



THE CORPORATION OF THE TOWNSHIP OF PUSLINCH
APRIL 18, 2023 PUBLIC INFORMATION MEETING
VIRTUAL MEETING BY ELECTRONIC PARTICIPATION
& IN-PERSON AT THE PUSLINCH COMMUNITY CENTRE 23 BROCK ROAD S

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AGENDA

DATE: April 18, 2023

IN-PERSON OPEN HOUSE: 6:00 P.M.

PUBLIC INFORMATION MEETING: 7:00 P.M.

Order of Business:

- 1. Call the Meeting to Order**
- 2. Roll Call**
- 3. Disclosure of Conflict of Interest**
- 4. Purpose of Public Meeting**
- 5. Reports/Applications**

5.1 Zoning By-law Application D14/WEL - 2795848 ONTARIO INC – Wellington Motor Freight - Concession 7 Concession 8 Part Lot; 24 Part Road known as 128 Brock Rd S., Township of Puslinch

5.1.1 Application Second Submission Documents



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- 5.1.2 Information Memo Wellington Motor Freight Zoning By-law Amendment
Application D14/WEL Puslinch Concession 7 Concession 8 Part Lot; 24
Part Road 128 Brock Road South
- 5.1.3 Public Comments Received

6. Adjournment

Servicing and Stormwater Management Report (Meritech), Base Plan (Meritech), Servicing and Grading Plan (Meritech), Geotechnical Investigation (CVD)	
Commenting Agency: GM BluePlan	
Comment	Response
The County of Wellington prescribed matching post-development flows to pre-development flows for the 2-year through 100-year design storm events. At the time of detailed design and site plan application, please provide analysis for the 25 and 50-year design storms, as well as the historical storm. Further review of quantity control of minor and major events will be completed at the time of detailed design and site plan application.	These additional storms will be modeled, and the results included in the SWM report submitted for SPA.
Sizing of the oil-grit separator and other water quality mitigation will be reviewed at the time of detailed design and site plan application.	The OGS unit will be sized in support of SPA.
The water balance for the subject lands and details of the proposed infiltration galleries will be reviewed further at the time of detailed design and site plan application. All concerns expressed by the Township Hydrogeologist and GRCA with regards to water balance will need to be satisfactorily addressed.	The calculations demonstrating that pre-development infiltration is maintained will be included in the SWM report submitted for SPA.
Further refinement of the wastewater treatment system will be required at the time of detailed design and site plan application. Of concern at this time are the proximity to property line, as raised by the Township Hydrogeologist, and the major overland flow route directly across the septic dispersal bed per the Preliminary Grading Plan.	A final design will be prepared following pre-application consultation with the MECP, which will describe all treatment tank functions and illustrate their locations in detail (of note, the leaching bed configuration was presented for the ZBA submission at its correct size with ground-surface elevations provided). Regarding the system's location along the downgradient property line, the design will comply with the MECP's maximum permissible groundwater total inorganic nitrogen boundary concentration of 2.5 mg/L by incorporating near-complete denitrification to this level within the wastewater treatment system itself (thereby eliminating the need for compensating groundwater dilution). Various proprietary denitrifying treatment technologies exist to achieve this concentration and have been approved by the MECP on numerous occasions. Regarding drainage, the grading plan will be adjusted by Meritech to redirect the overland flow route around the leaching bed.

It has been noted that an MECP ECA will be required for the wastewater treatment system as the estimated wastewater flows will exceed 10000 L/day. The Township and MECP will need to review and approve the detailed design of the wastewater treatment system when available.	Review and approval of the wastewater treatment system design will fall completely under the purview of the MECP, pursuant to the Ontario Water Resources Act.
At the time of detailed design and site plan application, the Township Fire Department should comment on fire access route, fire water supply tank sizing and hydrant location.	Noted.
The County Roads Department should comment on the proposed right turn lane on Brock Road South and the reconfiguration of the existing ditch	Noted.
Scoped Environmental Impact Study (NRSI)	
Commenting Agency: Dougan and Associates	
One additional source of background information should have been consulted, i.e., the Nestlé Waters Canada Biological Monitoring Program data collected at the 101 Brock Street South location, directly across the road from the subject lands. Consult with Nestlé Waters Canada to see if they will release their monitoring data for review.	Nestle Waters no longer exists as the company was sold to Blue Triton. The team is in contact with Blue Triton to discuss.
The text indicates that there is suitable habitat present in the study area for only one SAR/SCC 3 listed species, Eastern Wood-Pewee. Please indicate why the SWM pond directly south of the property, and the two Dufferin Aggregates ponds, are not considered suitable habitat for Snapping Turtle.	Snapping turtles may inhabit SWM ponds but these are man-made infrastructure for containing and treating storm runoff and should not be identified as habitat. Similarly, the aggregate ponds across Brock Road may be inhabited by snapping turtle, but these ponds lack natural cover and are across a busy 4-lane road, and are not considered to be connected to the subject property. The EIS text has been updated.
The text indicates that there is suitable habitat present in the study area for only one SAR/SCC listed species, Eastern Wood-Pewee. Please indicate why the trees on the subject lands (e.g., CUW1, H1, H2) and adjacent to the property (e.g., FOD5) are not considered suitable maternity roost habitat for SAR listed bats. Text in Section 2.2.2 states that there is potential Bat Maternity Colonies SWH within FOD5.	Bat maternity roost habitat is a type of SWH which is related to woodland or forest communities and not isolated trees.

<p>The EIS text states that <i>“The subject property does not contain habitats that may be significant for wildlife.”</i> However, the statement could not be verified because the SWH screening/assessment was not included in the EIS for review. Please provide the complete SWH screening/assessment for review (i.e., including those features not considered SWH). For example, please indicate why Reptile Hibernaculum SWH (i.e., for snakes) is not present on or adjacent to the subject lands.</p>	<p>The SWH screening table has been provided.</p> <p>Two types of SWH are considered possible for the site and adjacent study area; bat maternity colonies and amphibian breeding habitat (woodland). Snake Hibernaculum SWH is considered not present due to the lack of burrows, rock crevices, crumbling foundations on-site and adjacent, as well as the level of disturbance that has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation, commercial development).</p>
<p>The Natural Heritage Reference Manual and Significant Wildlife Habitat Technical Guide (OMNR, 2000) were listed as relevant policy documents pertaining to the Provincial Policy Statement. However, the Significant Wildlife Habitat Criteria Schedule (SWHCS) for Ecoregion 6E (OMNR, 2015) was not listed. Please include the SWHCS for Ecoregion 6E on this list. Reference to this document is made in the Terms of Reference.</p>	<p>This document has been added.</p>
<p>Puslinch Zoning bylaw is a relevant policy document missing from the table. (Relevant Policies, Legislation and Planning Studies, Table 1)</p>	<p>Added.</p>
<p>In the County of Wellington Official Plan section, there is a reference to Schedule A7-3. This schedule only shows Greenbelt designations and there are none related to this property. Likely this was intended to refer to Schedule A7, which shows the property designated as "secondary agriculture" and illustrates a patch of Core Greenlands adjacent to the property.</p>	<p>Added.</p>
<p>Review County Official Plan Schedule B7 and policies related to the <i>Paris Galt Moraine Policy Area</i> designation and clarify whether there are implications that should be addressed in the EIS.</p>	<p>Added.</p>
<p>Table 1, Wellington County Official Plan, under “project relevance” it should refer to relevant policies regarding wetlands and woodlands.</p>	<p>Added.</p>
<p>It is noted that the unevaluated wetlands may be suitable for complexing with the Mill Creek PSW, however, in result of very recent changes to the OWES system this is no longer the case. Please note that if a wetland evaluation were required, these</p>	<p>Noted.</p>

