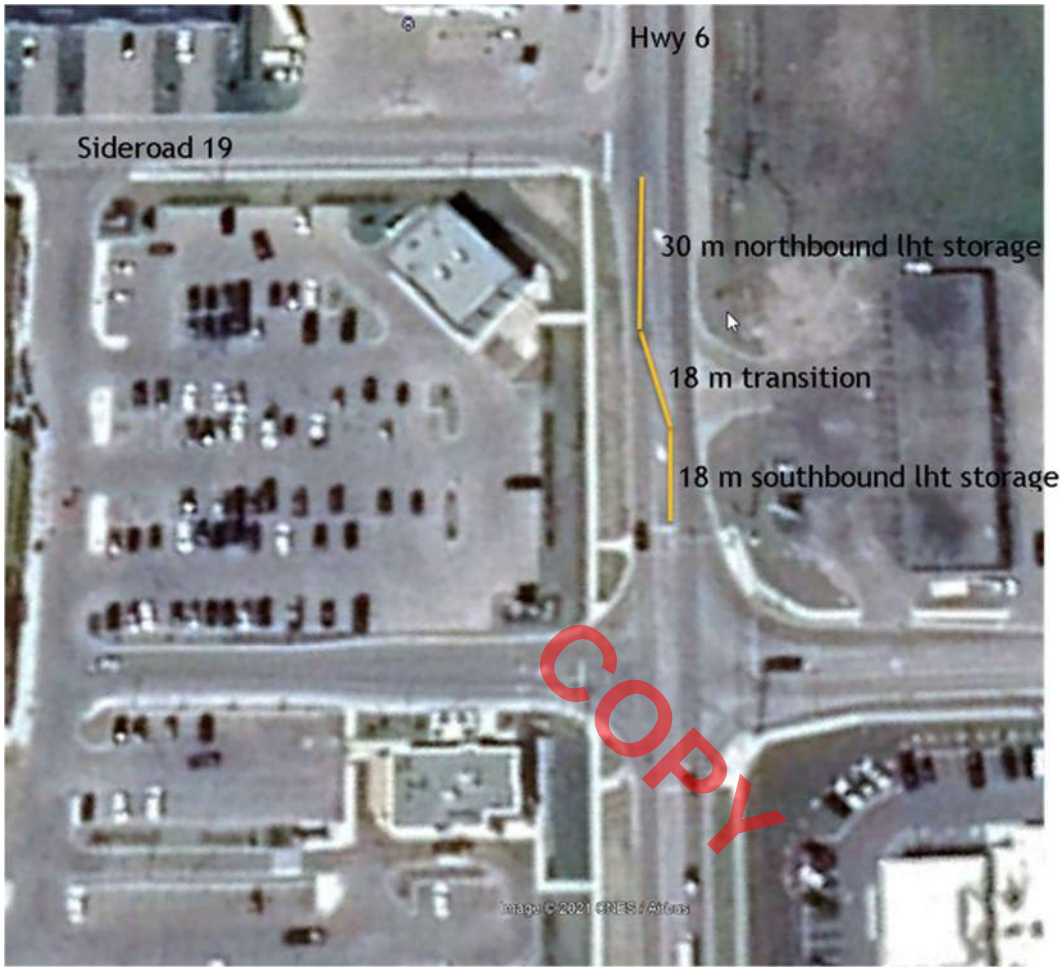


Paul Krabbe
19 Burnett Crt Fergus ON

Cc
Kerri O'Kane, Clerk Township of Centre Wellington 1 MacDonald Square, Elora ON N0B 1S0
Megan Ferris, Senior Planner, County of Wellington Planning & Development

COPY

Attachment 1 Measurements taken at the Sideroad 19 and Highway 6 Intersection



Section 13

PIC Materials



DICKSON DRIVE EXTENSION

CLASS ENVIRONMENTAL ASSESSMENT

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WELCOME

Thank you for your interest in this project. Your input, questions and/or comments on the material presented in this Online PIC are encouraged.

Upon your review of this material, please submit your input, questions and/or comments on or before **January 31st 2022** to lwheildon@centrewellington.ca or dlyttle@tritoneng.on.ca and a member of the Project Team will respond to you directly.

Comments and information received will be collected under the Ontario Environmental Assessment Act and in accordance with the Freedom of Information and Protection of Privacy Act and, with the exception of personal information, may be included in the project documentation and become part of the public record.

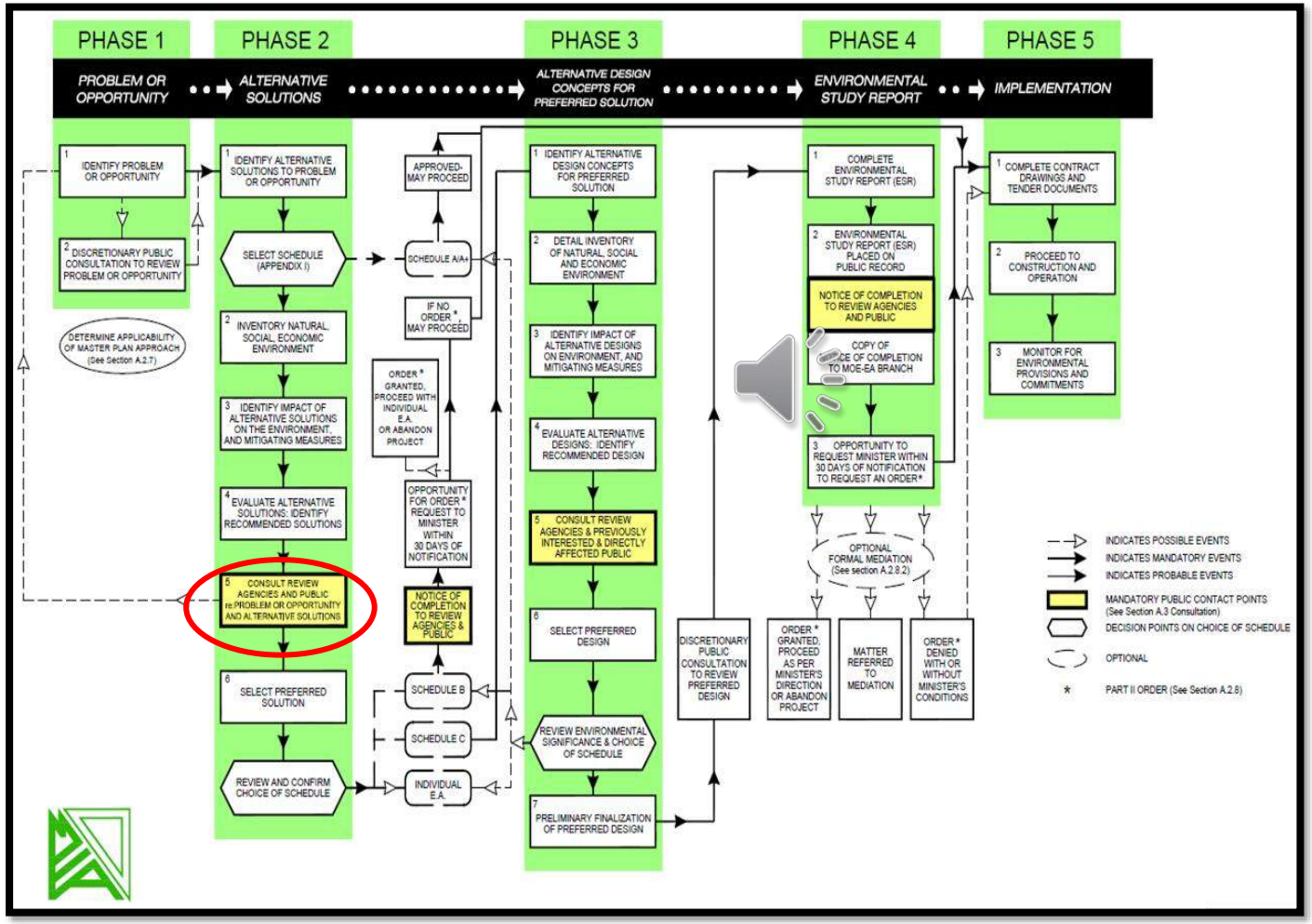
CONTACTS

Project Team members are available to assist with website navigation and submission of comments by mail/phone/email to:

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MUNICIPAL CLASS EA PLANNING DESIGN PROCESS



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PROJECT BACKGROUND

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus.

In order to facilitate development of these lands, the Township is proposing to construct an extension of the existing Dickson Drive including servicing and Storm Water Management facilities required to support future development.

This Project is required for the development of municipally serviced (water and sanitary), commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus. The development of these lands will allow for continued economic growth and promote a live/work opportunity within the Township.



PROBLEM (OPPORTUNITY) STATEMENT

Based on the project background, the following problem statement was identified as part of Phase 1 of the Class EA process:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.*"

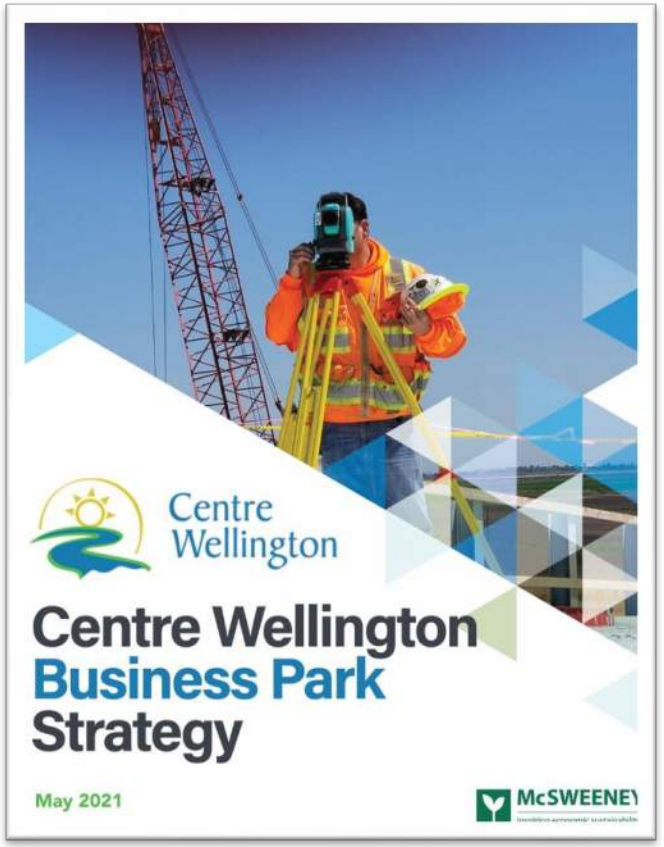
CENTRE WELLINGTON OFFICIAL PLAN

The “problem statement” was developed to be in accordance with many aspects described within the Centre Wellington Official Plan, such as:

- Municipal Services (Section C.6)
- Storm Water Management (Section C.7)
- Transportation, including the development of a Multi-Use Pathway to promote cycling, Section C.8, specifically C.8.11)
- Community Improvement through the Development of the otherwise vacant lands (Section C.9)
- Higher Standards in Physical Design (Section C.15)
- Economic Development (Section C.18)

More information regarding the Official Plan can be found on the Township website at www.centrewellington.ca/en/doing-business/planning

BUSINESS PARK STRATEGY



The Township enlisted McSweeney and Associates to prepare a target sector and industry analysis to review local and regional economic and industry trends, and provide recommendations.

Based on this analysis, recommendations were provided regarding the types of industries that the Township can expect will be interested in developing lands within the Dickson Drive extension area.

Additionally, this report provides planning, design, infrastructure and servicing recommendations on the permitted uses within the area, which recommend the area be limited to a business park to establish a mixed office/light industrial, high-quality business park environment. The Business Park zone is intended to present a high standard of building, landscape and streetscape design.

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CULTURAL HERITAGE EVALUATION

A Cultural Heritage Evaluation was initiated to determine the cultural heritage value of the property using criteria from Ontario Regulation 9/06 (Ontario Heritage Act) and the Township of Centre Wellington's Official Plan (2013).



Figure 3: 6518 First Line (ASI 2021)

This evaluation determined that certain aspects of the existing farm house on the property should be preserved, due to its cultural heritage significance.

ARCHEOLOGICAL ASSESSMENT

A Stage 1 Archeological Assessment of the site was also initiated which involved review of previously registered archeological sites and its proximity to natural resources along with historical settlement trends. This assessment indicated there was potential for the presence of both Indigenous and Euro-Canadian archaeological resources on the subject property.

Therefore, a Stage 2 (physical examination of the site) Archaeological Assessment has also been initiated in accordance with the Ministry of Heritage, Sport, Tourism and Culture Industries' 2011 Standards and Guidelines for Consultant Archaeologists.



ENVIRONMENTAL IMPACT ASSESSMENT

In the Spring of 2021 an Environmental Impact Study was initiated that focused on characterizing the existing natural heritage features within the study area, including mapping of significant natural features (wetlands, breeding grounds etc.)

The outcomes of that study have identified some constraints which will be used to inform the detailed design and development criteria.

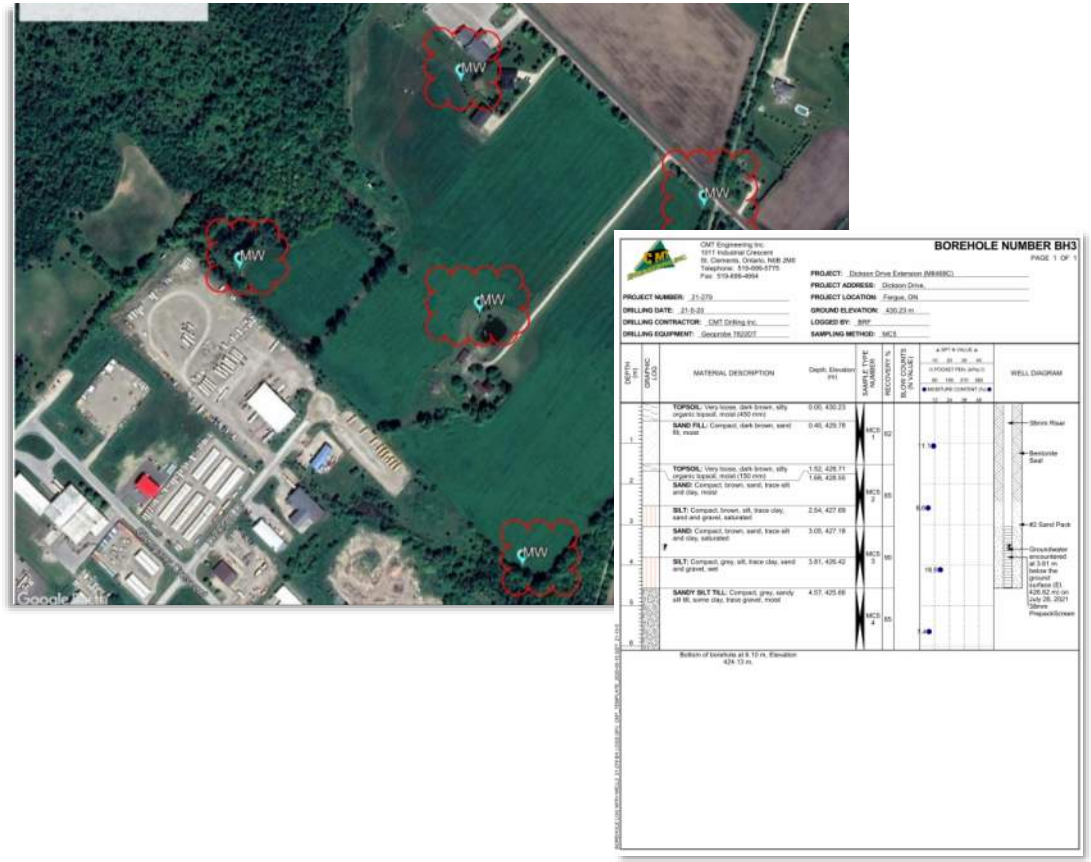


GEOTECHNICAL & HYDROGEOLOGICAL ASSESSMENTS

Geotechnical and Hydrogeological Assessments were initiated to establish design requirements for the site, and inform any potential design/development constraints.