unevaluated wetlands would have to be considered as individual units. No action required at this time.	
None of the field surveys took place during the standard wildlife breeding windows. The 2014 survey data is 8.5 years old and considered out-of-date. Please conduct seasonally appropriate breeding bird, amphibian, and reptile surveys and include the survey results in an EIS addendum. In absence of such information, a conservative interpretation should be applied to the evaluation and status of existing natural heritage features, unless explicitly explained why such an interpretation is not appropriate.	The natural features on-site and adjacent are well defined and have been incorporated into the Site Plan along with appropriate buffers and other mitigation measures such as timing windows for tree removal, construction limit fencing, erosion and sediment control measures, tree protection plan, noise and lighting recommendations and a landscape plan. These measures are considered sufficient to protect the common and significant species, wildlife habitat functions and provide areas for enhancement plantings.
Aboud & Associates vegetation inventories included only 2 site visits: August 2013 and June 2014. The site has undergone significant change since this time including clearing, fill/grading, and 8+ years of time for natural vegetation regeneration to occur. The 2013/ 2014 data is therefore of very minimal value at this point. The NRSI vegetation inventories included only mid- to late October visits, which is insufficient to characterize the flora of the site. Spring and summer vegetation surveys should be completed to accurately characterize the current vegetation composition of the site.	The 2014 data was included for completeness and as valuable for characterizing the natural features which remain on-site and adjacent. The vegetation communities of the woodland and wetlands will be retained entirely. The vegetation currently on-site in the area of the proposed undertaking has arisen since the clearing and filling/grading (2016) and is sparse and weedy in nature. Most plant species documented in this area in the 2022 field work are non-native and typical of disturbed sites. Spring and summer vegetation surveys within this area are not expected to provide additional value to the study as there are no significant or sensitive habitats present.
Please provide the email correspondence with GRCA indicating that on- site verification of the wetland is not required. Similarly, please provide additional evidence/field notes to confirm the mapped wetland does not exist including photographs, soil texture and moisture regime, plant species.	GRCA email is provided. Notes and ELC data forms are provided for the FOD5 community, showing no wetland community present.
Please indicate what protocols were used to conduct the bat surveys in order to ensure that they were conducted appropriately.	<p><i>Survey Protocol for Maternity Roost Surveys (Forests/Woodlands)</i> (MECP 2022)</p> <p><i>Bat Survey Standards Note</i> (MECP 2022)</p> <p><i>Survey Protocol for Species at Risk Bats within Treed Habitats for Little Brown Myotis, Northern Myotis & Tri-colored Bats</i> (MNRF 2017)</p>
The last paragraph states that the small wetlands are largely surface water dependent, and that “The proposed development	This analysis of wetland water balance and impacts was provided by CVD in their Scoped Hydrogeological Assessment (2022) report and is based

<p>and the associated grading are not expected to have any impact on this wetland feature, since it is sustained by overland runoff (and possibly some shallow interflow) originating from higher topographic areas located further east from the property (CVD 2022b).” This statement needs to be substantiated. Wetlands sustained by overland runoff may be vulnerable to changes in surficial hydrology. The EIS should clearly demonstrate no negative impact to wetland hydrology.</p>	<p>on their analysis of background information, geotechnical investigations, water level monitoring and groundwater sampling. Refer to pages 4 and 5 of their report.</p> <p>The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands.</p>
<p>The second paragraph states that one SAR plant is reported from the vicinity of the property, but there is no habitat for this species within the study area. The common and scientific names of this plant are spelled incorrectly (should be Fern-leaved Yellow False Foxglove (<i>Aureolaria pedicularia</i>)). We agree this species is unlikely to exist on the property due to lack of suitable habitat, however this should be justified more specifically in the text. Please correct the spelling error and qualify this statement by providing a brief overview of the species’ habitat vs. habitats within the study area.</p>	<p>Spelling error fixed. This species is found in dry open woods and savanna habitats (MECP 2022), of which there is none present on-site or in the study area.</p>
<p>Please confirm whether any locally significant plant species were documented, using the “Significant Plant List for Wellington County” which can be found on page 128 of the Guelph Natural Heritage Strategy - <i>Phase 2: Terrestrial Inventory and Natural Heritage System</i> document (Dougan & Associates, 2009)</p>	<p>Two locally significant plant species were found on the site based on the Dougan and Associates 2009 list; rough avens (<i>Geum laciniatum</i>) and meadow horsetail (<i>Equisetum pratense</i>). These species were documented by Aboud (2014) in the forest and wet meadow communities in the north-west part of the property. Those communities were removed during the site grading.</p>
<p>It is stated that: “NRSI biologists did not observe any herpetofauna species during any of the field investigations. Aboud and Associates also did not document any amphibian or reptile species during their 2014 EIS.” However, except for the turtle nesting surveys carried out by Aboud & Associates, no dedicated reptile and amphibian surveys were carried out by Aboud & Associates or NRSI. For example, no nocturnal amphibian call surveys were conducted at the unevaluated wetland features at the NE edge of the property. Similarly, no snake surveys were conducted. Certainly, the information provided did not indicate that the unevaluated wetland</p>	<p>No additional dedicated surveys for herpetofauna were carried out by Aboud and Associates or NRSI during the studies to date on the subject property, and no studies were undertaken at the adjacent SWM pond or the ponds across Brock Road.</p> <p>The wetlands on-site likely provide habitat for a small population of common amphibian species such as spring peeper, gray treefrog and American toad as well as reptiles such as eastern gartersnake. The on-site wetlands do not have permanent standing water and are not suitable for turtles or salamander species. The proposed plan retains the</p>

<p>features did not provide suitable amphibian breeding habitat. Please qualify this statement by acknowledging that with the exception of turtle nesting surveys conducted by Aboud & Associates in 2014, no dedicated surveys to document the presence of herpetofauna were conducted on or adjacent to the subject lands, and as a result it can't be concluded that none are presently utilizing the natural features on or adjacent to the property. Also, please indicate whether the SWM pond directly to the south or the Dufferin Aggregates (Aberfoyle Pit 1) ponds across Brock Road were surveyed?</p>	<p>wetlands and provides a suitable buffer for its protection and the habitat necessary for these expected species.</p> <p>The off-site manmade pond features were not surveyed. These ponds may contain amphibian and reptile species but these are not natural features and do not warrant protection. The SWM pond to the south is entirely contained by chain link fencing and the ponds across Brock Road are separated from the site by a busy 4 lane road and over 70m of distance. There is very little likelihood of turtles travelling from these ponds onto the subject property.</p>
<p>The EIS text states: <i>"Their study included turtle nesting surveys during the nesting season with no evidence of turtles recorded"</i>. For clarity, please indicate how many turtle nesting survey visits were conducted by Aboud & Associates and whether NRSI considers the effort consistent with standard survey protocol.</p>	<p>The turtle nesting surveys were requested as part of the previous EIS as the subject property previously contained a gravel extraction site and a small pond in the NW part of the site. Aboud & Associates carried out turtle nesting surveys in conjunction with the breeding bird surveys on May 29, June 19 and July 6, 2013. No evidence of turtles or nesting was found, and the on-site wetlands and wet areas have since been removed. Given the changes on-site, no additional surveys for turtles are recommended to be required.</p>
<p>The EIS text states: <i>"Based on available background information, 1 mammal SCC and 5 mammal SAR are reported from the vicinity of the study area (Dobbyn 1994; MNRF 2022). No regionally, provincially or federally significant species, or their preferred habitats, were observed within the subject property during the 2014 or 2022 field surveys and none are expected to be present."</i> Please include the list of SAR/SCC mammal species and indicate why they are not expected to be present in the study area.</p>	<p>The SAR screening table has been updated based on field work and is included in the appendices of the EIS (and appended to this response), and provides rationale as to why all SAR mammals and their habitat have potential to be present or not present in the study area. With respect to bat SAR, during the recent tree inventory, only one tree was documented to have habitat features suitable for roosting bats (common species or SAR), and this is not considered to meet the habitat requirements of SAR bats.</p>
<p>NRSI states: "NRSI biologists and Abound and Associates did not observe any butterfly species during any of the field investigations." At least as it applies to NRSI's field surveys, please qualify this statement by indicating that NRSI field surveys were conducted well outside the prime survey windows for documenting butterflies, explaining why none were observed. With respect to the surveys conducted by Aboud & Associates, please indicate whether any dedicated butterfly surveys were carried out. If not, please qualify</p>	<p>No dedicated butterfly surveys were carried out by Aboud & Associates or NRSI. No regionally, provincially or federally significant species were observed within the subject property during the 2022 field surveys and none are expected to be present due to the small size and overall poor quality of the meadow habitat.</p>