9 Boreholes were drilled on site, with samples taken for laboratory analysis to determine soil characteristics. The geotechnical assessment did not yield any significant findings or areas of concern.

Additionally, continuous groundwater monitoring was established to determine groundwater levels across the site.



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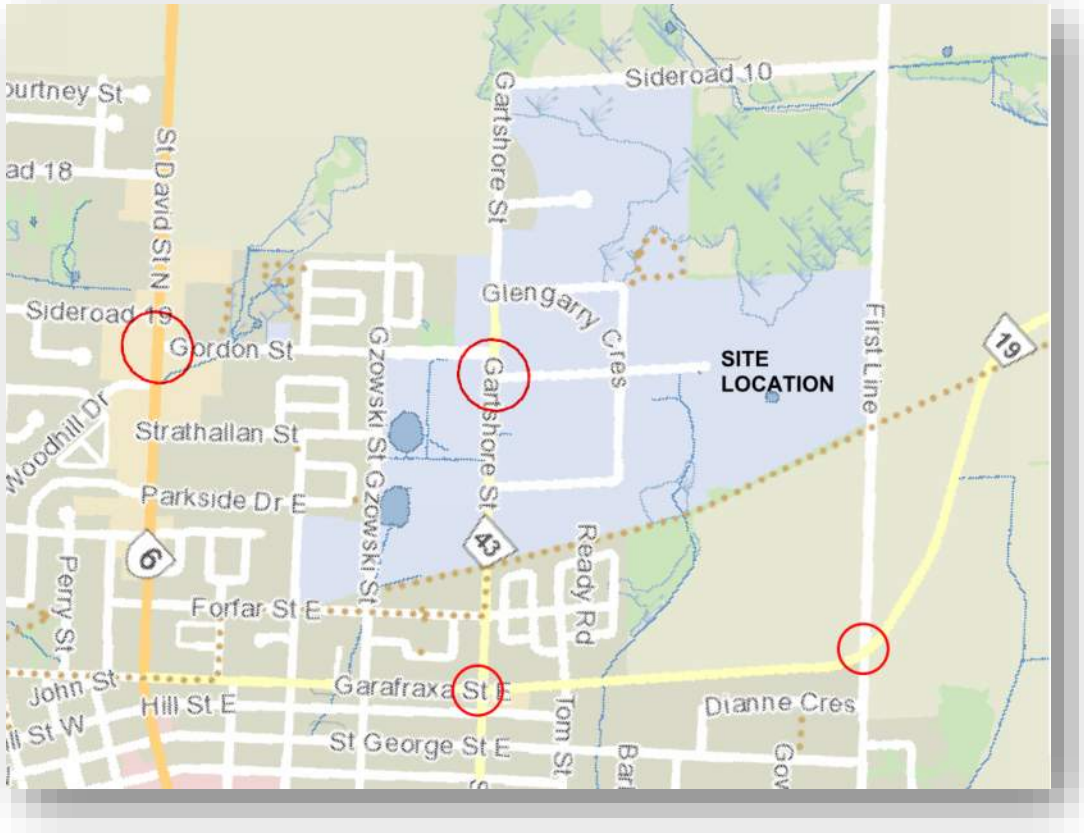
TRAFFIC IMPACT STUDY

In order to determine the expected impact of constructing the extension of Dickson Dr. a Traffic Impact Study has been completed that monitored traffic at four locations as shown in the red circles.

The initial findings of this Study determined that the connection to First Line will not require any external intersection improvements in the short term.

As the properties fronting this road develop, future intersection improvements have been identified, depending on the size and type of the proposed developments.

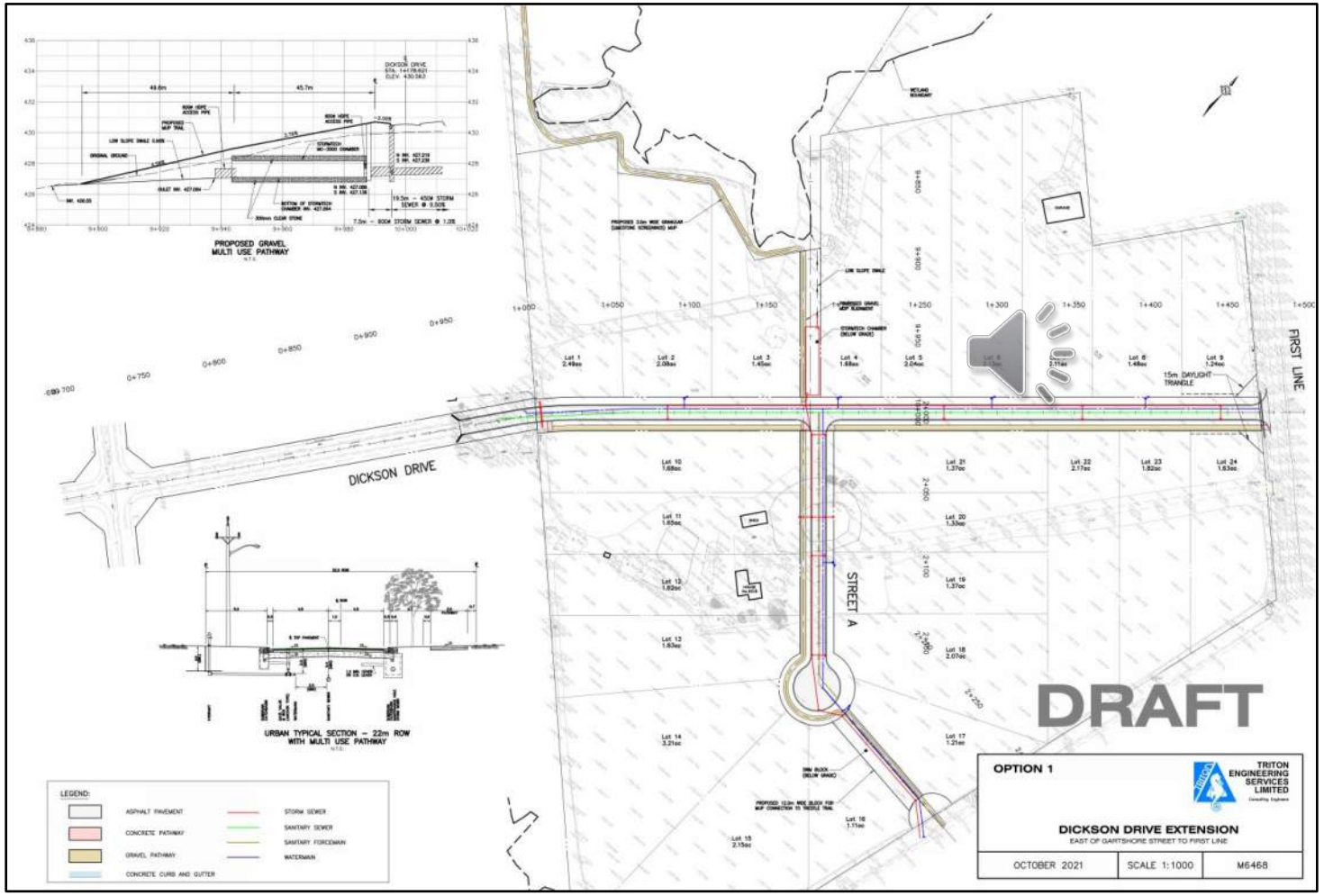
Individual Traffic Impact Studies should be prepared based on the actual development proposals to identify the timing of these improvements.



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ALTERNATIVES CONSIDERED TO ADDRESS THE PROBLEM STATEMENT

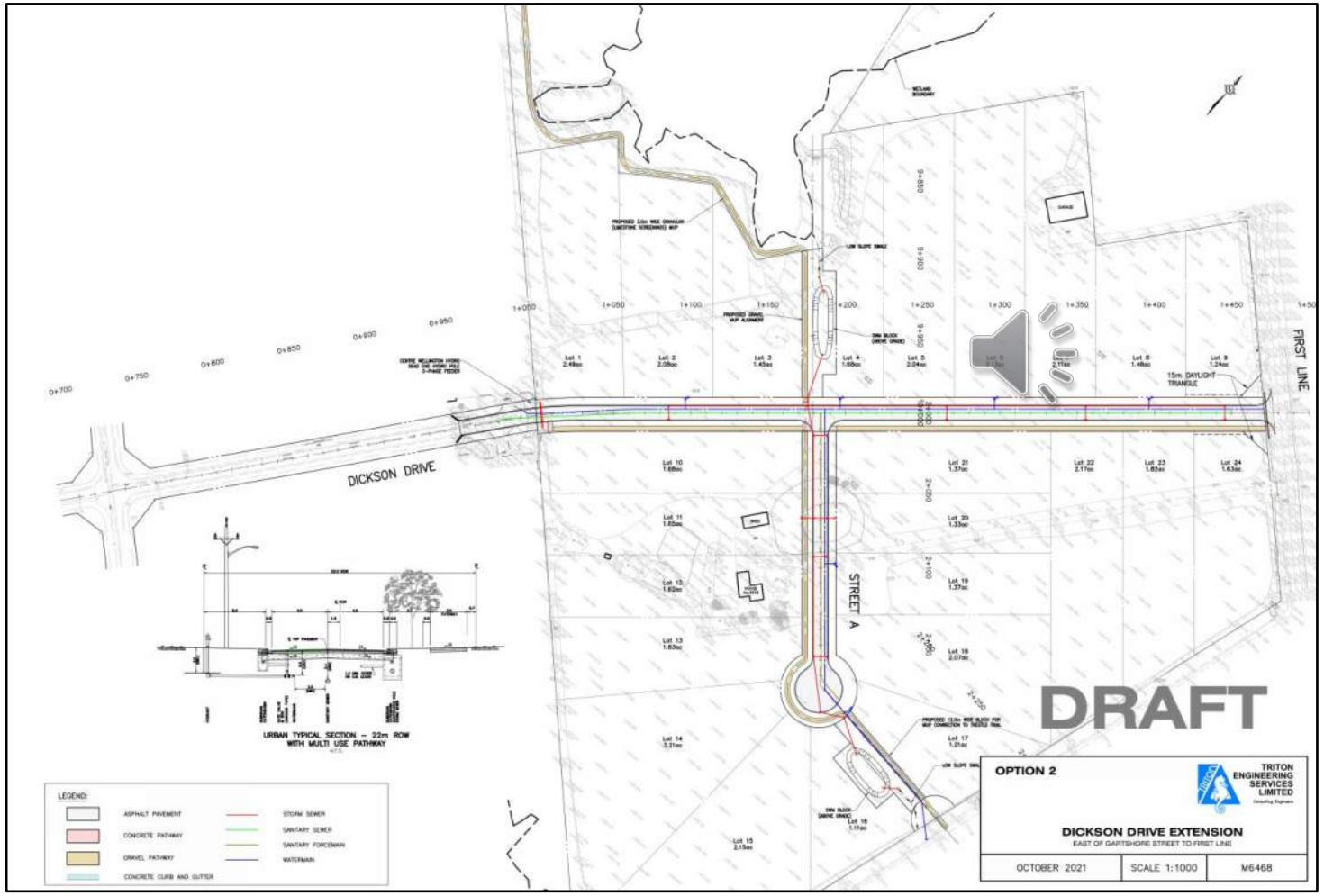
OPTION 1



- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Urban Section with Curbs & Gutters
- Multi-Use Pathway connecting Dog Park to Elora-Cataract Trailway
- Storm Water Management provided by way of **below** grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s), below grade run-off storage (chambers and/or super pipes) and a low slope polishing swale.

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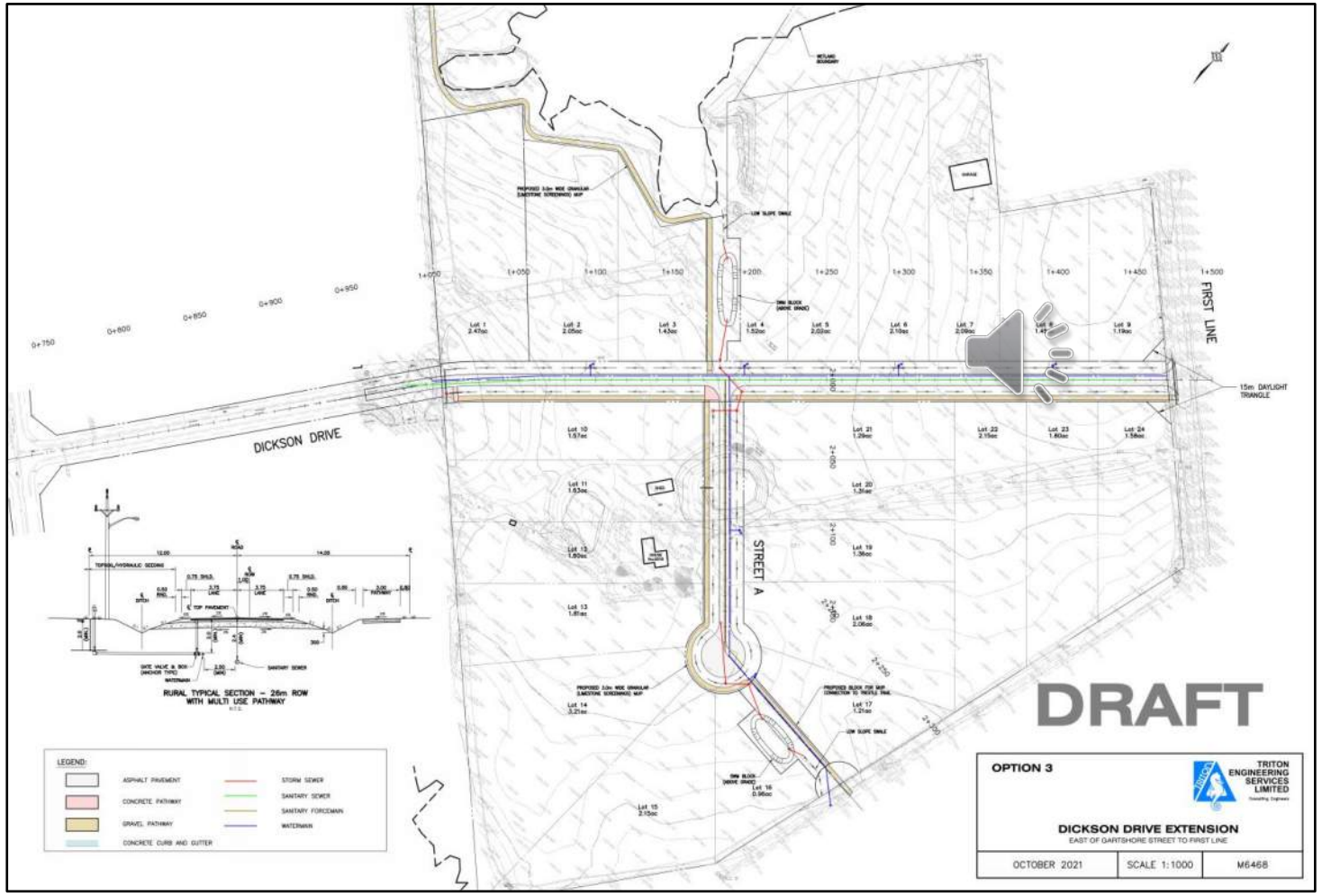
OPTION 2



- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Urban Section with Curbs & Gutters.
- Multi-Use Pathway connecting Dog Park to Elora-Cataract Trailway .
- Storm Water Management provided by way of both **below and above** grade infrastructure, including catchbasins, storm sewers, oil-grit separator(s) with above grade run-off storage (ponds) and a low slope polishing swale.