the statement to indicate that and that the results may not be considered reflective of the species present.	
NRSI states: "No regionally, provincially or federally significant species were observed within the subject property during the 2022 field surveys and none are expected to be present." Please provide rationale to support statement.	No regionally, provincially or federally significant species were observed incidentally within the subject property during field surveys and none are expected to be present due to the lack of preferred habitat.
Please demonstrate that there will be no changes to wetland hydrology of the unevaluated wetlands if a 15 m buffer is applied vs. the recommended 19 m buffer in the 2014 EIS. Justification for the basis of the 15 m buffer should be clearly provided. Also, please note that section 4.1.7 and 4.3.4 of the Planning Justification Report (MHBC, 2023) state that a buffer of 37 m is applied between the development and environmental features (including unevaluated wetlands). This should be reviewed for consistency between reports.	A minimum 15m buffer is applied to the wetland on the site plan. This buffer is considered sufficient to protect the wetland hydrology as the majority of the wetland's surface water catchment is to the east. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands. The limit of construction is generally more than 15m from the wetlands as can be seen by the fencing limit on the Site Plan. The Planning Report makes reference to the actual 37m setback, which is the distance from the wetland to the warehouse building.
The second last paragraph recommends the trees in HR1 be protected at or 1m beyond their surveyed dripline. The last sentence recommends that a Tree Preservation Plan should be prepared to inventory and assess trees and recommend protection measures. Please include a recommendation that trees should be protected using standard tree protection fencing in which no site alteration or disturbance may occur. A Tree Preservation Plan should be submitted for review at the Site Plan Application/detailed design phase.	The Tree Preservation Plan is in preparation and will be submitted at the Site Plan Application stage. Details of tree protection fencing will be provided in the TPP.
Section 4.31 of the Puslinch Zoning By-law requires a 30 m setback for buildings or structures from lands designated "Natural Environment Zone". As per the bylaw mapping, the Significant Woodland is considered Natural Environment Zone, and therefore this setback is applicable. The EIS should clarified whether the proposed development is in compliance with bylaw setback requirements	The building is well over 30m from the significant woodland. A low retaining wall (0.2-0.5m in height; not a structure according to the OBC) may be implemented along the northern edge of the parking area to protect adjacent trees from grading impacts. The 1.5m retaining wall along the east edge of the truck parking area has been removed from the design.

<p>The EIS states that “ There are no significant species or other habitats present on the property...” There is insufficient information to support this conclusion. Presence/absence of significant species cannot be confirmed based on the scope of field surveys completed.</p>	<p>See previous responses to comments regarding significant species and habitats. EIS text updated.</p>
<p>Please indicate whether land along the southeastern periphery of the property will be dedicated as a terrestrial linkage, to provide connectivity between the natural habitats around the unevaluated wetlands and the SWM pond immediately to the south.</p>	<p>The lands along the eastern property boundary are available for plantings and enhancements. It is agreed that the lands between the woodland and the on-site wetlands are a good opportunity for plantings to enhance connectivity. A new section 7.6 has been added to the EIS to discuss enhancement opportunities. Along the south boundary is not recommended as a linkage as it is not recommended that wildlife be encouraged to travel toward SWM ponds and busy roads. A landscape plan will be prepared at the Site Plan stage.</p>
<p>Clarify why the retaining wall is needed. Elaborate on impacts regarding how the retaining wall could impact tree roots and avoidance/mitigation measures to address this.</p>	<p>The grading plan includes a low retaining wall along the north limit of the parking lot, in order to match grades within the root zones of off-site trees. The use of a retaining wall in this area was proposed in order to protect the root zones of trees along the shared north property boundary. Detailed elevation surveying along the dripline has since taken place and will be used to refine the grading plan and identify where retaining walls may be necessary. The retaining wall will only be used where the change in grade is such that it would result in fill being placed over an extensive portion of the root zones of adjacent trees and at too great a depth that would result in impacts to those trees. The details of the retaining wall and tree retention will be determined in the Site Plan stage and reported in the Tree Preservation Plan.</p>
<p>Given that it is not recommended to search vegetatively dense or otherwise complex natural habitats for fear of disturbing nesting birds and contravening the Act, please consider revising the text to read, "Should any active nest be identified, or signs of an active nest be observed, there shall be..."</p>	<p>Text has been revised.</p>
<p>Please include a clear demonstration that wetland hydrology will be maintained post-development.</p>	<p>The Hydrogeological Report prepared by CVD indicates that the small wetlands on-site and adjacent are expected to be sustained by overland runoff and are often only seasonally wet. The majority of the small wetlands' surface water catchment is off-site and to the east and will</p>

	<p>remain unchanged. On-site the wetlands' catchment is very small and will be largely retained within the buffer. The proposed development is downslope of the wetland and is not expected to have any impact on this wetland feature. See also previous responses and refer to CVD Hydrogeological Investigation report.</p>
<p>The EIS states: "Common and tolerant species of wildlife were documented using the wetlands and woodland during the 2014 EIS and this study." While this statement singles out wildlife use of wetlands and woodlands, all wildlife species, regardless of the habitats they use, can be disturbed by the proposed development. Please revise the statement to acknowledge the potential presence of the significant species noted in the 2014 EIS, and discuss any potential impacts to these species resulting from the proposed development.</p>	<p>The EIS statement has been revised.</p> <p>The wildlife species and individuals that are present in the study area are those which have adapted to the current noise, lighting and disturbance conditions which are present due to the existing adjacent trucking facility, heavy equipment business, Brock Road South traffic and neighboring aggregate operations. This includes the common species as well as the significant species which have been noted or have potential to be present within the on-site and adjacent woodland such as Eastern wood-pewee and SAR bats.</p>
<p>The EIS states: <i>"To avoid and minimize disturbance to wildlife during operation it is recommended that truck movements and noise be limited to the extent possible during the breeding season for birds and wildlife which includes April to August, including nighttime."</i></p> <p>The EIS goes on to state: <i>"Construction noise [should] be restricted during spring and summer (April to August) to between 7:00 am and 7:00 pm."</i> While such a general statement is always desirable, is it feasible given the proposed purpose of the development? If so, please provide examples of tangible restrictions that could be implemented considered to limit truck movement and noise. According to the Township of Puslinch Noise Control bylaw (5001-05), it appears that noise restrictions apply between 9:00 p.m. and 7:00 a.m. Therefore, this recommendation would reduce daily construction noise by of 2 hours. However, given that wildlife species are likely to be more active early in the morning vs. early in the evening, it is recommended that the onset of construction activities be delayed 2 hours in the morning to 9:00 a.m.</p>	<p>The recommended daily construction timing restriction for noise has been edited to between 9:00am and 9:00pm during the spring and summer months (April to August).</p> <p>In terms of operational noise restrictions, the proposed hours of operation of the facility are 8:00am to 5:00pm, Monday to Friday, year round. These hours are not expected to result in noise impacts to breeding birds and other wildlife.</p>
<p>The EIS states: <i>"Permanent parking lot lighting should be shielded and directed away from the adjacent natural features so as to prevent 'lightwash' of these areas."</i> While these recommendations</p>	<p>Noted. Reduction in height of light standards has been included in the recommendations.</p>

are supported, please also include a recommendation that the height of the light standards be reduced as much as possible, to further reduce the incidence of 'lightwash'.	
It is unclear whether there are any possible impacts related to runoff entering the wetlands.	The on-site and adjacent wetlands are located upslope from the development and therefore are not at risk of sedimentation during construction, however, erosion/construction limit fencing is recommended along the outer limit of the work area. An Erosion and Sediment Control Plan will be prepared at the Site Plan stage.
Although it seems unlikely intentional dumping would occur during normal operations, please confirm if any mitigation measures are proposed to help ensure debris associated with the normal operation of the facility will not collect in adjacent natural areas.	Debris from the operation of the facility will be contained within the site by a chain link fence as well as routine maintenance and garbage collection, and will not blow into adjacent natural features.
The EIS concludes that there will be no negative impacts on natural features onsite or adjacent lands, however this conclusion is premature; adequate field studies to support the EIS have not been completed.	Based on the background review, fall field work, subsequent analysis and the buffers and mitigation measures proposed, our conclusion remains that there will be no negative impacts on natural features onsite or on adjacent lands.
Given the previous and proposed loss of natural habitat, ecological enhancement and restoration opportunities should be recommended. One area that could be considered for enhancement is the land between the unevaluated wetland at the NE corner of the property and the proposed parking area. In addition, the connection between this same area and the SWM pond to the south could be enhanced.	Enhancement plantings have now been recommended in the east parts of the property including the buffers to the woodland and wetlands as well as gaps between existing vegetation. See new Section 7.6 of the revised EIS. A landscape plan will be prepared at the Site Plan stage.
The table indicates that there is no suitable woodland or treed habitat for: Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tricolored Bat. However, based on MECP's Survey Protocol for SAR Bats in Treed Habitats (2021), the following ELC codes present suitable habitat for SAR bats: FOD, FOM, FOC, SWD, SWM, SWC. The FOD5 community therefore present potentially suitable habitat for these species. Further, the EIS notes that many mature isolated trees are present within the study area. These trees may provide similar habitat for SAR bats. Please revise table.	The FOD5 community provides potentially suitable habitat for some SAR bats, as described in the SAR screening table. Isolated trees on-site were assessed for suitable bat habitat during the tree inventory with one being noted.