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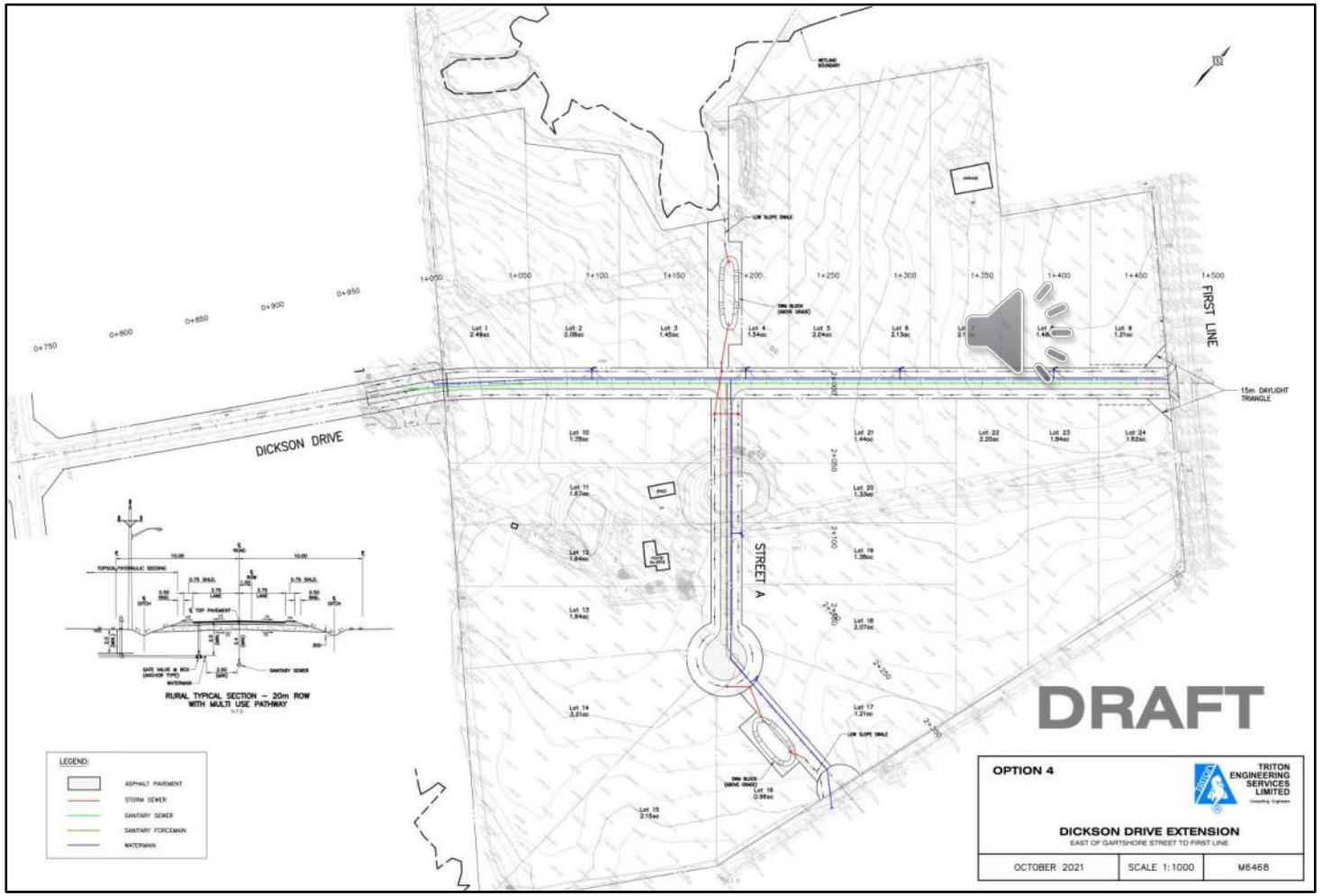
OPTION 3



- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Rural Section with Ditches.
- Multi-Use Pathway connecting Dog Park to Elora-Cataract Trailway.
- Storm Water Management provided by way of **above** grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale.

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OPTION 4



- Dickson Drive extended to First Line with additional cul-de-sac extended south.
- Typical Rural Section with Ditches.
- Multi-Use Pathway is not provided.
- Storm Water Management provided by way of **above** grade infrastructure, including ditches, culverts, minimal catchbasins and storm sewers, above grade run-off storage (ponds) and a low slope polishing swale.

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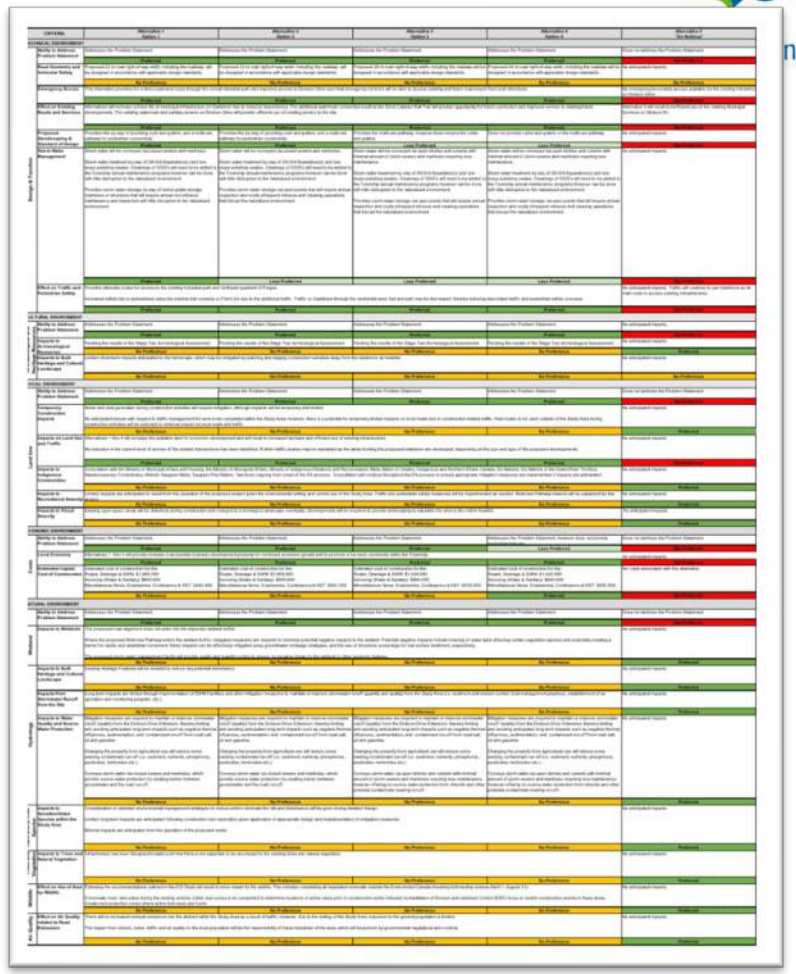
Evaluation of Alternatives

Based on the options previously described, there are five alternatives being evaluated.

This includes Options 1 through 4 as previously shown, and the fifth alternative, do nothing.

The alternatives are evaluated based on their potential impact to the following:

- Technical Environment
- Cultural Environment
- Social Environment
- Economic Environment
- Natural Environment



The evaluation chart can be found by visiting the Township CW Connect website at www.connectcw.ca

Technical Environment

The alternatives are evaluated based on their expected impact to Technical Environment as follows:

Ability to Address the Problem Statement:
Alternatives 1 through 4 will address the problem statement. Alternative 5 does not.

Road Geometry and Vehicular Safety:

- Alternatives 1 and 2 will require a 22m right-of-way width designed in accordance with applicable design standards.
- Alternatives 3 and 4 will require a 26 m right-of-way width and will be designed in accordance with applicable design standards.
- There are no anticipated impacts associated with Alternative 5.

Emergency Access:

- Alternatives 1 thru 4 provide for a direct east-west route improving emergency access to the existing Dickson Drive, and northeastern quadrant of Fergus.
- Alternative 5 does not provide emergency or secondary access for the existing industries on Dickson Drive.

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Technical Environment (Continued)

Existing Roads & Services:
Alternatives 1 thru 4 will increase service life of municipal infrastructure on Gartshore due to reduced dependency. The additional watermain connection south to the Elora Cataract Rail Trail will provide opportunity for future connection and improved service to existing/future developments. The existing watermain and sanitary sewers on Dickson Drive will provide efficient use of existing service to the site.

Alternative 5 will result in inefficient use of the existing Municipal Services on Dickson Dr.

Proposed Streetscaping & Standard of Design
As described within the Business Park Strategy Report, the area is intended to present a high standard of building, landscape and streetscape design.

- Alternatives 1 and 2 provide this by way of curb and gutters, and multi-use pathways for pedestrian connectivity.
- Alternative 3 provides the multi-use pathways, however does not provide curbs and gutters.
- Alternative 4 does not provide curbs and gutters or the multi-use pathway.
- Alternative 5 will have no impact.

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Technical Environment (Continued)

Storm Water Management:
Alternatives 1 and 2 will convey storm run-off via contained sewers and manholes.

Alternatives 3 and 4 will convey storm run-off via open ditches and culverts with minimal number of storm sewers and manholes, thus requiring less frequent, although disruptive maintenance activities.

Alternatives 1 thru 4 will provide storm water treatment by way of Oil-Grit-Separator(s) and low-slope polishing swales. Cleaning of OGS's will need to be added to the Township annual maintenance programs however can be done with little disruption to the naturalized environment.

Alternative 1 provides storm water storage by way of below grade storage chambers or structures that will require annual non-disruptive maintenance and inspection with little disturbance to the naturalized environment. Alternatives 2 thru 4 provide storm water storage via open ponds that will require annual inspection and costly, although infrequent disruptive cleaning operations that will disrupt the naturalized environment.

Alternative 5 will have no impact.

Technical Environment (Continued)

Traffic and Pedestrian Safety:

Alternatives 1 thru 4 provides alternate routes for access to the existing Industrial Park and northeast quadrant of Fergus. There is an increased safety concern to pedestrians using the existing trail crossing on First Line due to the additional traffic. Traffic on Gartshore through the residential area, trail and park may be decreased, thereby reducing associated traffic and pedestrian safety concerns.

Cultural Environment

The alternatives are evaluated based on their expected impact to the cultural environment as follows:

Archaeological Resources:

Impact of Alternatives 1 thru 4 are pending the results of the Stage Two Archeological Assessment, however impacts are expected to be minimal. If any archeological resources are found, detailed design will accommodate to mitigate any impact.



Alternative 5 will have no impact.

Built Heritage and Cultural Landscape:

Alternatives 1 thru 4 will have limited short-term impacts to the existing farmscape, which may be mitigated by planning and staging construction activities away from the residence as feasible.

Alternative 5 will have no impact.

Social Environment

The alternatives are evaluated from based on their expected impact to the social environment as follows:

Temporary Construction Impacts

Alternatives 1 thru 4 will result in noise and dust generated during construction activities. This will require mitigation, although impacts will be temporary and limited.

There are no anticipated issues with respect to traffic management for work to be completed within the Study Area; however, there is a potential for temporary limited impacts on local roads due to construction related traffic. Haul routes to be used outside of the Study Area during construction activities will be selected to minimize impact on local roads and traffic.

Alternative 5 will have no impact.

Social Environment (Continued)

Land Use and Traffic:
Alternatives 1 thru 4 will increase the available land for economic development and will result in increased tax base and efficient use of existing infrastructure.

No reduction in the current level of service of the studied intersections has been identified. Further traffic studies may be warranted as the lands fronting the proposed extension are developed, depending on the size and type of the proposed developments.



Alternative 5 will have no impact.

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Social Environment (Continued)

Indigenous Communities

Consultation with the Ministry of Municipal Affairs and Housing, the Ministry of Aboriginal Affairs, Ministry of Indigenous Relations and Reconciliation, Metis Nation of Ontario, Indigenous and Northern Affairs Canada, Six Nations, Six Nations of the Grand River Territory, Haudenosaunee Confederacy, Historic Saugeen Metis, Saugeen First Nation, has been ongoing from onset of the EA process. Consultation will continue throughout the EA process to ensure appropriate mitigation measures are implemented if impacts are anticipated.

Recreational Amenity

Limited impacts are anticipated to result from Alternatives 1 thru 4 with the operation of the proposed project given the environmental setting and current use of the Study Area. Traffic and pedestrian safety measures will be implemented as needed. Multi-Use Pathway network will be expanded by this project.

Alternative 5 will have no impact.

Social Environment (Continued)

Visual Amenity

Existing open space areas will be disturbed during the construction required for Alternatives 1 thru 4 and eventually changed to a developed landscape. Development of lands fronting the extension will be required to provide landscaping to naturalize the area to the extent feasible.

Alternative 5 will have no impact.



Economic Environment

The alternatives are evaluated based on their expected impact to the economic environment as follows:

Local Economy:
Alternatives 1 thru 4 will provide an increase in accessible business development property for continued economic growth and to further promote live and work opportunities within the Township.

Capital Cost:
The estimated cost of construction for the alternatives are as follows:

Alternative	Roads, Drainage & SWM	Servicing (Water & Sanitary)	Miscellaneous Items, Engineering, Contingency & HST
Option 1	$1,860,000	$800,000	$945,000
Option 2	$1,859,000	$800,000	$945,000
Option 3	$1,530,000	$800,000	$830,000
Option 4	$1,436,000	$800,000	$800,000
Do Nothing	N.A		

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Natural Environment

The alternatives are evaluated based on their expected impact to the Natural Environment as follows:

Wetland:
Road Alignments within Alternatives 1 thru 4 do not enter into the expected wetland or its buffer.

Where the proposed Multi-Use Pathway enters the wetland buffer in Alternatives 1 thru 3, mitigation measures are required to minimize potential negative impacts to the wetland. Potential negative impacts include lowering of water table thus affecting certain vegetation species and potentially creating a barrier for reptile and amphibian movement. These impacts can be effectively mitigated using groundwater recharge strategies on the development sites, and the use of permeable trail surface treatment.

The proposed storm water management facility will provide quality and quantity control to ensure no negative impact to the wetland or other receiving features.

Alternative 5 will have no impact.

Natural Environment (Continued)

Built Heritage and Cultural Landscape:
Alternatives 1 thru 4 will avoid existing Heritage features to reduce any potential disturbance.

Alternative 5 will have no impact.

Stormwater Run-off from the Area:
Long-term impacts of Alternatives 1 thru 4 are limited through implementation of SWM Facilities and other mitigation measures to maintain or improve stormwater run-off (quantity and quality). This will be provided by way of sediment and erosion control, storm water management best practices, and establishment of an operation and monitoring program.

Alternative 5 will have no impact.

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Natural Environment (Continued)

Water Quality & Source Water Protection

Mitigation measures are required to maintain or improve stormwater runoff quality from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline.

Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.)

Alternatives 1 and 2 will convey storm water via closed sewers and manholes, which provide source water protection by creating barrier between groundwater and the road run-off.

Alternatives 3 and 4 will convey storm water via open ditches and culverts with a minimal number of storm sewers and manholes. This will require less maintenance, however offers little source water protection from potential contaminate bearing run-off.

Alternative 5 will have no impact.

Natural Environment (Continued)

Sensitive/listed Species within the Study Area:
Consideration of standard environmental management strategies to reduce and/or eliminate the risk and disturbance will be given during detailed design within Alternatives 1 thru 4.

Limited long-term impacts are anticipated following construction and restoration given application of appropriate design and implementation of mitigation measures.

Minimal impacts are anticipated from the operation of the proposed works.

Alternative 5 will have no impact.

Trees and Natural Vegetation
Infrastructure and has been proposed, designed and/or located such that there is not expected to be any impact to the existing trees and natural vegetation within Alternatives 1 thru 4.

Alternative 5 will have no impact.

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Natural Environment (Continued)

Effect on Use of Area by Wildlife

Alternatives 1 thru 4 will need to follow the recommendations outlined in the EIS Study. This will result in minor impact to the wildlife. This includes completing all vegetation removals outside the Environment Canada breeding bird nesting window (April 1- August 31).

If removals must take place during the nesting window, a bird nest survey is be completed to determine locations of active nests prior to construction works followed by installation of erosion and sediment Control (ESC) fence to restrict construction activity in these areas. Nest protection zones will need to be created where active bird nests are found.