Plant Species List table does not include regional/local status information.	Added.
Appendix H of the Aboud & Associates report, “ <i>Additional Vegetation Study for Wet Depression in Gravel Pit</i> ” appears to contain additional plant species that were not incorporated into the NRSI report.	Plant species in Appendix H have been added to the plant species list. However, those species were recorded in the habitats present in the northern portion of the site, associated with the former gravel pit, which have since been removed.
Please confirm whether False Hop Sedge (<i>C. lupuliformis</i>) was reported erroneously and, if so, correct the record to Hop Sedge (<i>C. lupulina</i>).	Aboud and Associates confirm that the sedge species could not be identified due to the timing of the survey and it was listed as <i>Carex sp.</i> in their plant list. <i>Carex lupuliformis</i> was included in the NRSI plant species appendix in error, and has been corrected.
Hydrogeological Study (CVD)	
Commenting Agency: Harden Environmental Services Ltd.	
<u>Existing 12” Water Well</u> We note that this well may be used as a water supply. The well is a multiple aquifer penetrating well within the area of influence of the Blue Triton extraction well. There is a significant drawdown in the lower aquifer beneath this site. The existing well has a casing that terminates at the top of rock and penetrates the Guelph, Eramosa and Goat Island/Gasport aquifers. This well should either be decommissioned or retrofitted to obtain water only from the Guelph Formation or Goat Island/Gasport formations. Groundwater from the Guelph Formation should not be permitted to flow to the lower formations.	Noted.
<u>On-Site Recharge</u> As shown on Figure 3 of the Scoped Hydrogeology Report, there was a depression in the northwest are of this site that captured the majority of site runoff. The previous owner filled in the depression (minimum elevation 312 m AMSL) , now slated to be a parking area as shown in the site plans. The recharge function of this depression has not been recognized in the scoped hydrogeological study or storm water management study. The base plan provided by Meritech Engineering shows the elevation of the filled in depression to be approximately 319 m AMSL with a smaller depression remaining with a minimum elevation of 314 m AMSL. The proposal	The depression referenced is believed to have been a man-made feature that existed from sometime in the 1950/60s to about 2016/17. We agree that its existence undoubtedly resulted in a decrease in runoff from the property and an increase in both evapotranspiration and recharge compared to the original and current site conditions. The water balance / recharge approach taken for post-development (per Meritech SWM) is to maximize the possible clean water recharge from building roof-tops using below-grade galleries. This will re-establish a site condition where recharge is enhanced and Meritech can provide the requested post-development water balance quantities. The hydrogeological report also notes that, just like with the original site

is to fill in the remaining depression and direct storm water off-site. Provide water balance that confirms that recharge conditions prior to the filling in of the depressions can be met post development. This water balance has not been provided in the existing documentation.	condition, where there was no depression to enhance recharge and evapotranspiration, the runoff from the property after recharge enhancements will be kept within the local catchment area that leads to ponds across Brock where there is ample opportunity for additional recharge and evapotranspiration.
<u>Septic System</u> The proposed septic system is located at the downgradient property boundary with very little potential for dilution from recharge occurring above the contaminant plume. Our experience is that even with the most advanced septic systems, a considerable area is required above the contaminant plume to achieve the required dilution. Although the Township is not responsible for approving this septic system, we recommend that the Township review and comment on the required Environmental Compliance Approval.	Regarding the wastewater treatment system's location along the downgradient property line, the design will comply with the MECP's maximum permissible groundwater total inorganic nitrogen boundary concentration of 2.5 mg/L by incorporating near-complete denitrification to this level within the wastewater treatment system itself (thereby eliminating the need for compensating groundwater dilution). Various proprietary denitrifying treatment technologies exist to achieve this concentration and have been approved by the MECP on numerous occasions. Review and approval of the wastewater treatment system design will fall completely under the purview of the MECP, pursuant to the Ontario Water Resources Act.
Commenting Agency: Source Water Protection	
Complete the Drinking Water Threats Screening form and submit prior to the site plan submission.	Underway. MHBC to complete.
The applicant provide a liquid fuel handling / storage and spill response procedure, to the satisfaction of the Risk Management Official, for liquid fuel handling and storage during construction.	No liquid fuel handling is proposed or anticipated.
That the existing wells are decommissioned as per Ontario Regulation 903 and that this documentation is submitted to the Township and Risk Management Official.	Noted.
That the applicant provide the Environmental Compliance Approval (ECA) documentation for the proposed sewage works, once available.	Noted.
That the applicant confirm if any transport pathways are proposed for this development	Yes.
Site Plan (Tacoma)	
Commenting Agency: Township of Puslinch Fire Department	
Show the fire route on the site plan.	The fire route conforming to the OBC is shown on drawing SP2, Conceptual Enlarged Site Plan.

If the overhead walkway between the office building and the warehouse building are constructed above the fire route, the overhead clearance above the fire route shall be a minimum of 5m in clear height above the road surface.	Clearance will be greater than the 5 meter minimum as per OBC clause 3.2.5.6.(1)(c)
Show the water supply for firefighting purposes on the site plan. Attached are the Puslinch requirements.	<p>Noted ~600 cubic meters of fire fighting water to be provided below sprinkler room, as required by sprinklered warehouse building.</p> <p>Footnote. The subject property comprises two buildings as defined by OBC, a sprinklered warehouse and an unsprinklered office, connected by an elevated walkway. For the purposes determining the total volume of on-site fire fighting water, it can be assumed that fires would not occur in both building simultaneously. Therefore, the total water volume can be taken as the worst case as calculated for each building. The water volumes do not need to be summed.</p>
Show the fire department pumper connection for the sprinklered warehouse.	Fire department connection shown at northeast corner of warehouse office.
A fire safety plan could be required before occupancy. Please refer to 2.8.2 of the Ontario Fire Code for requirements.	A fire safety plan is not required as per OFC 2.8.1.1(1)(g) and (j). Occupant loads do not exceed 300 or 100 for the office or warehouse respectively.
Commenting Agency: County of Wellington	
The property is subject to the Township's Urban Design guidelines and a 3m landscaping buffer is required at the front of the property per the Township's zoning by-law.	Noted. Included on site plan.
The initial concept plan provided for a stormwater management pond, the revised proposal does not appear to provide an area for a pond, the Township's peer reviewing engineer should provide comments on the proposed stormwater management plan. The County's Road department will also review the submitted stormwater management plan as it relates to Brock Road S.	Noted.
The Township should confirm the proposed volume of water taking and sewage produced on the site. Staff note the servicing strategy includes a requirement for an MECP	Noted.

approved ECA.	
Due to the additional entrance on McLean Road and the number and proximity of loading bays on the site a noise assessment should be completed to determine if any mitigation measures are required for the proposed use to existing residential uses. Considering the proximity of the residence at 5 Gilmour Road and the Aberfoyle Urban Boundary an evaluation of the MOEE D Series Guidelines should be provided.	Noise Consultant has been retained.

End.



Comment Summary – Zoning By-law Amendment Application – 128 Brock Rd. S.

Responses based on Response Matrix and documents received March 3, 2023

Consultant	Comments
GM BluePlan - Engineers	<p>Our response letter dated January 27, 223 is still the applicable comments for this application.</p> <p>The most recent information provided on March 8, 2023 does not include any new information related to site servicing and grading except for a Comment Response Matrix. The Comment Response matrix notes that any information related to previous GM BluePlan comments will be provide at a future date as part of a SPA submission.</p>
County of Wellington	See letter attached
Ecologist	<p>Township ecology consultant reviewing revised EIS dated March 30 2023.</p> <p>Comments due April 6, will forward once received.</p>
Stan Denhoed-Township Hydrogeologist	<p>1) Existing On-Site Well</p> <p>We would like to know what the applicant intends on doing with the on-site well. Any agreement with the Township must see this well either decommissioned or retrofitted to prevent migration of water from Guelph Formation to lower formations.</p> <p>2) Septic System</p> <p>Although we are not an approval agency in this case, the Township would like to know the impact arising from the septic system located at the property line.</p> <p>3) Water Balance</p>



	It is important to understand the effect of fillining in the depression and if there is an opportunity to maximize/enhance recharge at the site to compensate. Water balances for the period prior to filling of the depression and the post development period should be prepared and presented to the Township.
Township of Puslinch Fire Department – Brent Smith	The Fire Department concerns have been addressed for this application.
Township of Puslinch Building Department	<p>No major building code concerns with the proposed zoning change. More detailed Building Department comments will be made during the site plan approval process when more detail information is provided.</p> <p>Please note a fully detailed OBC matrix, building classifications and spatial calculations are to be provided at time of site plan application.</p>
County of Wellington Transportation Department	No further comments provided
Township of Puslinch Public Works	No further comments provided
Township of Puslinch By-law	Upon review of the application and supporting documents, By-law has no concerns or comments at this time.
GRCA	GRCA has no further comment to the ZBA Application at 128 Brock Rd S.
Source Water	COMMENTS PENDING
Noise Consultant – Valcoustics	See letter attached



COUNTY OF WELLINGTON

PLANNING AND DEVELOPMENT DEPARTMENT
ALDO SALIS, BES, M.Sc. MCIP, RPP, DIRECTOR OF PLANNING AND DEVELOPMENT
TEL: (519) 837-2600 EXT. 2064
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ADMINISTRATION CENTRE
74 WOOLWICH STREET
GUELPH, ONTARIO
N1H 3T9

April 4th, 2023

Glenn Schwindinger
CAO
Township of Puslinch
7404 Wellington County Rd 34
Puslinch, On
N0B 2J0

Dear Glenn:

Re: ZONING BY-LAW AMMENDMENT – 2nd Submission comments
Wellington Motor Freight
128 Brock Road South
Township of Puslinch

Please find the Planning comments below in reference to the above noted Zoning By-law amendment based on our preliminary review of the documents below. These comments are provided based on a review of the following:

Reports Submitted:

- Planning Justification Report prepared by MHBC (January 2023)
- Draft Zoning By-law by MHBC
- Preliminary Servicing and Stormwater Management Report by Meritech (December 2022)
- Environmental Impact Study by NRSI (January 2023)
- Geotechnical Investigation by Chung & Vander Doelen (December 20, 2022)
- 'Scoped' Hydrogeological Assessment by Chung & Vander Doelen (December 22, 2022)
- Transportation Impact Study by Paradigm (December 2022)
- Conceptual Site Plan by Tacoma Engineers (December 21, 2022)
- Draft building elevations by Edge Architects (December 15, 2022)

Additional Material Submitted:

- Comment Response Matrix prepared by MHBC
- Noise Study prepared by HGC Engineering (March 9, 2023)
- Noise Study Rev 1. prepared by HGC Engineering (March 21, 2023)
- Background EIS Information


Planning Comments:

1. Acoustic Barrier. The proposed noise study has been peer reviewed by the Township. The report indicates the height of the wall is proposed to be 2.9m, a retaining wall is also proposed in the area of the proposed wall. Alternative mitigation measures should be considered to reduce the height of the proposed wall.
2. Growth Plan 30m buffer. Section 4.2.4 requires a 30m vegetative buffer zone around key

hydrogeological features outside of settlement areas. The site plan should be revised to include this buffer area which does not permit development.

3. Location of proposed septic system. Given comments made by GM Blueplan and Harden Environmental, the applicant should consider a greater setback from the proposed septic system to the property line.
4. Further public meeting, the applicant has indicated the intend for an additional public engagement session, planning staff will be in attendance to hear comments from the public.
5. Draft zoning by-law. Planning staff will prepare a draft zoning by-law which will include recommendations with respect to scale and land use compatibility.

Regards,


Zach Prince, RPP MCIP
Senior Planner

April 4, 2023

Township of Puslinch
7404 Wellington Road 34
Puslinch, Ontario
N0B 2J0

Attention: Lynne Banks
lbanks@puslinch.ca

VIA E-MAIL

**Re: Peer Review of Noise Feasibility Study
Proposed Wellington Motor Freight Facility
Puslinch, Ontario
VCL File: 123-0058**

Dear Ms. Banks:

We have completed our review of the “*Noise Feasibility Study, Proposed Industrial Development, 128 Brock Street South, Puslinch, Ontario*”, dated March 20, 2023, prepared by Howe Gastmeier Chapnik Limited (HGC).

The Noise Feasibility Study was prepared to respond to the comments in our letter dated March 13, 2023. Our comments regarding this updated report are outlined herein.

1.0 COMMENTS

- a) Specific responses to the peer review comments are provided as Appendix D. However, the responses provided do not address all of the questions/issues raised in our initial peer review letter. Specifically:
 - a. The response to d) b. regarding the Stamson calibration output provided as Appendix C indicates that the CadnaA output summary is provided as the reference for the calibration. However, the CadnaA summaries in the report do not include a reference sound level (LxD). Also, the LxD is a sound power level, so details on how the Leq from Stamson (which is a sound pressure level) has been converted to a sound power level should also be provided.
 - b. The response to d) b. 3) does not address the concern raised in the original peer review. Impulses in the trailer parking area would not include loading/unloading impulses. Thus, the 117 dBAI reference level for trailer coupling should be used for the impulses in this area. Also, the ratio of impulses in this area to those in the loading areas needs to reflect a predictable worst-case scenario.

- b) The updated report includes for evening and nighttime operations at the proposed facility. However, the assessment does not account for impulses during these time periods. If impulses are not expected because loading/unloading and coupling/uncoupling are not permitted during these time periods, then this needs to be a noise mitigation recommendation.

2.0 CONCLUSIONS

Our review of the noise feasibility study prepared in support of the motor freight facility indicates there are a few items, as outlined above, that require further clarification and assessment before we can concur with its findings and conclusions

If there are any questions, please do not hesitate to call.

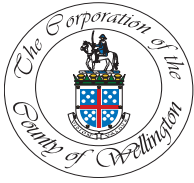
Yours truly,

VALCOUSTICS CANADA LTD.

Per:


John Emeljanow, P.Eng.

JE\
J:\2023\1230058\000\Letters\2023-04-04 Peer Review V1.1.docx



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74 WOOLWICH STREET
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N1H 3T9

MEMORANDUM

TO: Lynne Banks Development and Legislative Coordinator – Township of Puslinch

FROM: Pasquale Costanzo, Technical Services Supervisor – County of Wellington

RE: Zoning Bylaw Amendment, Wellington Motor Freight
128 Brock Road South (Wellington Road 46), Aberfoyle, Township of Puslinch

DATE: April 6, 2023

The Wellington Roads have completed a preliminary reviewed of the provided supporting reports for the zoning bylaw amendment request and further comments will be provided during the site plan application process.

Traffic Impact Study

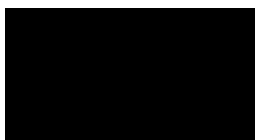
The report was peer review by Dilion Consulting with their memo attached and comments provided. The County will require the installation of the dedicated right turn lane into the site as described in the TIS. An agreement with the proponent and the County will be required with the detail design including all related costs for its installation to be borne by the applicant.

Storm Water Management

No comments to provide at this time and further comments may be provided during the site plan application.

Landscaping Plan

There are plantings proposed within the right-of-way along property line and the County does not have a concern with the preliminary landscaping plan as shown. However, we will request that within the site plan agreement ownership of any planting or landscaping requirements by the Township (County approval required) in the ROW will be the proponent responsibility to maintain along with any associated cost as required.



o C.E.T.

Technical Services Supervisor

Cc. Zach Prince, Senior Planner – County of Wellington

Memo



To: Pasquale Costanzo, C.E.T., County of Wellington
From: Tim Kooistra, C.E.T., Dillon Consulting Limited
Date: March 13, 2023
Subject: 128 Brock Road South Industrial Development, Puslinch, Traffic Impact Study – Peer Review
Our File: 21-2592

Dillon Consulting Limited has been retained by the County of Wellington to undertake a peer review of a Traffic Impact Study (TIS) that was developed to support the proposed industrial development by Wellington Motor Freight located at 128 Brock Road South (Wellington Road 46) in the Township of Puslinch. The study was prepared by Paradigm Transportation Solutions Limited in December 2022.

This memo documents the findings from the peer review of the above-noted study. This peer review and associated comments are structured to align with the same section headings as found in the submitted TIS.

1.0 Paradigm's Traffic Impact Study

1.1 Introduction

The site (128 Brock Road South) is located on vacant lands on east side of Wellington Road 46, north of McLean Road and south of Gilmour Road in the Township of Puslinch. The site is proposed to be developed as a warehouse with offices. The warehouse operation is proposed to feature a GFA of 207,550 sq. ft. (19,282 m²) while the office component is approximately 30,000 sq. ft. (2,787 m²). Based on the limited clarity of the concept plan within the TIS, it was not possible to check that these GFA amounts are correct.

The industrial development is anticipated to be completed no later than 2025, and the traffic forecasts considered a five-year (2030) horizon following build-out.