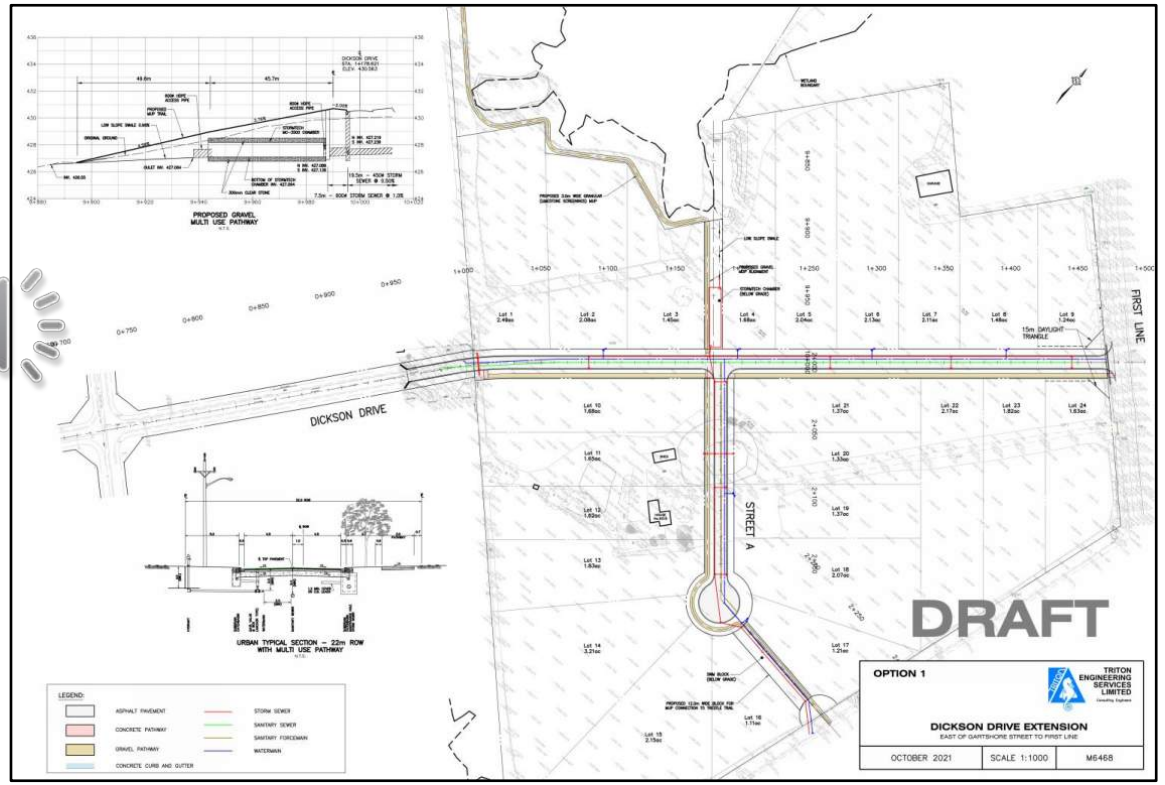
Air Quality related to Road Emissions

Alternatives 1 thru 4 will result in an increased exhaust emissions into the airshed within the Study Area as a result of traffic; however, due to the setting of the Study Area, exposure to the general population is limited. The impact from odours, noise, traffic and air quality on the local population will be the responsibility of future business of the area, which will be policed by governmental regulations and controls.

Selecting the Preferred Alternative

Based on the above, Alternative 1 has been selected as the preliminary preferred alternative, given its ability to address the opportunity statement, provide a high standard of building, landscape and streetscape design and provide an improved barrier between the surface run-off and local groundwater by way of contained SWM conveyances and storage features. SWM maintenance activities will need to be more frequent than those required for the other alternatives, however will result in less disturbance to the naturalize environment.

The capital cost is marginally greater than Alternatives 2 thru 4.



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THANK YOU!

The preliminary version of all supporting studies referenced through this presentation can be found by visiting the Township CW Connect website at www.connectcw.ca

Questions and comments can be submitted by contacting one of the following team members:



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Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

	CRITERIA	Alternative 1 Option 1	Alternative 2 Option 2	Alternative 3 Option 3	Alternative 4 Option 4	Alternative 5 "Do Nothing"
TECHNICAL ENVIRONMENT						
Design & Function	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Road Geometry and Vehicular Safety	Proposed 22 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	Proposed 22 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	Proposed 26 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	Proposed 26 m road right-of-way width, including the roadway will be designed in accordance with applicable design standards.	No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**No Preference**
	Emergency Access	This Alternative provides for a direct east-west route through the overall industrial park and improves access to Dickson Drive such that emergency vehicles will be able to access existing and future businesses from both directions.				No emergency/secondary access available for the existing industries on Dickson Drive.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Effect on Existing Roads and Services	Alternatives will increase service life of municipal infrastructure on Gartshore due to reduced dependency. The additional watermain connection south to the Elora Cataract Rail Trail will provide opportunity for future connection and improved service to existing/future developments. The existing watermain and sanitary sewers on Dickson Drive will provide efficient use of existing service to the site.				Alternative 5 will result in inefficient use of the existing Municipal Services on Dickson Dr.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Proposed Streetscaping & Standard of Design	Provides this by way of providing curb and gutters, and a multi-use pathway for pedestrian connectivity.	Provides this by way of providing curb and gutters, and a multi-use pathway for pedestrian connectivity.	Provides the multi-use pathway, however does not provide curbs and gutters.	Does not provide curbs and gutters or the multi-use pathway.	No anticipated impacts.
		Preferred	**Preferred**	**Less Preferred**	**Less Preferred**	**Not Preferred**
	Storm Water Management	Storm water will be conveyed via closed sewers and manholes. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage by way of below grade storage chambers or structures that will require annual non-intrusive maintenance and inspection with little disruption to the naturalized environment.	Storm water will be conveyed via closed sewers and manholes. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage via open ponds that will require annual inspection and costly infrequent intrusive and cleaning operations that disrupt the naturalized environment.	Storm water will be conveyed via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage via open ponds that will require annual inspection and costly infrequent intrusive and cleaning operations that disrupt the naturalized environment.	Storm water will be conveyed via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance. Storm water treatment by way of Oil-Grit-Separators(s) and low-slope polishing swales. Cleanings of OGS's will need to be added to the Township annual maintenance programs however can be done with little distruption to the naturalized environment. Provides storm water storage via open ponds that will require annual inspection and costly infrequent intrusive and cleaning operations that disrupt the naturalized environment.	No anticipated impacts.
		Preferred	**Less Preferred**	**Less Preferred**	**Less Preferred**	**Not Preferred**
	Effect on Traffic and Pedestrian Safety	Provides alternate routes for access to the existing Industrial park and northeast quadrant of Fergus. Increased safety risk to pedestrians using the existing trail crossing on First Line due to the additional traffic. Traffic on Gartshore through the residential area, trail and park may be decreased, thereby reducing associated traffic and pedestrian safety concerns.				No anticipated impacts. Traffic will continue to use Gartshore as its main route to access existing industrial area.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**

	CRITERIA	Alternative 1 Option 1	Alternative 2 Option 2	Alternative 3 Option 3	Alternative 4 Option 4	Alternative 5 "Do Nothing"
CULTURAL ENVIRONMENT						
Archaeological and Heritage Resources	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	No anticipated impacts.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Impacts to Archaeological Resources	Pending the results of the Stage Two Archeological Assessment.	Pending the results of the Stage Two Archeological Assessment.	Pending the results of the Stage Two Archeological Assessment.	Pending the results of the Stage Two Archeological Assessment.	No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Built Heritage and Cultural Landscape	Limited short-term impacts anticipated to the farmscape, which may be mitigated by planning and staging construction activities away from the residence as feasible.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**No Preference**
SOCIAL ENVIRONMENT						
Land Use	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Temporary Construction Impacts	Noise and dust generated during construction activities will require mitigation, although impacts will be temporary and limited. No anticipated issues with respect to traffic management for work to be completed within the Study Area; however, there is a potential for temporary limited impacts on local roads due to construction related traffic. Haul routes to be used outside of the Study Area during construction activities will be selected to minimize impact on local roads and traffic.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts on Land Use and Traffic	Increase in available land for economic development will result in increased tax base, and efficient use of existing infrastructure. No reduction in current level of service of the studied intersections has been identified. Expected to reduce traffic on Gartshore; thereby reducing traffic and safety concerns, as well as anticipated improvement of enjoyment of residential property resulting from the reduction in noise, dust, traffic and safety concerns. Similar improvements for users of park and trail along Gartshore.				Industrial traffic, including heavy trucks, will continue to use Gartshore, and traffic volumes will increase as more development occurs.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Impacts to Indigenous Communities	Consultation with the Ministry of Municipal Affairs and Housing, the Ministry of Aboriginal Affairs, Ministry of Indigenous Relations and Reconciliation, Metis Nation of Ontario, Indigenous and Northern Affairs Canada, Six Nations, Six Nations of the Grand River Territory, Haudenosaunee Confederacy, Historic Saugeen Metis, Saugeen First Nation, has been ongoing from onset of the EA process. Consultation will continue throughout the EA process to ensure appropriate mitigation measures are implemented if impacts are anticipated.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Recreational Amenity	Limited impacts are anticipated to result from the operation of the proposed project given the environmental setting and current use of the Study Area. Traffic and pedestrian safety measures will be impletmented as needed. Multi-Use Pathway network will be expanded by this project.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Visual Amenity	Existing open space areas will be disturbed during construction and changed to a developed landscape eventually. Developments will be required to provide landscaping to naturalize the area to the extent feasible.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
ECONOMIC ENVIRONMENT						
Costs	**Ability to Address Problem Statement**	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement, however does not provide pedestrian trail use.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Less Preferred**	**Not Preferred**
	Local Economy	Alternatives 1 thru 4 will provide increase in accessible business development property for continued economic growth and to promote a live-work community within the Township.				No anticipated impacts.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
	Estimated Capital Cost of Construction	Estimated Capital Cost is **$3,605,000**	Estimated Capital Cost is **$3,604,000**	Estimated Capital Cost is **$3,160,000**	Estimated Capital Cost is **$3,036,000**	No costs associated with this alternative.
		No Preference	**No Preference**	**No Preference**	**Preferred**	**Not Preferred**

CRITERIA		Alternative 1 Option 1	Alternative 2 Option 2	Alternative 3 Option 3	Alternative 4 Option 4	Alternative 5 "Do Nothing"
NATURAL ENVIRONMENT						
	Ability to Address Problem Statement	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Addresses the Problem Statement.	Does not address the Problem Statement.
		Preferred	**Preferred**	**Preferred**	**Preferred**	**Not Preferred**
Wetland	**Impacts to Wetlands**	The proposed road alignment does not enter into the expected wetland buffer. Where the proposed Multi-Use Pathway enters the wetland buffer, mitigation measures are required to minimize potential negative impacts to the wetland. Potential negative impacts include lowering of water table affecting certain vegetation species and potentially creating a barrier for reptile and amphibian movement. these impacts can be effectively mitigated using groundwater recharge strategies, and the use of limestone screenings for trail surface treatment, respectively. The proposed storm water management facility will provide quality and quantity control to ensure no negative impact to the wetland or other receiving features.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Hydrology	**Impacts to Built Heritage and Cultural Landscape**	Existing Heritage Features will be avoided to reduce any potential disturbance.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts from Stormwater Runoff from the Site	Long-term impacts are limited through implementation of SWM Facilities and other mitigation measures to maintain or improve stormwater runoff (quantity and quality) from the Study Area (i.e. sediment and erosion control, best management practices, establishment of an operation and monitoring program, etc.).				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
	Impacts to Water Quality and Source Water Protection	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via closed sewers and manholes, which provide source water protection by creating barrier between groundwater and the road run-off.	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via closed sewers and manholes, which provide source water protection by creating barrier between groundwater and the road run-off.	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance, however offering no source water protection from chloride and other potential contaminate bearing run-off.	Mitigation measures are required to maintain or improve stormwater runoff (quality) from the Dickson Drive Extension; thereby limiting and avoiding anticipated long-term impacts such as negative thermal influences, sedimentation, and contaminant run-off from road salt, oil and gasoline. Changing the property from agricultural use will reduce some existing contaminant run-off (i.e. sediment, nutrients, phosphorus, pesticides, herbicides etc.) . Conveys storm water via open ditches and culverts with minimal amount of storm sewers and manholes requiring less maintenance, however offering no source water protection from chloride and other potential contaminate bearing run-off.	No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Rare and at Risk Species	**Impacts to Sensitive/listed Species within the Study Area**	Consideration of standard environmental management strategies to reduce and/or eliminate the risk and disturbance will be given during detailed design. Limited long-term impacts are anticipated following construction and restoration given application of appropriate design and impletmentation of mitigation measures. Minimal impacts are anticipated from the operation of the proposed works.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Trees and Vegetation	**Impacts to Trees and Natural Vegetation**	Infrastructure has been designed/located such that there is not expected to be any impact to the existing trees and natural vegetation.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Wildlife	**Effect on Use of Area by Wildlife**	Following the recommendations outlined in the EIS Study will result in minor impact to the wildlife. This includes completing all vegetation removals outside the Environment Canada breeding bird nesting window (April 1- August 31). If removals must take place during the nesting window, a bird nest survey is be completed to determine locations of active nests prior to construction works followed by installation of Erosion and sediment Control (ESC) fence to restrict construction activity in these areas. Create nest protection zones where active bird nests are found.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**
Air Quality	**Effect on Air Quality related to Road Emissions**	There will be increased exhaust emissions into the airshed within the Study Area as a result of traffic; however, due to the setting of the Study Area, exposure to the general population is limited. The impact from odours, noise, traffic and air quality on the local population will be the responsibility of future industries of the area, which will be policed by governmental regulations and controls.				No anticipated impacts.
		No Preference	**No Preference**	**No Preference**	**No Preference**	**Preferred**

Section 14

Notice of Completion and Related Correspondence

NOTICES

Advertise here to make sure your information reaches everyone.
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Centre Wellington

NOTICE OF STUDY COMPLETION

Municipal Class Environment Assessment Study For The Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

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If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square,
Elora, ON N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14,
Fergus, ON N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.
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77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

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135 St. Clair Ave. W, 1st Floor
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Centre Wellington

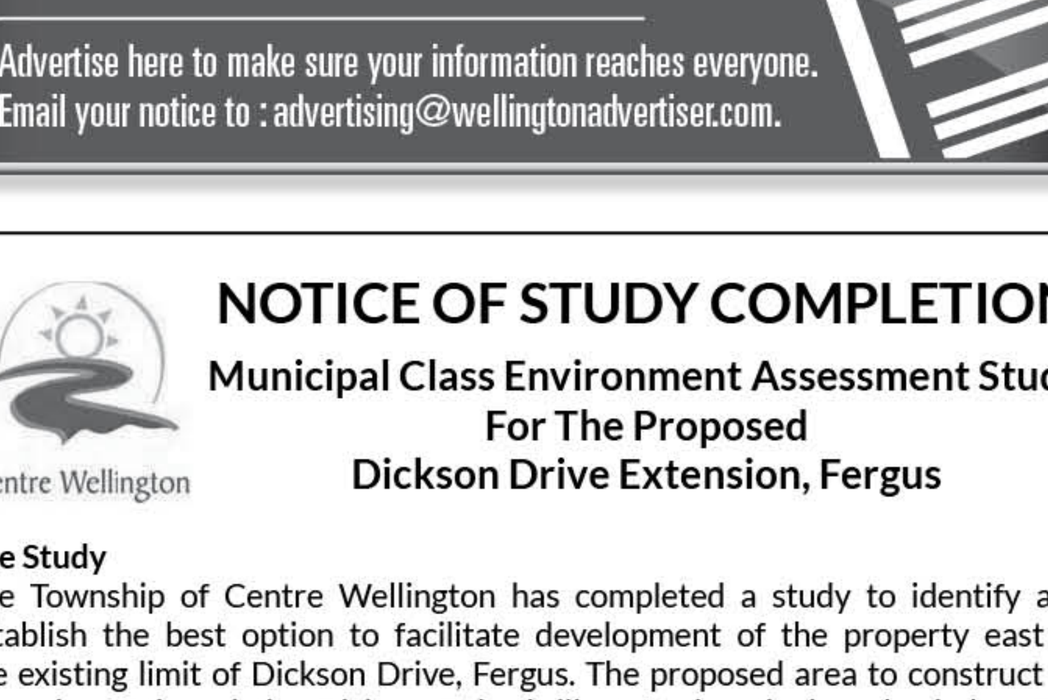
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This Notice was first issued on March 10, 2022.

PUSLINCH

THE TOWNSHIP OF PUSLINCH

NOTICE OF THE COMPLETE APPLICATION AND NOTICE OF THE PUBLIC MEETING

PUBLIC MEETINGS ARE BEING CONDUCTED VIA ZOOM WEBINARS
The public is invited to participate by registering for this webinar at the link below:
https://us02web.zoom.us/webinar/register/WN_nP8SrRUUQHGsmJTTNhQ8vg
After registering, you will receive a confirmation email containing information about joining the webinar. Or join by phone:
+1 613 209 3054 or +1 647 374 4685 or +1 647 558 0588 or +1 778 907 2071 or +1 438 809 7799 or +1 587 328 1099
Webinar ID: 869 8566 1513 **Passcode:** 236478

International numbers available: https://us02web.zoom.us/u/kb2bws5MVT

TAKE NOTICE that pursuant to the requirements of the Planning Act, R.S.O., 1990, as amended, the Township of Puslinch has received a complete application to amend the New Comprehensive Zoning By-law 023-2018. The file number assigned to this application is **D14/SLA.**

AND TAKE NOTICE that pursuant to the Planning Act, R.S.O. 1990, as amended, the Council of the Township of Puslinch will hold a public meeting to present the received public input regarding proposed amendments to the Township of Puslinch Zoning By-law # 2019-023 (File No. D14/SLA) on **Wednesday, April 13th, 2022 at 7:00 p.m.**

Meeting Place:
Please note that the Township Offices are closed to the public in response to COVID-19 and as such, Public Meetings are being conducted electronically.

How to Participate:
Public Meetings are being conducted via Zoom Webinars. The public is invited to participate by registering for this webinar at the link shown above.

Please note the meeting is video and audio recorded and all electronic meetings are uploaded to the municipality's YouTube page. By requesting to participate in the meeting by electronic means, you are consenting to have your likeness and comments recorded and posted on YouTube.

MAKING A WRITTEN SUBMISSION
The public is invited to participate by submitting written comments to the application in support or opposition of the application. Your full name and address must be on the submission. You can submit written comments via email to the **Township Clerk's office at the address below** no later than **Monday, April 11, 2022 by 4:30 p.m.** to ensure that your comments are included in the Committee Agenda. Any written comments or objections submitted are made public as part of the application process and the public record and will be considered by the Committee.

You can also mail written comments to:
Township of Puslinch
7404 Wellington Rd 34, Puslinch ON N0B 2J0

Or place them in the Township Office mail slot no later than **Monday, April 11, 2022 at 4:30 p.m.** to ensure that your comments are included in the Public Meeting Agenda.

The Township will NOT be responsible for Canada Post delays. Please mail your comments with sufficient time, as they must be received in the Municipal Office by the date and time noted above to be included in the Committee Agenda.

MAKING AN ORAL SUBMISSION
The public is invited to participate by speaking to the applications in support or opposition of the application. If you wish to participate in the meeting to provide verbal comments to speak in support or opposition, please contact the Township Clerk's office at the address below by **Monday, April 11, 2022 at 4:30 p.m.** and you will be provided with instructions on how to participate in the meeting. Instructions will also be provided during the meeting to ensure that those watching the public hearing will be given the opportunity to speak.

THE LAND SUBJECT to the application is described as Part Lots 7, 8 and 9, Concession 10, Township of Puslinch, municipally known as 711 Arkell Rd. The subject lands are shown on the Key Map.

THE PURPOSE AND EFFECT of the application is to amend the Township of Puslinch Comprehensive Zoning By-law 23-2018 from Agricultural (A) Zone and Natural Environment (NE) Zone to a site specific Agricultural (A-) Zone to recognize three existing dwelling units on the property.

ORAL OR WRITTEN SUBMISSIONS may be made by the public either in support or in opposition to the proposed Zoning By-law Amendment. Any person may attend the public meeting and make an oral submission or direct a written submission to the Township Clerk at the address below. All those present at the public meeting will be given the opportunity to make an oral submission, however; it is requested that those who wish to address Council notify the Township Clerk in advance of the public meeting.

TAKE NOTICE that if a person or public body would otherwise have an ability to appeal the decision of the Council of the Township of Puslinch to the Ontario Land Tribunal (OLT) but the person or public body does not make oral submissions at a public meeting or make written submissions to the Township of Puslinch before the by-law is passed, the person or public body is not entitled to appeal the decision.

AND TAKE NOTICE that if a person or public body does not make oral submissions at a public meeting, or make written submissions to the Township of Puslinch before the by-law is passed, the person or public body may not be added as a party to the hearing of an appeal before the Ontario Land Tribunal (OLT) unless, in the opinion of the Tribunal, there are reasonable grounds to do so.

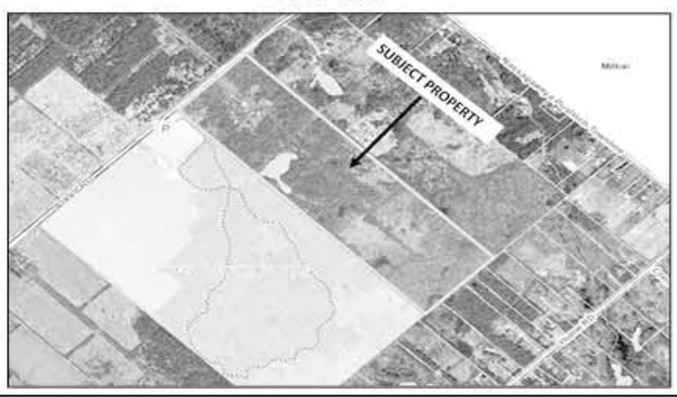
REQUEST FOR NOTICE OF DECISION regarding the Zoning By-law amendment must be made in written format to the Township Clerk at the address shown below.

ADDITIONAL INFORMATION regarding the proposed amendment, including information about appeal rights, is available by emailing between 9:00 a.m. and 4:30 p.m. at the Township of Puslinch Municipal Office. If you require the information in an alternative format, please contact the Clerk's office at the email address below and arrangements can be made.

Dated at the Township of Puslinch on this 10th day of March 2022.
Courtenay Hoytfox

Municipal Clerk
Township of Puslinch
For more information or to register an oral or written submission please contact
planning@puslinch.ca

KEY MAP



Notice of Study Completion

Municipal Class Environmental Assessment Study

for the

Proposed Dickson Drive Extension, Fergus

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N0B 1S0
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This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

April 21, 2022

ADDRESS 1
ADDRESS 2
ADDRESS 3

ATTENTION: NAME

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear NAME,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

Field studies and background reviews have been completed to determine existing conditions within the Study Area and were used to support the evaluation of alternatives based on the cultural, social, economic, natural and technical environments. Project related information and a copy of the Environmental Assessment is being placed on public record for a 45-day review period beginning Thursday, March 10, 2022. The Project related information and Environmental Assessment is available at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

Upon receipt of necessary regulatory approvals, the Township intends to proceed with the design and implementation of alternative Option One. If you wish to provide additional comments or if you have any concerns with the Class EA, please forward communications, in writing, to the attention of the Project team members prior to Monday, April 25th, 2022.

Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

DRAFT

Student

From: FPP.CA / PPP.CA (DFO/MPO) <fisheriesprotection@dfo-mpo.gc.ca>
Sent: March 15, 2022 3:49 PM
To: Shari Page
Subject: RE: Township of Centre Wellington, NOTICE OF STUDY COMPLETION, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Hi Shari,

DFO does not typically participate in construction design or planning of any specific project. We are only engaged once the project design/planning is complete and a request for review is submitted. All the advice or guidance that we have to help a proponent plan a 'fish friendly' project is publicly available on our website under the measures to protect fish and fish habitat https://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures-eng.html. We can help clarify our process overall but for any specific techniques, methods or materials, we recommend contacting an environmental consultant knowledgeable in fish and fish habitat and regulations.

Regards,

Amanda Swiniarski
Biologist | Biologiste
Fisheries and Oceans Canada| Pêches et Océans Canada
Fish and Fish Habitat Protection Program| Programme de protection du poisson et de son habitat
867 Lakeshore Road, Burlington, ON, L7S 1A1 | 867, ch. Lakeshore, Burlington, ON, L7S 1A1

From: Shari Page <spage@tritoneng.on.ca>
Sent: Wednesday, March 9, 2022 3:26 PM
To: FPP.CA / PPP.CA (DFO/MPO) <fisheriesprotection@dfo-mpo.gc.ca>
Subject: Township of Centre Wellington, NOTICE OF STUDY COMPLETION, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario
Importance: High

Good afternoon,

On behalf of the Township of Centre Wellington, please find attached, *NOTICE OF STUDY COMPLETION, Municipal Class Environmental Assessment, Schedule B, for the Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus, Ontario*.

This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, March 10th and March 17th, 2022.

Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Shari Page

Student

From: Dustin Lyttle
Sent: March 15, 2022 4:22 PM
To: Kelsye Coulter
Cc: Karen Hurson; Shari Page; Lee Wheildon
Subject: RE: Proposed Extension of Dickson Dr.

Hi Kelsye,

You are correct, a variable buffer means that the buffer ranges in width based on what is present and the requirements of the design, but provides an overall area that is equal in area to what a 10m equi-distant buffer would have provided.

As per the GRCA's Policies for the "Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation" (Section 8.4.9), development (aka the multi-use pathway) is permitted within an area of interference less than or equal to 30 metres provided there are no negative or adverse hydrological or ecological impacts on the wetland and that all development is located outside of the wetland and maintains as much setback as feasible.

The EIS determined that a reduced variable buffer width of 10m is appropriate for a multi-use pathway based on the expected impact of this type of construction and the implementation of recommendations within the EIS to further reduce impacts. The EIS also recommended that the MUP be adjusted at detailed design to provide as much distance as possible from the existing pond feature, to reduce the potential for encroachment by MUP users.

We can discuss further in the meeting however if you have any further questions or concerns in the meantime, please do not hesitate to contact us.

Thanks,

Dustin C. Lyttle, P. Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: March 15, 2022 8:52 AM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Cc: Karen Hurson <karenhurson@gmail.com>; Shari Page <spage@tritoneng.on.ca>; Lee Wheildon <LWheildon@centrewellington.ca>
Subject: Re: Proposed Extension of Dickson Dr.

Hi Dustin,

Thanks for the reply. Yes, you may use me as the contact for a meeting, which is appreciated.

About the buffer: I'm confused as the "variable wetland buffer" does not look to be 30 M. Isn't 30 M a minimum distance for buffer from environmentally protected lands?

_____
Kelsye
kelsye.coulter@icloud.com

On Mar 15, 2022, at 8:20 AM, Dustin Lyttle <dlyttle@tritoneng.on.ca> wrote:

Hi Kelsye,

We are intending to arrange a meeting with the CW Dog Park Committee and Community Services Advisory Committee (CSAC) in the coming weeks to discuss this in more detail. At that time, we will provide more detail how the MUP can end and connect to the existing Glengarry Crescent and discuss best options.

Regarding the question of the buffer; through discussions with the EIS consultant, they have noted that the buffer for that area of the wetland is variable and so it has been shown as the blue line which is noted as a "Variable Wetland Buffer".

I would like to confirm, are you the best person for us to contact to coordinate a meeting with the CW Dog Park Committee and the Township?

Thanks,

Dustin C. Lyttle, P. Eng.

<image001.jpg>Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
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From: Kelsye Coulter <kelsye.coulter@icloud.com>
Sent: March 9, 2022 10:33 PM
To: Lee Wheildon <LWheildon@centrewellington.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Cc: Karen Hurson <karenhurson@gmail.com>
Subject: Proposed Extension of Dickson Dr.

Hi Lee and Dustin,

I just have been notified that the Township has chosen Option 1. I have a couple of questions:

- We have expressed concern with a multi-use pathway being constructed so close to an off leash dog park. I know that you have expressed that you don't want to consider areas outside the property of 6518 First Line, but I'm trying to imagine where this multi use pathway is ending?

- On page 72 of the EA which has a map of the proposed Option 1, I see a dotted blue line representing the 30M buffer zone from the wetland on the bottom right corner of the map. I don't see that 30 M dotted blue line bordering the wetlands on the upper left of the map. Where is the 30 M limit blue line for these wetlands?

I'm looking forward to clarification on these 2 points. Thank you.

_____

Kelsye
kelsye.coulter@icloud.com

Student

From: Dustin Lyttle
Sent: March 17, 2022 8:01 AM
To: Shari Page
Subject: FW: NOTICE OF STUDY COMPLETION - Class EA, Schedule B, Proposed Extension of Dickson Drive, Fergus

Morning Shari,

For file please.

Thank you,
Dustin Lyttle

From: Gordon Lunn <gordonlunn@bellnet.ca>
Sent: March 16, 2022 6:35 PM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Re: NOTICE OF STUDY COMPLETION - Class EA, Schedule B, Proposed Extension of Dickson Drive, Fergus

Hello Dustin.

Thank you. But it is the connectcw images that are extremely difficult to read and clearly see. I have looked at all documents but they are difficult if not challenging to be able to see the whole or big picture.

At any rate it is a business park next to what was a quiet rural housing area on the First Line. I guess good things never last!

I will try to get to the Township Office to take a look at the plans and designs of this business park.

Let's hope they plan to plant a lot of trees within that area to cut down on the noise, the pollution, and block out what will be very boring box like structures. This will not be like a view of the Louvre or the AGO for that matter. It will be pretty uglified by boring architectural boxes that will not be visually pleasing to the eye.

My only suggestion (as I have no influence over this Business Park) is that a lot of evergreens (mature) and trees are planted. It is bad enough that we have the Sorbara housing development which is hideous architecturally speaking and crammed in with not much vegetation or trees to speak of. Even a small park would not help this self contained suburbia. They are best making it a gated community because let's face it even if we want to walk through it (which we can't as they have signs up everywhere) ...we would be depressed by the mere site of it.

Elora at least is attempting to maintain the history and even revive it in the downtown area with recent real estate acquisitions. But Fergus downtown has the most beautiful historical buildings but there is no unification within the businesses to showcase it's beauty. Many businesses seem like a cheap display akin to dollarstore fronts. Such a shame. There should be loads of money poured into this downtown area because the architecture is superior to Elora's downtown. It needs to be revived to it's origins as the main structures and buildings are there. Turn St. Andrew St. into a people only street and co-ordinate all businesses to match the architecture. Only then will we be able to sustain better restaurants and attract more tourism. Too much money is poured into Elora because of the Ciancone family. It is time to pour money into Fergus.

I love both towns and I was not born here so I am entitled to say this. My loyalty does not lie with either town.

I believe the money used to upgrade the library (incredible improvement with modern meets classic) and this should be the theme.

However, a business park is pretty dull but it can be made to feel somewhat inviting but it will have to be because a lot of money will also be poured into creating green spaces and be lined with many species of trees and native plants and perhaps even a green park.

My two cents worth.