The study assessed conditions during the Weekday AM and Weekday PM peak hour periods. Given the nature of the proposed land use and the surrounding context, this is fully appropriate. The analysis periods were confirmed during the scoping of the study in October 2022 (as noted within Appendix A of the submitted TIS).

Operational analysis was completed at two nearby intersections along Wellington Road 46 (at Gilmour Road (roundabout) and at McLean Road (signalized)). These two intersections as identified in the Study Area are appropriate for the nature and scale of the development.

Existing Conditions

Turning movement volumes at the two existing Study Area intersections along Wellington Road 46 were collected on Thursday, October 13, 2022.

When comparing the turning movement data to the figures and the Synchro files, it has been found that several volumes in the northbound and southbound directions on Wellington Road 46 do not match fully. However, as the volume adjustments were minimal, they were assumed to be done in order to fully balance the northbound and southbound traffic volumes on Wellington Road 46 between McLean Road and Gilmour Road.

The existing conditions analysis indicates that all movements operate acceptably (at LOS D or better) during both the AM and PM peak hours. The traffic signal timings (as provided by the County of Wellington) were entered correctly into Synchro, although no movements were set up with a recall arrangement (minimum recall, pedestrian recall, maximum recall, etc.). The existing roundabout was assessed using Arcady 8 and found that all movements at this intersection operate at LOS A during both the AM and PM peak hours. The existing conditions analysis have been found to be completed accurately and is acceptable.

Development Concept

The study noted that site trip generation was estimated using rates published of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th edition. This is an acceptable approach to estimating trips, and it has been found that the correct trip generation rates and calculations were made.

Given the nature of the development, no trip reductions (pass-by rates, internal capture rates or other travel modes such as transit) were applied. This is generally acceptable given the context and location of the development.

The site trip distribution identified in Table 3.2 of the report matches the AM and PM peak hour distribution percentages. This is acceptable given the land use, context, and location of the development in proximity to Highway 401.

The site trip assignment notes that the trips generated by office staff and warehouse employees would be assigned to the Gilmour Road access while the truck trips would be assigned to the driveway access to Wellington Road 46, noting all trucks would be making the northbound right-turn movement into the site and the westbound left-turn movement out of the site.

When looking at the development concept plan, it does appear that there are staff parking areas located closer to the Wellington Road 46 driveway and that no barriers would be introduced to force staff enter and exit the site via Gilmour Road. As a result, it is expected that some staff trips may be entering and exiting the site via the Wellington Road 46 unless the physical arrangement of the site driveway and staff parking lot is modified.

Evaluation of Future Traffic Conditions

Additional traffic volumes of five background developments in the Study Area were also explicitly considered in the future analysis. These five background developments were identified by Paradigm when scoping out the study, although it is not clear whether or not Paradigm reached out to the Township of Puslinch to see if any further developments (beyond these five) needed to be explicitly included, as there was no conversation included within the study's Appendix A.

A compounded growth rate of 2.0% per annum was also applied to the existing traffic volumes. This approach to deriving the future traffic volumes is acceptable and was scoped out prior to the study being developed.

Within the two existing intersections, it was found that no changes to the signal timing or geometry was included, and future operations at the two existing intersections show that all movements will continue to operate in an acceptable manner (at LOS D or better).

At the proposed driveway to Wellington Road 46, the westbound left-turn movement exiting the site is projected to operate at LOS E and LOS F during the morning and afternoon peak hours. However, this movement is projected to operate well beneath capacity and should only impact site-generated trucks rather than any vehicles that would be travelling along the Wellington Road 46 corridor. This is because staff vehicles will need to access the site off Gilmour Road. During peak traffic periods, trucks exiting the site can turn right and go around the Gilmour Road roundabout to head south.

Remedial Measures

One measure was considered, which was to introduce a northbound right-turn lane on Wellington Road 46 at the direct site access for trucks entering the site. Based on the projected volumes and nature of vehicles (all trucks) entering at this site at this location, it is recommended that a northbound right-turn lane is introduced to allow trucks to safely slow down before entering the site (while not impeding any through traffic). An 80 metre right-turn lane parallel length has been recommended.

Given all trucks are projected to travel to/from the south and as all staff trips are anticipated to enter the site off Gilmour Road, a southbound left-turn lane into the site has not been recommended.

Paradigm's Conclusions and Recommendations

Within the Study Area, it has been noted that under the 2030 Total Traffic Conditions, most of the Study Area will operate within acceptable levels of service. However, the new driveway to Wellington Road 46 is projected to operate at LOS F during the PM peak hour. This is acceptable as this movement will operate well under capacity and will only be used by trucks exiting the site. Trucks could also turn right and go around the Gilmour Road roundabout if experiencing difficulties exiting the site during peak periods.

It is also recommended that a northbound right-turn lane into the site be constructed from a safety perspective rather than a capacity perspective. This would allow trucks to safely slow down before entering the site.

2.0

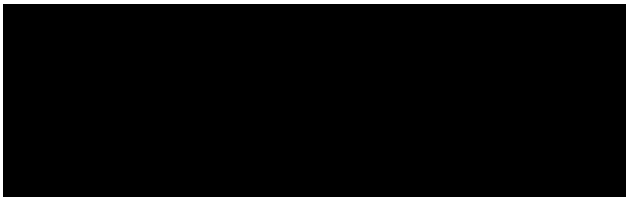
Peer Review Summary

The following represents a summary of the findings of this peer review exercise and two additional recommendations:

- Overall, the associated analysis, findings, and recommendations have been found to be completed correctly and are appropriate, noting that:
 - The northbound right-turn lane with 80 metres of parallel storage into the site should be constructed as recommended;
 - Signage prohibiting any left-turn movements into the site at the Wellington Road 46 driveway should be introduced to ensure no vehicles make this southbound left-turn movements and that all staff trips to/from the north access the site off Gilmour Road; and,
 - Internal signage within the truck areas and auto parking areas that would instruct motorists that they are not to travel between these parking areas in order to connect to/from Wellington Road 46.
- Clarification should be made to the site plan (parking lots and access arrangements) to ensure that only trucks are entering and exiting the site to/from Wellington Road 46 direction and that all passenger vehicles can only access the site via Gilmour Road.

Yours sincerely,

DILLON CONSULTING LIMITED



Tim Kooistra, C.E.T.
Traffic and Transportation Technologist



128 Brock Road South, Puslinch

Scoped Environmental Impact Study

Prepared for:

Wellington Motor Freight
7419 McLean Rd W
Puslinch, ON N0B2J0

Project No. 2984 | March 2023



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

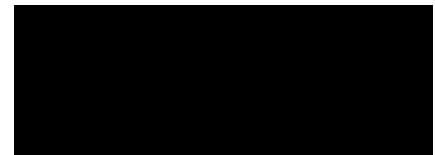
128 Brock Road South, Puslinch
Scoped Environmental Impact Study

Project Team

Elaine Gosnell	Project Manager, Senior Terrestrial & Wetland Biologist
Christy Humphrey	Terrestrial and Wetland Biologist
Michael Dungey	Terrestrial and Wetland Biologist
Kaitlin Filipov	GIS Analyst

Report submitted on January 5, 2023

Revised and re-submitted on March 30, 2023



Elaine Gosnell, B.Sc. P.Biol.
Project Manager
Senior Terrestrial and Wetland Biologist

Table of Contents

1.0	Introduction	1
1.1	Study Area	2
2.0	Project Scoping.....	4
2.1	Proposed Undertaking	4
2.2	Collection and Review of Background Information.....	4
2.2.1	Significant Species Screening.....	5
2.2.2	Significant Wildlife Habitat Screening.....	7
3.0	Relevant Policies, Legislation and Planning Studies	8
4.0	Field Methods	13
4.1.1	Ecological Land Classification.....	13
4.1.2	Vegetation Inventories.....	13
4.1.3	Wetland Boundary Delineation.....	14
4.1.4	Woodland Dripline Delineation.....	14
4.1.5	Additional Wildlife	14
5.0	Existing Conditions	15
5.1	Soils, Terrain and Drainage	15
5.2	Vegetation.....	17
5.2.1	Vegetation Communities	17
5.2.2	Vascular Flora	18
5.3	Wildlife	19
5.3.1	Birds	19
5.3.2	Amphibians and Reptiles.....	19
5.3.3	Mammals.....	20
5.3.4	Butterflies	21
5.3.5	Insects.....	21
6.0	Significance and Sensitivity.....	22
7.0	Impact Analysis and Enhancement Recommendations.....	25
7.1	Proposed Development.....	25
7.2	Approach to Impact Analysis	25
7.3	Direct Impacts and Recommended Mitigation	26
7.3.1	Tree and Vegetation Removal.....	26
7.3.2	Birds and Their Nests.....	27
7.3.3	SAR Bats.....	27

7.4	Indirect Impacts	28
7.4.1	Alterations to Drainage and Flow Patterns, Water Quality, Groundwater	28
7.4.2	Wildlife Disturbance.....	29
7.4.3	Erosion & Sedimentation	30
7.5	Induced Impacts.....	31
7.6	Enhancements	31
8.0	Summary	33
9.0	References	35

List of Appendices

Appendix I Terms of Reference, SAR and SWH Screening Tables

Appendix II Plant Species List and Vegetation Community FOD5 Data Forms

Appendix III Bird Species List

Appendix IV Amphibians and Reptiles Species List

Appendix V Mammals Species List

Appendix VI Butterfly Species List

Maps

Map 1. Study Area

Map 2. Existing Conditions

Map 3. Proposed Development

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Wellington Motor Freight in September 2022 to complete a Scoped Environmental Impact Study (EIS) in support of a proposed industrial development at 128 Brock Road South in the Township of Puslinch, Ontario, herein referred to as 'the subject property'.

The subject property is approximately 6 hectares (ha), and is located south-east of Brock Road South at the intersection with Gilmour Road. The subject property is bounded by Brock Road to the west and Gilmour Road to the north. The surrounding adjacent lands (within 120m) are comprised of agricultural lands, aggregate operations and existing developments as shown on Map 1. A Significant Woodland is located to the northeast and two Unevaluated Wetlands are along the eastern boundary. These natural features within the subject property are designated as Significant Woodlands (5.5.4) and Core Greenlands (5.6.1), as per the County of Wellington Official Plan (OP, 2022). The subject property is located within the Mill Creek watershed and is within Ecoregion 6E.

Wellington Motor Freight has proposed the construction of a warehouse, truck facility and office on the subject property, as well as a stormwater management and a septic system on the property. An EIS is thus required for this development to ensure there are no negative impacts on the natural features on the site and adjacent lands.

This report contains the findings of the Scoped EIS, including the characterization of existing natural features based on the results of a background review and original field surveys. This detailed characterization was used to inform an analysis of the significance and sensitivity of natural features, the identification of any natural feature constraints in association with land use policy designations, and the assessment of potential impacts and mitigation measures associated with details of the proposed development.

The proponent has retained the following team to facilitate the preparation of the Site Plan Application (SPA) and rezoning in support of the proposed industrial development:

- MHBC – Planning
- CVD – Geotechnical and Hydrogeology
- Meritech Engineering – Stormwater Management, Grading and Servicing
- Tacoma Engineering – Site Plan

- Natural Resource Solutions Inc. – Natural Environment

Pre-consultation agency review comments were received from the County of Wellington, Township of Puslinch, GM BluePlan [Township engineering and stormwater management peer reviewer], Dougan & Associates Ecological Consulting & Design [Township natural heritage peer reviewer], and Grand River Conservation Authority (GRCA) (September 20, 2022). The subject property was formerly evaluated through an EIS prepared for the previous owner (Milan Lesics Holdings), who applied for a Site Alteration Permit to allow the levelling of the site for the purposes of future development. A Scoped EIS was prepared by Aboud and Associates in 2014 to document the existing conditions and address the impact of development on the wetlands, vegetation and wildlife on the subject property. That study was approved and the site alteration has since taken place (2016), which included the grading and filling of the entire property except for the natural features and their recommended buffers. Based on the alteration of the property and the previous work completed, this EIS has been prepared as an update to the 2014 EIS to ensure that the proposed developments do not have negative impacts on the retained natural features within the subject property and the surrounding lands.

Based on September 15, 2022 comments from the GRCA, the subject property contains unevaluated wetland features that are regulated by the GRCA, and is within the vicinity of the Mill Creek Puslinch Provincially Significant Wetland (PSW). As such, a permit will be required under the GRCA Regulation 150/06 for any proposed developments within or adjacent to these regulated features.

This Scoped EIS has been prepared in accordance with the approved Terms of Reference dated November 8, 2022 (included in Appendix I) following the guidance of the County of Wellington OP (2022) and the EIS guidelines of the GRCA (2005). Correspondence from GRCA is also included in Appendix I. This report assesses the potential impacts of the proposed redevelopment on the natural heritage features and their ecological functions. Mitigation measures, where appropriate, have been recommended to ensure that the proposed works do not cause negative impacts on the natural areas and their ecological functions.

1.1 Study Area

The term “study area” refers to the subject property and lands surrounding the subject property, including adjacent lands (approximately 120m) and any contiguous natural features extending beyond (Map 1). The 120m radius that is included in the study area has been selected based

on the definition of 'adjacent lands' provided in the Natural Heritage Reference Manual [NHRM] (OMNR 2010), which requires the assessment of potential impacts on all relevant ecological receivers and wildlife habitat for any development within 120m.

Additionally, the study area review includes data from the Natural Heritage Information Centre [NHIC] (MNRF 2022) (1x1km squares) natural heritage background data and the areas covered by wildlife atlases (10x10km squares).

2.0 Project Scoping

2.1 Proposed Undertaking

The proposed development of the subject property consists of a warehouse and trucking facility (20,690 m²), a 3-storey office building (930m²), stormwater management and septic system infrastructure (Tacoma Engineers, 2022).

2.2 Collection and Review of Background Information

Existing natural heritage information was collected and reviewed to identify key natural heritage features, habitats and species that are reported from, or have the potential to occur within the study area. The following background information sources were reviewed to provide an accurate understanding of the physical and biological attributes within the study area:

- Environmental Impact Study (2014) as prepared by Aboud and Associates;
- Mill Creek Subwatershed Study (CH2M Gore and Storrie Ltd. et al 1996);
- Natural Heritage Information Centre (NHIC) database (MNR 2022);
- County of Wellington Official Plan (OP) (2022);
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019);
- Grand River Conservation Authority (GRCA) Watershed Mapping;
- Puslinch Zoning By-Law (2021);
- Nestle Waters/Blue Triton Brands Aberfoyle Site annual monitoring reports (2018-2021);
- Ministry of Environment, Conservation and Parks (MECP) Species at Risk;
- Government of Canada Species at Risk Act (SARA) (2002);
- Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada (BSC) et al. 2022);
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019);
- Mammal Atlas of Ontario (Dobbyn 1994);
- Ontario Butterfly Atlas Online (MacNaughton et al. 2022); and
- Ontario Odonate Atlas (OOAD 2022).

Species lists were compiled to provide information on species reported from within the vicinity of the study area based on data available from the wildlife atlases listed above. These atlases provide data based on 10x10 km survey squares. Information on species from the survey squares that overlap with the study area (17NJ6912) were compiled. These initial species lists

were used to guide the scope and type of wildlife field surveys required as outlined in the following sections.

2.2.1 Significant Species Screening

A preliminary list of potential SAR was developed to identify those which are reported from the local area and may have suitable habitat within the subject property and study area. An initial list was compiled from background data and a list provided by Dougan and Associates in the pre-consultation notes. The screening was completed by cross-referencing the preferred habitat for potential SAR and Species of Conservation Concern (SCC) (OMNR 2000) against habitats known to occur in the subject property and study area. This was completed to ensure that the potential presence of all SAR and SCC within the study area was adequately assessed. SAR are defined as species listed as Threatened or Endangered provincially or federally. Confirmed habitat for SAR is protected under the *ESA* (2007). SCC are defined as:

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

Based on the original field surveys completed by Aboud and Associates in 2014 and NRSI's review of site conditions in 2022, SAR/SCC with potentially suitable habitat on-site and adjacent are;

- Eastern Wood-peewee (*Contopus virens*). The FOD5 woodland community would provide suitable habitat for this species.
- SAR turtles - may be present in the study area and make use of the stormwater management and manmade ponds off-site, although there is very low likelihood of those species travelling to the subject property due to presence of barriers of fencing and Brock Road.
- SAR bats - The FOD5 woodland community would provide suitable habitat for SAR bats as well as any isolated trees with suitable cavities or habitat features.

The SAR/SCC screening results have been updated since the TOR stage and are provided in Appendix I.