Regards,

Donna

On 2022-03-16 4:12 p.m., Dustin Lyttle wrote:

> Hi Donna,
>
> "Option 1" was one of five options being considered, as described within the virtual public open house held in January which you would have received notice of. "Option 1" has now been selected as the "preferred option" (aka alternative), that will be carried forward into detailed design and eventually construction. The terms "alternative" and "option" in this case mean the same thing.
>
> Option 1 will extend the existing Dickson Drive to First Line and provide an additional cul-de-sac to the south. These roads will be an "urban standard" meaning they will have curbs and gutters rather than open ditches with the intent of providing a more scenic look to the streets, promoting a business park, rather than industrial area. An image showing the proposed road alignments can be found at the Township Connect CW Website (Link here: https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension). This extension is not intended to be a bypass and we are not proposing the use of a traffic circle.
>
> Further to this, the option provides a multi-use pathway (MUP for short) that will run along side the proposed roads, but will also connect up to the existing eastern limit of Glengarry Crescent and the existing rail-trail to the south. If you are interested to see what this alignment of the MUP looks like, a copy of the drawing is now available at the Planning and Development front counter of the Township Administration office located at 1 MacDonald Square in Elora. These will be available for your viewing until the end of day April 25th between the hours of 8:30am and 4:30pm.
>
> A "multi-use pathway" is similar to a sidewalk, however it is wider, and designed to be used for a variety of different pedestrian activities such bicycling, jogging, hiking and walking. In this case, we are not proposing the Multi-Use Pathway surface to be concrete or asphalt, rather a limestone screening or gravel type surface.
>
> Additionally, Option 1 provides stormwater management by way of below grade structures. What this means is that whenever it rains, the rain water (aka run-off) that runs on the roads will be collected, treated and then released to the environment at a controlled rate. This design mitigates any negative environmental impact the roads may have on the run-off from the area.

If you have any further questions, please let me know.

Thank you,

Dustin C. Lyttle, P. Eng.

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • www.tritoneng.on.ca

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From: Gordon Lunn <gordonlunn@bellnet.ca>
Sent: March 11, 2022 2:12 PM
To: Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Re: NOTICE OF STUDY COMPLETION - Class EA, Schedule B, Proposed Extension of Dickson Drive, Fergus

Hello Dustin.

Thank you. Can you explain though, the language used to describe what looks like the chosen Option #1 whereby it is either described as the "preferred" or the "alternative" Option#1.

Option #1 to my understanding is that it will be a Dickson Drive Extension and Multi-Use Path (whatever that means). It all makes no sense to me in terms of the language being used. Could plain language be used with this description? For Example, Option #1 entails extending Dickson Drive to the First Line with other roads within that can be used for various forms of traffic and transportation. It is not a bypass but rather a business park with a semi traffic circle within it that other businesses and roads nearby can use and choose to exit on the First Line or Gartshore from Dickson Drive. I do not understand the term Multi-Use Path?

Thanks.

Donna

On 2022-03-11 1:21 p.m., Dustin Lyttle wrote:

> Hello Donna,
>
> A large set of drawings will be made available for your viewing at the Planning and Development front counter of the Township Administration office located at 1 MacDonald Square in Elora. These will be available for your viewing from noon March 16th continued to end of day April 25th between the hours of 8:30am and 4:30pm.
>
> The construction of the roads will subject to a Grand River Conservation Authority (GRCA) approval and permit. A Ministry of Environment Permit is also expected to be required.
>
> If you have any further questions, please do not hesitate to contact us.

Dustin C. Lyttle, P. Eng.

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From: Gordon Lunn <gordonlunn@bellnet.ca>
Sent: March 9, 2022 11:24 PM
To: Shari Page <spage@tritoneng.on.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>; lwheildon@centrewellington.ca
Subject: Re: NOTICE OF STUDY COMPLETION - Class EA, Schedule B, Proposed Extension of Dickson Drive, Fergus

Hello.

In this paragraph of your attachment lies my confusion in terms of Preferred Option # 1 and **Alternative Option #1**. I also do not have a reference for the the "**necessary regulatory approvals"** (and what exactly are those necessary regulations or regulatory approvals) . I am hopeful that you will provide this information to the residents of the First Line as well as your design and drawings so that we can get the big picture of what this is going to look like. Trying to see it completely on a home computer is next to impossible.

Once I have the explanation and details requested I can then make a reasonable or informed decision that will allow me to respond prior to April 25, 2022.

Here is the paragraph:

Upon receipt of necessary regulatory approvals, the Township intends to proceed with the design and implementation of alternative Option One. If you wish to provide additional comments or if you have any concerns with the Class EA, please forward communications, in writing, to the attention of the Project team members prior to Monday, April 25th, 2022.

Thank You.

Donna Madore

On 2022-03-09 3:30 p.m., Shari Page wrote:

> Good afternoon,
>
> On behalf of the Township of Centre Wellington, please find attached, *'Notice of Study Completion, Class Environmental Assessment, Schedule B'* for the *Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus.*
>
> This Notice will also appear in the next two (2) consecutive editions of The Wellington Advertiser, March 10th and March 17th, 2022.
>
> Should you have any further questions or concerns, please refer to the attached notice for the appropriate contacts.
>
> Kind regards,
> Shari

Shari Page

Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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Section 15

Indigenous Consultation Correspondence

Township of Centre Wellington
Dickson Drive Extension
Schedule 'B'
Class Environmental Assessment

A contact list of the Indigenous groups which may have an interest in the Project was generated and updated throughout the Class EA process. All contacts were notified throughout the Project and included the Notice of Commencement, Notice of Online Public Information Centre, and Notice of Completion. A copy of the contact list for each of the notifications are provided in the Project File Report.

With respect to consultation with Indigenous groups, the Ministry of Aboriginal Affairs was included in the Project contact list, in accordance with the "Code of Practice for Consultation in Ontario's Environmental Assessment Process. The Ministry of Indigenous Relations and Reconciliation, as well as Mississauga of the New Credit First Nations (MNCFN), Haudenosaunee Confederacy, Six Nations of Grand River Territory and Metis Nation of Ontario were also consulted, with notices sent in electronic format. It was ensured that contact information was updated each time Project related notifications/consultation were distributed. Responses received from the Six Nations, Haudenosaunee Confederacy and First Nations - Archaeological have been included in the Project File. No other comments were received from any of the Indigenous groups that were circulated on Project related notices.

Township of Centre Wellington
DICKSON DRIVE EXTENSION
SCHEDULE 'B'
CLASS ENVIRONMENTAL ASSESSMENT
OFFICIAL CONTACT LIST - INDIGENOUS

	Name & Address	Contact Information
	Six Nations Land and Resources 2498 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Lonny Bomberry, Land & Resources Director E: lonnybomberry@sixnations.ca
	Mississauga of the Credit First Nation (MNCFN) 2789 Mississauga Road. R.R. #6 Hagersville, Ontario N0A 1H0	Chief R. Stacey Laforme E: stacey.laforme@mncfn.ca Tel: (905) 768-1133 Mark Laforme, DOCA E: mark.laforme@mncfn.ca Tel: (905) 768-4260 Fawn Sault, Consultation Manager E: Fawn.Sault@mncfn.ca
	Mississauga of the Credit First Nation (MNCFN) 2789 Mississauga Road. R.R. #6 Hagersville, Ontario N0A 1H0	Megan DeVries, M.A., Archaeological Operations Supervisor E: Megan.DeVries@mncfn.ca Tel: (905) 768-4260 Joelle Williams, Consultation Manager Dept. of Consultation and Accommodation E: joelle.williams@mncfn.ca
	Six Nations of the Grand River Territory 1695 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Chief Mark B. Hill E: markhill@sixnations.ca Tel: (519) 445-2201
	Six Nations of the Grand River Territory 1695 Chiefswood Road P.O. Box 5000 Ohsweken, Ontario N0A 1M0	Tanya Hill-Montour, Archaeological Supervisor (SNGREC) E: tanyahill-montour@sixnations.ca Tel: (519) 753-0665 Cell#: 226-388-0665
	Ministry of Aboriginal Affairs Aboriginal Relations/Ministry Partnerships Branch 9th Floor, 160 Bloor Street East Toronto, Ontario M7A 2E6	Pauline Wakegijig, Exec. Assistant (Acting) Policy and Consultation Unit, 4th Floor Tel: (416) 526-7202 E: Pauline.wakegijig@ontario.ca Heather Levecque, Director E:heather.levecque@ontario.ca
	Ministry of Indigenous Relations and Reconciliation 160 Bloor Street East, 4th 9th Floor Toronto, Ontario M7A 2E6	Jessica Hill, Senior Advisor, Indigenous Relations E: jessica.hill2@ontario.ca Tel: (416) 326-4744 Sarah Zelcer, Manager (Acting), Indigenous Relations Unit - Tel: (647) 964-4095 E: sarah.zelcer@ontario.ca

	Haudenosaunee Confederacy Chiefs Council 16 Sunrise Court, Suite 600 P.O. Box 714 Ohsweken, Ontario N0A 1M0	Hohahes Leroy Hill Secretary to Haudenosaunee Confederacy Chiefs Council E: jocko@sixnationsns.com Tel: (519) 445-4222 Wayne Hill E: tworowarchaeology@gmail.com Tel: (226) 388-7135 Todd Williams E: williams.todde@gmail.com *Response info@hdi.land
	Metis Nation of Ontario Suite 1100, 66 Slater Street Ottawa, Ontario K1P 5H1	E: consultations@metisnation.org

Notice of Commencement

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Ministry of Aboriginal Affairs
Aboriginal Relations/Ministry Partnerships Branch
9th Floor, 160 Bloor Street East
Toronto, Ontario
M7A 2E6

ATTENTION: Pauline Wakegijig, Exec. Assistant (Acting)
Policy and Consultation Unit, 4th Floor
Pauline.wakegijig@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Wakegijig,

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington is commencing a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015 and 2021). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property is contained on the attached Notice of Commencement for your reference.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.*"

The purpose of this letter is to introduce the project and invite you to provide any preliminary comments. Effective consultation with all stakeholders, approval agencies and First Nation communities will ensure that all environmental features and constraints (natural/social/economic environments, etc.) are identified in a timely manner and will be considered in the assessment of this project.

We look forward to receiving your preliminary comments and should you have any questions or require additional information, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF PROJECT COMMENCEMENT

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Process:

The Township is initiating a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015 and 2021).



How to Participate:

Public input and comments are invited for incorporation into the planning of this project. A Public Information Centre for this project will be held as the project progresses to share information with and solicit input from interested stakeholders.

For More Information:

As part of the public consultation program, a project contact list is being created. Stakeholders included on the list will receive information regarding the project including formal Notices. To be placed on the project contact list, to provide comments, or to request further information, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

For project background and updates, please visit www.connectcw.ca

This Notice first issued June 24, 2021.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

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June 18, 2021

Haudenosaunee Confederacy
Chiefs Council
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario N0A 1M0

ATTENTION: Hohahes Leroy Hill
Secretary to Haudenosaunee Confederacy
Chiefs Council
jocko@sixnationsns.com

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Sir,

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington is commencing a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015 and 2021). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property is contained on the attached Notice of Commencement for your reference.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.*"

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF PROJECT COMMENCEMENT

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Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

For project background and updates, please visit www.connectcw.ca

This Notice first issued June 24, 2021.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Haudenosaunee Confederacy
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario
N0A 1M0

ATTENTION: Todd Williams
williams.todde@gmail.com

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Sir,

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ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Haudenosaunee Confederacy
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario
N0A 1M0

ATTENTION: Wayne Hill
tworowarchaeology@gmail.com

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DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
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ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East, 4th 9th Floor
Toronto, Ontario
M7A 2E6

ATTENTION: Jessica Hill,
Senior Advisor, Indigenous Relations Unit
jessica.hill2@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Hill,

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cc: Lee Wheildon, Township of Centre Wellington

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ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East, 4th 9th Floor
Toronto, Ontario
M7A 2E6

ATTENTION: Sarah Zelcer,
Manager (Acting), Indigenous Relations Unit
sarah.zelcer@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Zelcer,

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ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Metis Nation of Ontario
Suite 1100, 66 Slater Street
Ottawa, Ontario
K1P 5H1

ATTENTION: Consultations Unit, Metis Nation (Ontario)
consultations@metisnation.org

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

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June 18, 2021

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Megan DeVries, M.A.,
Archaeological Operations Supervisor
Megan.DeVries@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. DeVries,

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cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

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Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

For project background and updates, please visit www.connectcw.ca

This Notice first issued June 24, 2021.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

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June 18, 2021

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Fawn Sault,
Consultation Manager
Fawn.Sault@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Sault,

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

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June 18, 2021

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Joelle Williams, Consultation Manager
Dept. of Consultation and Accommodation
joelle.williams@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Williams,

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

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June 18, 2021

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Mark Laforme, DOCA
mark.laforme@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

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June 18, 2021

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Chief R. Stacey Laforme
stacey.laforme@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
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CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

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Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

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June 18, 2021

Six Nations of the Grand River Territory
1695 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Chief Mark B. Hill
markhill@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Chief Hill,

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Dustin C. Lyttle, P. Eng.
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Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

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June 18, 2021

Six Nations of the Grand River Territory
1695 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Tanya Hill-Montour,
Archaeological Supervisor
tanyahill-montour@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Hill-Montour,

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Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

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ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Six Nations Land and Resources
2498 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario
N0A 1M0

ATTENTION: Joanne Thomas,
Consultation Supervisor
jthomas@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

Dear Ms. Thomas,

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington is commencing a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015 and 2021). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property is contained on the attached Notice of Commencement for your reference.

The Problem Statement for this project is as follows:

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The purpose of this letter is to introduce the project and invite you to provide any preliminary comments. Effective consultation with all stakeholders, approval agencies and First Nation communities will ensure that all environmental features and constraints (natural/social/economic environments, etc.) are identified in a timely manner and will be considered in the assessment of this project.

We look forward to receiving your preliminary comments and should you have any questions or require additional information, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Project Commencement
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF PROJECT COMMENCEMENT

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How to Participate:

Public input and comments are invited for incorporation into the planning of this project. A Public Information Centre for this project will be held as the project progresses to share information with and solicit input from interested stakeholders.

For More Information:

As part of the public consultation program, a project contact list is being created. Stakeholders included on the list will receive information regarding the project including formal Notices. To be placed on the project contact list, to provide comments, or to request further information, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

For project background and updates, please visit www.connectcw.ca

This Notice first issued June 24, 2021.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

June 18, 2021

Six Nations Land and Resources
2498 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario
N0A 1M0

ATTENTION: Lonny Bomberry,
Land & Resources Director
lonnybomberry@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
OUR FILE: M6468C

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TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

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Notice of Virtual Public Information Centre

(PIC)

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Haudenosaunee Confederacy
Chiefs Council
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario N0A 1M0

ATTENTION: Hohahes Leroy Hill
Secretary to Haudenosaunee Confederacy
Chiefs Council
jocko@sixnationsns.com

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

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cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

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Consulting Engineers

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Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Haudenosaunee Confederacy
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario
N0A 1M0

ATTENTION: Todd Williams
williams.todde@gmail.com

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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Consulting Engineers

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Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Haudenosaunee Confederacy
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario
N0A 1M0

ATTENTION: Wayne Hill
tworowarchaeology@gmail.com

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East, 4th 9th Floor
Toronto, Ontario M7A 2E6

ATTENTION: Jessica Hill,
Senior Advisor, Indigenous Relations Unit
jessica.hill2@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

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If you have any questions, comments, require further information, and/or would like to be added to the project contact list, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

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TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East, 4th 9th Floor
Toronto, Ontario M7A 2E6

ATTENTION: Sarah Zelcer,
Manager (Acting), Indigenous Relations Unit
sarah.zelcer@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Ms. Zelcer,

You are invited to the first virtual *Public Information Centre (PIC)* for the above noted project so that we can update you on the Dickson Drive Extension, Class Environmental Assessment (Class EA). Formal notice of this information centre has been included. Details for the invite are as follows:

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Virtually (online)
Township of Centre Wellington's website
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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Metis Nation of Ontario
Suite 1100, 66 Slater Street
Ottawa, Ontario
K1P 5H1

ATTENTION: Consultations Unit, Metis Nation (Ontario)
consultations@metisnation.org

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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Consulting Engineers

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Ministry of Aboriginal Affairs
Aboriginal Relations/Ministry Partnerships Branch
9th Floor, 160 Bloor Street East
Toronto, Ontario
M7A 2E6

ATTENTION: Pauline Wakegijig, Exec. Assistant (Acting)
Policy and Consultation Unit, 4th Floor
Pauline.wakegijig@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Ms. Wakegijig,

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
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Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Ministry of Aboriginal Affairs
Aboriginal Relations/Ministry Partnerships Branch
9th Floor, 160 Bloor Street East
Toronto, Ontario
M7A 2E6

ATTENTION: Heather Levecque, Director
Policy and Consultation Unit, 4th Floor
heather.levecque@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Ms. Levecque,

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TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Mark Laforme, DOCA
mark.laforme@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Chief R. Stacey Laforme
stacey.laforme@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Chief LaForme,

You are invited to the first virtual *Public Information Centre (PIC)* for the above noted project so that we can update you on the Dickson Drive Extension, Class Environmental Assessment (Class EA). Formal notice of this information centre has been included. Details for the invite are as follows:

Monday, January 17th, 2022 – January 31st, 2022
Virtually (online)
Township of Centre Wellington's website
https://www.connectcw.ca

Project Background

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

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TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

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Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario N0A 1H0

ATTENTION: Megan DeVries, M.A.,
Archaeological Operations Supervisor
Megan.DeVries@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Ms. DeVries,

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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January 4, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario N0A 1H0

ATTENTION: Joelle Williams, Consultation Manager
Dept. of Consultation and Accommodation
joelle.williams@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Ms. Williams,

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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Consulting Engineers

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Email: info@tritoneng.on.ca

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January 4, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Fawn Sault,
Consultation Manager
Fawn.Sault@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Ms. Sault,

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Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Six Nations of the Grand River Territory
1695 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Chief Mark B. Hill
markhill@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

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ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Six Nations of the Grand River Territory
1695 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Tanya Hill-Montour,
Archaeological Supervisor
tanyahill-montour@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

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Purpose of Public Consultation
The purpose of this Public Information Centre is to update all stakeholders, approval agencies and First Nation communities on the progress of the project, discuss the evaluation of alternative solutions, and invite you to provide your comments and feedback on a preferred alternative. From **Monday, January 17th to January 31st, 2022**, you will be able to view a display of background information and materials regarding the project on the Township's website noted.

We look forward to receiving your comments and should you have any questions regarding this public consultation, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

Project Background:
The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Study Process:
The Township initiated a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015).



Public Information Centre (PIC) No. 1:
Consultation with the public, key stakeholders, indigenous groups and regulatory agencies is an important component of the Class EA Process. The purpose of this PIC is to solicit feedback and input on the Study, as well as provide an overview of the Study process and discuss the evaluation of alternative solutions and the preliminary preferred alternative. The Virtual Public Open House will provide background and display information materials inviting public response and be open for comments from **Monday, January 17th – January 31st, 2022**. The virtual consultation platform can be accessed online through the Township's website at https://www.connectcw.ca/

How to Respond:
If you have any questions, comments, require further information, and/or would like to be added to the project contact list, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This notice first issued on **January 6th, 2022.**

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

January 4, 2022

Six Nations Land and Resources
2498 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Lonny Bomberry,
Land & Resources Director
lonnybomberry@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
DICKSON DRIVE EXTENSION
CLASS ENVIRONMENT ASSESSMENT
NOTICE OF PUBLIC INFORMATION CENTRE
OUR FILE: M6468C

Dear Sir,

You are invited to the first virtual *Public Information Centre (PIC)* for the above noted project so that we can update you on the Dickson Drive Extension, Class Environmental Assessment (Class EA). Formal notice of this information centre has been included. Details for the invite are as follows:

Monday, January 17th, 2022 – January 31st, 2022
Virtually (online)
Township of Centre Wellington's website
https://www.connectcw.ca

Project Background

The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Township of Centre Wellington has commenced with a Schedule B Class Environmental Assessment (Class EA) under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015). This review will evaluate alternative road and servicing alignments and delineation of drainage areas, consideration of existing/future development needs, and identification and assessment of potential storm outlets. Based on this, stormwater management and municipal servicing options will be considered and evaluated, leading to the selection of a preferred road alignment/configuration and servicing strategy. A general location plan of the property and the alternative being considered is contained on the attached Notice of Public Information Centre for your reference.

The Problem Statement for this project is as follows:

"*The extension of Dickson Drive, east of Glengarry Crescent, is required for the development of municipally serviced (water and sanitary) industrial, commercial, and institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township."*

Purpose of Public Consultation
The purpose of this Public Information Centre is to update all stakeholders, approval agencies and First Nation communities on the progress of the project, discuss the evaluation of alternative solutions, and invite you to provide your comments and feedback on a preferred alternative. From **Monday, January 17th to January 31st, 2022**, you will be able to view a display of background information and materials regarding the project on the Township's website noted.

We look forward to receiving your comments and should you have any questions regarding this public consultation, please contact the undersigned. In your response, please confirm your preferred method for receiving future correspondence as it relates to this project.

Yours very truly,

TRITON ENGINEERING SERVICES LIMITED



Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Public Information Centre (PIC)
cc: Lee Wheildon, Township of Centre Wellington

TOWNSHIP OF CENTRE WELLINGTON

CLASS ENVIRONMENTAL ASSESSMENT

DICKSON DRIVE EXTENSION

NOTICE OF VIRTUAL PUBLIC INFORMATION CENTRE

Project Background:
The Township of Centre Wellington owns property east of the existing limit of Dickson Drive in Fergus. In order to facilitate development of these lands, the Township is proposing to extend Dickson Drive, the existing municipal services and establish a Storm Water Management strategy. The proposed works will provide access to municipally serviced (water and sanitary) industrial, commercial, and/or institutional employment lands, and a multi-use path within the Centre Wellington Business Park in Fergus, to allow for continued economic growth and promote a live/work opportunity within the Township.

The Study Process:
The Township initiated a Class Environmental Assessment (Class EA) in order to evaluate alternative road/servicing alignments and Storm Water Management strategies to establish a preferred option. The project is being planned under Schedule B of the Municipal Class Environmental Assessment (October 2000, as amended in 2007, 2011, 2015).



Public Information Centre (PIC) No. 1:
Consultation with the public, key stakeholders, indigenous groups and regulatory agencies is an important component of the Class EA Process. The purpose of this PIC is to solicit feedback and input on the Study, as well as provide an overview of the Study process and discuss the evaluation of alternative solutions and the preliminary preferred alternative. The Virtual Public Open House will provide background and display information materials inviting public response and be open for comments from **Monday, January 17th – January 31st, 2022**. The virtual consultation platform can be accessed online through the Township's website at https://www.connectcw.ca/

How to Respond:
If you have any questions, comments, require further information, and/or would like to be added to the project contact list, please contact both of the following:

Lee Wheildon, C.E.T.,rcca
Township of Centre Wellington
1 MacDonald Square
Elora, ON N0B 1S0
Phone: 519-846-9691 x253
Fax: 519-846-2039
Email: lwheildon@centrewellington.ca

Dustin Lyttle, P.Eng
Triton Engineering Services Limited
105 Queen Street, Unit 14
Fergus, ON, N1M 1S6
Phone: 519-843-3920 x222
Fax: 519-843-1943
Email: dlyttle@tritoneng.on.ca

Information collected will be used in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. This notice first issued on **January 6th, 2022.**

Notice of Completion

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

Project File

A Project File has been prepared to document the planning and decision-making process for this study. By this Notice, the Project File is being placed on the public record for a 45-day review period from March 10th - April 25th, 2022. The Project File is available for review on the Township's website at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

Requests should specify what kind of order is being requested, how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. The request should be sent in writing or by email to the project contacts noted above and the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Comments submitted to the Township of Centre Wellington for the purpose of providing feedback regarding this Municipal Class Environmental Assessment are collected under the authority of the *Environmental Assessment Act*. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Lee Wheildon, at 519-846-9691 x 253 or lwheildon@centrewellington.ca

This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Ministry of Aboriginal Affairs
Aboriginal Relations/Ministry Partnerships Branch
9th Floor, 160 Bloor Street East
Toronto, Ontario M7A 2E6

ATTENTION: Heather Levecque, Director
Policy and Consultation Unit, 4th Floor
heather.levecque@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Levecque,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

Field studies and background reviews have been completed to determine existing conditions within the Study Area and were used to support the evaluation of alternatives based on the cultural, social, economic, natural and technical environments. Project related information and a copy of the Environmental Assessment is being placed on public record for a 45-day review period beginning Thursday, March 10, 2022. The Project related information and Environmental Assessment is available at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

Upon receipt of necessary regulatory approvals, the Township intends to proceed with the design and implementation of alternative Option One. If you wish to provide additional comments or if you have any concerns with the Class EA, please forward communications, in writing, to the attention of the Project team members prior to Monday, April 25th, 2022.

Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

Project File

A Project File has been prepared to document the planning and decision-making process for this study. By this Notice, the Project File is being placed on the public record for a 45-day review period from March 10th - April 25th, 2022. The Project File is available for review on the Township's website at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

Requests should specify what kind of order is being requested, how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. The request should be sent in writing or by email to the project contacts noted above and the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Comments submitted to the Township of Centre Wellington for the purpose of providing feedback regarding this Municipal Class Environmental Assessment are collected under the authority of the *Environmental Assessment Act*. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Lee Wheildon, at 519-846-9691 x 253 or lwheildon@centrewellington.ca

This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Ministry of Aboriginal Affairs
Aboriginal Relations/Ministry Partnerships Branch
9th Floor, 160 Bloor Street East
Toronto, Ontario M7A 2E6

ATTENTION: Pauline Wakegijig, Exec. Assistant (Acting)
Policy and Consultation Unit, 4th Floor
Pauline.wakegijig@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Wakegijig,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

Field studies and background reviews have been completed to determine existing conditions within the Study Area and were used to support the evaluation of alternatives based on the cultural, social, economic, natural and technical environments. Project related information and a copy of the Environmental Assessment is being placed on public record for a 45-day review period beginning Thursday, March 10, 2022. The Project related information and Environmental Assessment is available at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

Upon receipt of necessary regulatory approvals, the Township intends to proceed with the design and implementation of alternative Option One. If you wish to provide additional comments or if you have any concerns with the Class EA, please forward communications, in writing, to the attention of the Project team members prior to Monday, April 25th, 2022.

Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

Project File

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If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
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In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

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This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
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Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Haudenosaunee Confederacy
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario
N0A 1M0

ATTENTION: Todd Williams
williams.todde@gmail.com

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Sir,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
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Ministry of Environment, Conservation and Parks
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Toronto, ON M4V 1P5
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This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

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Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Haudenosaunee Confederacy
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario N0A 1M0

ATTENTION: Wayne Hill
tworowarchaeology@gmail.com

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Sir,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

Project File

A Project File has been prepared to document the planning and decision-making process for this study. By this Notice, the Project File is being placed on the public record for a 45-day review period from March 10th - April 25th, 2022. The Project File is available for review on the Township's website at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

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Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

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This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Haudenosaunee Confederacy
Chiefs Council
16 Sunrise Court, Suite 600
P.O. Box 714
Ohsweken, Ontario N0A 1M0

ATTENTION: Hohahes Leroy Hill
Secretary to Haudenosaunee Confederacy
jocko@sixnationsns.com

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Sir,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Whelldon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Project Manager
Township of Centre Wellington
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519-846-9691 x 253
lwheildon@centrewellington.ca

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Consulting Engineers

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Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East, 4th 9th Floor
Toronto, Ontario M7A 2E6

ATTENTION: Jessica Hill,
Senior Advisor, Indigenous Relations Unit
jessica.hill2@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Hill,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

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Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Ministry of Indigenous Relations and Reconciliation
160 Bloor Street East, 4th 9th Floor
Toronto, Ontario M7A 2E6

ATTENTION: Sarah Zelcer,
Manager (Acting), Indigenous Relations Unit
sarah.zelcer@ontario.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Zelcer,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

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Township of Centre Wellington
1 MacDonald Square, Elora, ON
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519-846-9691 x 253
lwheildon@centrewellington.ca

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Triton Engineering Services Limited
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Consulting Engineers

105 Queen Street West, Unit 14
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Ontario N1M 1S6
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Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Metis Nation of Ontario
Suite 1100, 66 Slater Street
Ottawa, Ontario
K1P 5H1

ATTENTION: Consultations Unit, Metis Nation (Ontario)
consultations@metisnation.org

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Sir/Madam,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

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ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Chief R. Stacey Laforme
stacey.laforme@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Chief Laforme,

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Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

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for the
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ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Fawn Sault, Consultation Manager
Fawn.Sault@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Sault,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

Field studies and background reviews have been completed to determine existing conditions within the Study Area and were used to support the evaluation of alternatives based on the cultural, social, economic, natural and technical environments. Project related information and a copy of the Environmental Assessment is being placed on public record for a 45-day review period beginning Thursday, March 10, 2022. The Project related information and Environmental Assessment is available at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

Upon receipt of necessary regulatory approvals, the Township intends to proceed with the design and implementation of alternative Option One. If you wish to provide additional comments or if you have any concerns with the Class EA, please forward communications, in writing, to the attention of the Project team members prior to Monday, April 25th, 2022.

Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

Project File

A Project File has been prepared to document the planning and decision-making process for this study. By this Notice, the Project File is being placed on the public record for a 45-day review period from March 10th - April 25th, 2022. The Project File is available for review on the Township's website at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

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Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Comments submitted to the Township of Centre Wellington for the purpose of providing feedback regarding this Municipal Class Environmental Assessment are collected under the authority of the *Environmental Assessment Act*. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Lee Wheildon, at 519-846-9691 x 253 or lwheildon@centrewellington.ca

This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario N0A 1H0

ATTENTION: Joelle Williams, Consultation Manager
Dept. of Consultation and Accommodation
joelle.williams@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Williams,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Key Plan

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Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

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Consulting Engineers

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Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario
N0A 1H0

ATTENTION: Mark Laforme, DOCA
mark.laforme@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Sir,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Key Plan

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Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
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This Notice was first issued on March 10, 2022.

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Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Mississauga of the Credit First Nation (MNCFN)
2789 Mississauga Road. R.R. #6
Hagersville, Ontario N0A 1H0

ATTENTION: Megan DeVries, M.A.,
Archaeological Operations Supervisor
Megan.DeVries@mncfn.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. DeVries,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Key Plan

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Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
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dlyttle@tritoneng.on.ca

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Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Six Nations of the Grand River Territory
1695 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Tanya Hill-Montour,
Archaeological Supervisor
tanyahill-montour@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Hill-Montour,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

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Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

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Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
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Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Six Nations Land and Resources
2498 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Joanne Thomas,
Consultation Supervisor
jthomas@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Ms. Thomas,

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Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
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Toronto, ON M4V 1P5
EABDirector@ontario.ca

Comments submitted to the Township of Centre Wellington for the purpose of providing feedback regarding this Municipal Class Environmental Assessment are collected under the authority of the *Environmental Assessment Act*. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Lee Wheildon, at 519-846-9691 x 253 or lwheildon@centrewellington.ca

This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Six Nations Land and Resources
2498 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Lonny Bomberry,
Land & Resources Director
lonnybomberry@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Sir,

The Township of Centre Wellington has completed a Schedule B, Municipal Class Environmental Assessment (Class EA) Study under Ontario's Municipal Class Environmental Assessment (October 2000 as amended in 2007, 2011, 2015) to identify and establish the preferred alternative (option) for the proposed Dickson Drive Extension in the Town of Fergus.

Field studies and background reviews have been completed to determine existing conditions within the Study Area and were used to support the evaluation of alternatives based on the cultural, social, economic, natural and technical environments. Project related information and a copy of the Environmental Assessment is being placed on public record for a 45-day review period beginning Thursday, March 10, 2022. The Project related information and Environmental Assessment is available at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

Upon receipt of necessary regulatory approvals, the Township intends to proceed with the design and implementation of alternative Option One. If you wish to provide additional comments or if you have any concerns with the Class EA, please forward communications, in writing, to the attention of the Project team members prior to Monday, April 25th, 2022.

Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



Key Plan

Project File

A Project File has been prepared to document the planning and decision-making process for this study. By this Notice, the Project File is being placed on the public record for a 45-day review period from March 10th - April 25th, 2022. The Project File is available for review on the Township's website at https://www.connectcw.ca/class-environmental-assessment-dickson-drive-extension

If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

Requests should specify what kind of order is being requested, how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. The request should be sent in writing or by email to the project contacts noted above and the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

Comments submitted to the Township of Centre Wellington for the purpose of providing feedback regarding this Municipal Class Environmental Assessment are collected under the authority of the *Environmental Assessment Act*. Information will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Questions relating to the collection, use and disclosure of this information may be addressed to Lee Wheildon, at 519-846-9691 x 253 or lwheildon@centrewellington.ca

This Notice was first issued on March 10, 2022.

TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

105 Queen Street West, Unit 14
Fergus
Ontario N1M 1S6
Tel: (519) 843-3920
Fax: (519) 843-1943
Email: info@tritoneng.on.ca

ORANGEVILLE • FERGUS • HARRISTON

March 8, 2022

Six Nations of the Grand River Territory
1695 Chiefswood Road
P.O. Box 5000
Ohsweken, Ontario N0A 1M0

ATTENTION: Chief Mark B. Hill
markhill@sixnations.ca

RE: TOWNSHIP OF CENTRE WELLINGTON
PROPOSED DICKSON DRIVE EXTENSION
SCHEDULE B, CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMPLETION
OUR FILE: M6468C

Dear Chief Hill,

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Should you have any questions, please contact the undersigned. In your response, kindly confirm your preferred method for receiving future updates and correspondence as it relates to this project.

Yours very truly,
TRITON ENGINEERING SERVICES LIMITED

Dustin C. Lyttle, P. Eng.
Project Manager

Encl. Notice of Study Completion
cc: Lee Wheildon, Township of Centre Wellington

Notice of Study Completion

Municipal Class Environmental Assessment Study
for the
Proposed Dickson Drive Extension, Fergus

The Study

The Township of Centre Wellington has completed a study to identify and establish the best option to facilitate development of the property east of the existing limit of Dickson Drive, Fergus. The proposed area to construct an extension of the existing Dickson Drive is illustrated on the key plan below. The study was conducted in accordance with Schedule B of the Municipal Class Environmental Assessment (MCEA) process (October 2000, as amended).

Through consultation with Agencies, Members of the Public, and Indigenous Communities, the preferred alternative for the Dickson Drive Extension is Option No. 1 Multi-Use Pathway and Below Grade Stormwater Management (SWM).



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If you have any questions, comments or concerns regarding this study, please contact one of the Project Team members below by April 25th, 2022:

Lee Wheildon, C.E.T.,rcca
Project Manager
Township of Centre Wellington
1 MacDonald Square, Elora, ON
N0B 1S0
519-846-9691 x 253
lwheildon@centrewellington.ca

Dustin Lyttle, P. Eng.
Consultant Project Manager
Triton Engineering Services Limited
105 Queen Street West, Unit 14, Fergus, ON
N1M 1S6
519-843-3920 X 222
dlyttle@tritoneng.on.ca

In addition, a request may be made to the Ministry of Environment, Conservation and Parks for an order requiring a higher level of study, or that conditions may be imposed, only on the grounds that the requested order may prevent, mitigate or remedy adverse impacts on constitutionally protected Aboriginal and treaty rights. Request on other grounds will not be considered. Requests should include the requesters contact information and full name for the ministry.

Requests should specify what kind of order is being requested, how an order may prevent, mitigate or remedy those potential adverse impacts, and any information in support of the statements in the request. The request should be sent in writing or by email to the project contacts noted above and the following:

Minister of the Environment, Conservation and Parks
Ministry of Environment, Conservation and Parks
77 Bay Street, 5th Floor
Toronto, ON M7A 2J3
Minister.mecp@ontario.ca

Director, Environmental Assessment Branch
Ministry of Environment, Conservation and Parks
135 St. Clair Ave. W, 1st Floor
Toronto, ON M4V 1P5
EABDirector@ontario.ca

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This Notice was first issued on March 10, 2022.

Responses

Shari Page

From: Consultations <Consultations@metisnation.org>
Sent: Monday, June 21, 2021 3:16 PM
To: Shari Page
Subject: Automatic reply: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

This is an automatically generated response from consultations@metisnation.org. Please do no reply to this e-mail address.

The MNO is adjusting standard work practices due to the Covid-19 outbreak and to better enable staff to work remotely. **Please note that the MNO's Lands, Resources and Consultations (LRC) Branch will no longer review hard copy consultation notices mailed to MNO offices.** The LRC Branch will review all electronic notices and process them in accordance with our standard operating procedures. All consultation notices must be sent electronically to consultations@metisnation.org.

The Métis Nation of Ontario's LRC Branch acknowledges your information notice. The MNO reserves the right to request additional information, meetings and consultations in respect of the project should the MNO deem it to be necessary.

For additional information pertaining to consulting with Ontario Métis please visit the MNO web site at: http://www.metisnation.org/programs/lands,-resources--consultations/duty-to-consult.

Shari Page

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Monday, June 28, 2021 6:29 PM
To: Dustin Lyttle
Cc: Lee Wheildon; Shari Page
Subject: Re: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Thanks Dustin

Kind Regards,

Tanya j. Hill-Montour Hons. BA
SNGREC Archaeology Supervisor
c.226.388.0665
e. tanyahill-montour@sixnations.ca

On Jun 28, 2021, at 11:50 AM, Dustin Lyttle <dlyttle@tritoneng.on.ca> wrote:

Hi Tanya,

I apologize, I need to clarify.

There is an Archeological Assessment that is going to be completed, however it has not started yet. Once this is completed it will be included in the project file.

Thanks,
Dustin C. Lyttle, P. Eng.

<image001.jpg>
Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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From: Dustin Lyttle
Sent: June 28, 2021 9:17 AM
To: Tanya j. Hill-Montour <tanyahill-montour@sixnations.ca>
Cc: Lee Wheildon <LWheildon@centrewellington.ca>; Shari Page <spage@tritoneng.on.ca>
Subject: RE: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Good morning Tanya,

Thank you for responding to our Notice of Commencement.

We are not aware of any outstanding archeological assessments pertaining to the project site.

If you have any other questions or concerns, please do not hesitate to contact me.

Thanks again,

Dustin C. Lyttle, P. Eng.

<image001.jpg>
Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 ext.222 • Cell - (519) 362-7649 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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---

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: Sunday, June 27, 2021 8:45 AM
To: Shari Page <spage@tritoneng.on.ca>
Subject: Re: Township of Centre Wellington, Notice of Commencement, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Good Morning Shari,

We have interest in the project , is there any outstanding archaeological assessment pertaining to the project?

Kind Regards,

Tanya j. Hill-Montour B.A Hons.
Six Nations of the Grand River - Archaeology Supervisor.
c.226.388.0665
t.519.754.0665
e. tanyahill-montour@sixnations.ca

> On Jun 21, 2021, at 3:56 PM, Shari Page <spage@tritoneng.on.ca> wrote:
>
> Good afternoon,
>
> On behalf of the Township of Centre Wellington, please find attached, the *NOTICE OF COMMENCEMENT, Municipal Class Environmental Assessment, Schedule B, for the Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus, Ontario*.
>
> This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, June 24th and July 1st, 2021.
>
> Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.

Kind regards,
Shari

Shari Page

<image001.jpg>
Triton Engineering Services Limited
105 Queen Street West, Unit 14 Fergus, ON N1M 1S6
Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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<Six Nations (Hill-Montour-Archaeological) -Notice of Commencement.pdf>

Shari Page

From: Todd Williams <williams.todde@gmail.com>
Sent: Monday, March 21, 2022 2:06 PM
To: Shari Page
Cc: HDI Tracy; Kahsenniyo Williams; Janice Williams; Wayne (HDI) Hill; Aaron Detlor; Brian Doolittle
Subject: TCW NOTICE OF STUDY COMPLETION, Schedule B, Class EA, Dickson Drive Extension, Fergus, Ontario

Afternoon Shari,

Thanks for the Project Notice,

Going forward, please use our new email address info@hdi.land for new project info.

Thanks Todd

On Wed, Mar 9, 2022 at 3:11 PM Shari Page <spage@tritoneng.on.ca> wrote:

> Good afternoon,
>
> On behalf of the Township of Centre Wellington, please find attached, *NOTICE OF STUDY COMPLETION, Municipal Class Environmental Assessment, Schedule B, for the Township of Centre Wellington, Proposed Extension of Dickson Drive in the Town of Fergus, Ontario*.
>
> This notice will be published in the next two (2) consecutive editions of The Wellington Advertiser, March 10th and March 17th, 2022.
>
> Should you have any questions or require further clarification to the attached, please do not hesitate to contact our office.
>
> Kind regards,
>
> Shari
>
> Shari Page

Triton Engineering Services Limited

105 Queen Street West, Unit 14 Fergus, ON N1M 1S6

Tel - (519) 843-3920 • Fax - (519) 843-1943 • www.tritoneng.on.ca

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Notice of Stage 2 Archaeological Assessment

Ally Zaheer

From: Robb Bhardwaj <rbhardwaj@asiheritage.ca>
Sent: September 2, 2022 10:12 AM
To: Adam LaForme
Cc: Lee Wheildon; Dustin Lyttle
Subject: Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus
Attachments: 21PL-341 6518 First Line, Fergus Stage 2 SD.pdf; 21PL-341 6518 First Line, Fergus Stage 2 Report.pdf

Good Morning Adam,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

Ally Zaheer

From: Marie-Annick Prevost <Marie-Annick.Prevost@mncfn.ca>
Sent: September 2, 2022 1:36 PM
To: Robb Bhardwaj
Cc: Lee Wheildon; Dustin Lyttle; Adam LaForme
Subject: RE: Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus

Aanii Robb,

On behalf of the Mississaugas of the Credit First Nation, Department of Consultation and Accommodation, I reviewed the Stage 2 Archaeological Assessment report prepared by ASI for the 6518 First Line property in Fergus.

I do not have questions or comments about the archaeological work conducted or the content of the report.

We look forward to collaborating with you on future projects.

Miigwech,

Marie-Annick Prevost, Ph.D. (she/her)
Field archaeologist

Mississaugas of the Credit First Nation (MCFN)
Department of Consultation and Accommodation (DOCA)
4065 Highway 6 North, Hagersville, ON N0A 1H0
Cell: 905-870-5844

From: Robb Bhardwaj <rbhardwaj@asiheritage.ca>
Sent: Friday, September 2, 2022 10:12 AM
To: Adam LaForme <Adam.LaForme@mncfn.ca>
Cc: Lee Wheildon <LWheildon@centrewellington.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus

Good Morning Adam,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

Ally Zaheer

From: Robb Bhardwaj <rbhardwaj@asiheritage.ca>
Sent: September 2, 2022 10:12 AM
To: Tanya Hill-Montour
Cc: Lee Wheildon; Dustin Lyttle
Subject: Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus
Attachments: 21PL-341 6518 First Line, Fergus Stage 2 Report.pdf; 21PL-341 6518 First Line, Fergus Stage 2 SD.pdf

Good Morning Tanya,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

Ally Zaheer

From: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>
Sent: September 11, 2022 8:08 PM
To: Robb Bhardwaj
Cc: Lee Wheildon; Dustin Lyttle
Subject: Re: Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus
Attachments: image001.gif; image001.gif; 21PL-341 6518 First Line, Fergus Stage 2 Report.pdf; 21PL-341 6518 First Line, Fergus Stage 2 SD.pdf

Hi Robb,

Hope your had a delightful weekend.

In regards to the review re: stage 2 Archaeological assessment report 6518 First Line, Fergus, I have no questions or concerns at this time.

Kind Regards,

Tanya j. Hill-Montour B.A Hons.
Six Nations of the Grand River - Archaeology Supervisor.
c.226.388.0665
e. tanyahill-montour@sixnations.ca

> On Sep 9, 2022, at 10:16 AM, Robb Bhardwaj <rbhardwaj@asiheritage.ca> wrote:
>
> Good Morning Tanya,
>
> I was wondering if you could provide me an update on your review of the attached report.
>
> Best,
>
> **Robb Bhardwaj, MA**
> Associate Archaeologist | Project Manager • Planning Assessment Division
>
> **ASI • Providing Archaeological & Cultural Heritage Services**
> RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
> 200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

---

From: Robb Bhardwaj
Sent: September 2, 2022 10:12 AM
To: Tanya Hill-Montour <tanyahill-montour@sixnations.ca>

Cc: Lee Wheildon <LWheildon@centrewellington.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus

Good Morning Tanya,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

Ally Zaheer

From: Robb Bhardwaj <rbhardwaj@asiheritage.ca>
Sent: September 2, 2022 10:11 AM
To: Sharann Martin
Cc: Todd Williams; owengreene@hdi.land; Lee Wheildon; Dustin Lyttle
Subject: Stage 2 Archaeological Assessment of 6518 First Line, Fergus
Attachments: 21PL-341 6518 First Line, Fergus Stage 2 SD.pdf; 21PL-341 6518 First Line, Fergus Stage 2 Report.pdf

Good Morning Sharann,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

Ally Zaheer

From: Robb Bhardwaj <rbhardwaj@asiheritage.ca>
Sent: September 9, 2022 10:16 AM
To: Todd Williams
Cc: Sharann Martin; owengreene@hdi.land; Lee Wheildon; Dustin Lyttle
Subject: FW: Stage 2 Archaeological Assessment of 6518 First Line, Fergus
Attachments: 21PL-341 6518 First Line, Fergus Stage 2 SD.pdf; 21PL-341 6518 First Line, Fergus Stage 2 Report.pdf

Good Morning Todd,

I was wondering if you could provide me an update on your review of the attached report.

Best,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

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RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

---

From: Robb Bhardwaj
Sent: September 2, 2022 10:11 AM
To: Sharann Martin <sharannmartin@hdi.land>
Cc: Todd Williams <toddwilliams@hdi.land>; owengreene@hdi.land; Lee Wheildon <LWheildon@centrewellington.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Stage 2 Archaeological Assessment of 6518 First Line, Fergus

Good Morning Sharann,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

Dustin Lyttle

From: Robb Bhardwaj <rbhardwaj@asiheritage.ca>
Sent: September 16, 2022 1:55 PM
To: Todd Williams
Cc: Sharann Martin; owengreene@hdi.land; Dustin Lyttle; Lee Wheildon
Subject: FW: Stage 2 Archaeological Assessment of 6518 First Line, Fergus
Attachments: 21PL-341 6518 First Line, Fergus Stage 2 SD.pdf; 21PL-341 6518 First Line, Fergus Stage 2 Report.pdf

Good Afternoon Todd,

Our client would like to proceed with the Ministry submission for the attached report shortly. If you have any questions or comments, please provide them by September 23, 2022.

Best,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
RBhardwaj@asiheritage.ca • 416 966 1069 x355 • Fax: 416 966 9723
200-2321 Fairview Street, Burlington, Ontario, L7R 2E3 • asiheritage.ca

---

From: Robb Bhardwaj
Sent: September 9, 2022 10:16 AM
To: Todd Williams <toddwilliams@hdi.land>
Cc: Sharann Martin <sharannmartin@hdi.land>; owengreene@hdi.land; Lee Wheildon <LWheildon@centrewellington.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: FW: Stage 2 Archaeological Assessment of 6518 First Line, Fergus

Good Morning Todd,

I was wondering if you could provide me an update on your review of the attached report.

Best,

Robb Bhardwaj, MA
Associate Archaeologist | Project Manager • Planning Assessment Division

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From: Robb Bhardwaj
Sent: September 2, 2022 10:11 AM
To: Sharann Martin <sharannmartin@hdi.land>
Cc: Todd Williams <toddwilliams@hdi.land>; owengreene@hdi.land; Lee Wheildon <LWheildon@centrewellington.ca>; Dustin Lyttle <dlyttle@tritoneng.on.ca>
Subject: Stage 2 Archaeological Assessment of 6518 First Line, Fergus

Good Morning Sharann,

Please find attached the Stage 2 Archaeological Assessment report for the 6518 First Line, Fergus, project for your review. Would you be able to review this report by September 16, 2022, as our client would like to submit this report as soon as possible to the MTCS.

If you have any questions, please feel free to contact me.

Regards,

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PROJECT FILE END