2.2.2 Significant Wildlife Habitat Screening

A Significant Wildlife Habitat (SWH) assessment was completed for the study area and is included in Appendix I. The Significant Wildlife Habitat Technical Guide (SWHTG) is a guideline document that outlines the types of habitats that the MNRF considers significant in Ontario as well as criteria to identify these habitats (OMNR 2000, OMNR 2015). The SWHTG groups SWH into 4 broad categories: 1) seasonal concentration areas, 2) rare vegetation communities and specialized wildlife habitat, 3) habitats of SCC, and 4) animal movement corridors. Based on the comparing the species present, natural features and vegetation communities to the criteria for each type of SWH, the subject property and adjacent lands study area have potential to provide several types of SWH:

- Bat Maternity Colonies and Special Concern and Rare Wildlife Species may be present within the woodland adjacent to the subject property;
- Amphibian Breeding Habitat (Woodland) may be present within the larger on-site wetland. This wetland is >500m² in size and within 120m of the woodland. It may possibly contain some of the listed frog species, although a high abundance of these is unlikely due to lack of permanent water; and
- Amphibian Movement Corridors may exist between the wetlands and the woodland.

3.0 Relevant Policies, Legislation and Planning Studies

Table 1 provides an overview of natural heritage-based policies, regulation and legislation that were considered and which informed the field program and analysis. To help inform suitable land-use concepts, guide the layout of development and identify areas to be protected, inventoried natural features were evaluated against relevant policies, regulations and legislation outlined in the following sections. The specific implications of these policies to the proposed development are discussed further below.

Table 1. Relevant Policies, Legislation and Planning Studies

Policy/Legislation/Planning Study	Description	Project Relevance
Provincial Policy Statement (OMMAH 2020)	<ul style="list-style-type: none">• Issued under the authority of Section 3 of the Planning Act and came into effect on May 1, 2020, replacing the 2014 PPS (OMMAH 2014).• Section 2.1 of the PPS – Natural Heritage, establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as 'significant'.• The Natural Heritage Reference Manual (OMNR 2010), the Significant Wildlife Habitat Technical Guide (OMNR 2000) and the Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (OMNRF 2015) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS.	<ul style="list-style-type: none">• A Significant Woodland is identified within and adjacent to the subject property

Policy/Legislation/Planning Study	Description	Project Relevance
Endangered Species Act (Government of Ontario 2007)	<ul style="list-style-type: none"> • The original ESA, written in 1971, underwent a year-long review which resulted in a number of changes which came into force in 2007. • The ESA prohibits killing, harming, harassing or capturing Species at Risk (SAR) and protects their habitats from damage and destruction. 	<ul style="list-style-type: none"> • Based on the background review, potential SAR bats may have suitable habitat within the woodland. SAR bats may use isolated trees for roosting.
Species at Risk Act (SARA, Government of Canada 2002)	<ul style="list-style-type: none"> • SARA establishes the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk. • It creates prohibitions to protect listed threatened and endangered species and their critical habitat. 	<ul style="list-style-type: none"> • Any observed species listed by COSEWIC as endangered or threatened shall be protected, along with their habitat. The EIS shall demonstrate that no impacts to SAR will occur. • No endangered or threatened species listed by COSEWIC, or their habitats, are present within the subject property. Adjacent woodland may provide habitat for SAR.

Policy/Legislation/Planning Study	Description	Project Relevance
<p><i>Migratory Birds Convention Act</i> (Government of Canada 1994)</p>	<ul style="list-style-type: none"> • The MBCA protects migratory game birds, insectivorous birds, and several other migratory non-game birds from persecution in the form of harassment. • The schedule of on-site work must consider MBCA windows, with timing of breeding bird season typically occurring between April 1 and August 31, however, this is a guideline, since the MBCA applies to nesting bird species. • “Incidental take” is considered illegal, with the exception of a permit obtained by the Canadian Wildlife Service (CWS). 	<ul style="list-style-type: none"> • Species protected by the MBCA were observed within the subject property during the 2014 and 2022 field surveys. • The timing of construction activities, especially vegetation clearing and site grading must have consideration for the MBCA timing windows.
<p><i>Fish and Wildlife Conservation Act</i> (Government of Ontario 1997)</p>	<ul style="list-style-type: none"> • The <i>Fish and Wildlife Conservation Act</i> (FWCA) provides protection for certain bird species, not protected under the MBCA (e.g., raptors), as well as furbearing mammals and their dens or habitual dwellings, aside from the Red Fox (<i>Vulpes vulpes</i>) and Striped Skunk (<i>Mephitis mephitis</i>). 	<ul style="list-style-type: none"> • The timing of construction activities, especially vegetation clearing and site grading must have consideration for bird nesting (including nesting season for Raptors, Hawks and Owls) and den sites for furbearing mammals. • Wildlife sweeps by a qualified biologist are recommended in advance of any vegetation clearing and site grubbing during the bird active season to ensure that no active nests/dens are present.

Policy/Legislation/Planning Study	Description	Project Relevance
County of Wellington Official Plan (The Corporation of Wellington, 2022)	<ul style="list-style-type: none"> The County of Wellington's new Official Plan (2022), outlines current policies for the protection of natural features within the County of Wellington which represent a constraint for development. 	<ul style="list-style-type: none"> The Township of Puslinch Greenbelt mapping (Schedule A7) shows the property designated as "secondary agriculture". \ County mapping (Schedule B7) also shows the property within the "Paris Galt Moraine Policy Area". Subject property is currently zoned as a Highway Commercial (HC) area, and designated as Secondary Agriculture. All woodlands, wetlands, and habitat for threatened or endangered species are part of the Greenlands System (Schedule A). According to the County OP, the Greenlands System will be maintained or enhanced. All wetlands and habitat for threatened or endangered species are also designated as Core Greenlands. Wetlands will be protected and development must not impair future ecological functions. Development and site alteration will not be allowed in significant habitat or endangered or threatened species. On lands in the Paris Galt Moraine Policy Area
County of Wellington Forest Conservation Bylaw 5115-09 (2009)	<ul style="list-style-type: none"> Regulates harm or destruction of woodlands within the County of Wellington. Defines "woodlands" (Section 1. ai, i-iv). 	<ul style="list-style-type: none"> The significant woodland is protected by the Forest Conservation Bylaw (5115-09).

Policy/Legislation/Planning Study	Description	Project Relevance
Puslinch Zoning By-Law (2021)	<ul style="list-style-type: none"> Protects significant woodlands within the Township 	<ul style="list-style-type: none"> Section 13.2 of the by-law states that development will not be allowed in significant woodlands unless it has been demonstrated to the satisfaction of the Township that there will be no negative impact on the woodland or its ecological functions The significant woodland is considered Natural Environment Zone.
<p>GRCA Regulation 150/06 under the Conservation Authorities Act</p> <p>And</p> <p>Policies for the Administration for the Development, Interference with Wetlands and Alterations of Shorelines and Watercourses (GRCA 2015)</p>	<ul style="list-style-type: none"> Regulation issued under the <i>Conservation Authorities Act</i>, R.S.O. 1990. Through this regulation, the GRCA has the responsibility to regulate activities in natural and hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands and slopes). GRCA requires that an EIS be undertaken in accordance with their <i>EIS Guidelines and Submission Standards for Wetlands</i> where development is proposed within 120m of PSW or 30m from non-PSW 	<ul style="list-style-type: none"> GRCA noted in a letter September 15 2022 that the subject property includes an unevaluated wetland and its regulated allowance, as well as the regulated allowance to a separate off-site wetland. These features and their associated allowances are regulated by GRCA. A scoped EIS is required
Mill Creek Subwatershed Study (CH2M Gore and Storrie Ltd. et al 1996)	<ul style="list-style-type: none"> Investigates and provides recommendations on wetland setbacks and stormwater management details within the Mill Creek Subwatershed 	<ul style="list-style-type: none"> The subject property is within the Mill Creek Subwatershed

4.0 Field Methods

Field surveys were undertaken within the subject property to characterize natural features and identify any significant and sensitive natural heritage features and species that have potential to be adversely affected by the proposed development. Field visits were completed on October 14, 21 and November 22, 2022 and are described in detail below and summarized in Table 2. Surveys were undertaken in accordance with provincial and local guidance documents as indicated below.

Table 2. Field Survey Summary.

Survey	Protocol	Dates (2022)
Ecological Land Classification	Ecological Land Classification for Southern Ontario (Lee et al. 1998)	October 14 and 21
Vegetation Inventories	Systematic search by ELC polygon	October 14 and 21
Wetland Boundary Delineation	Onsite wetland survey with sub-metre GPS boundary mapping	October 21
Woodland Dripline Delineation	Onsite woodland survey with sub-metre GPS boundary mapping	October 21
Wildlife Assessment	Recorded observations of wildlife within or adjacent to subject property	October 14 and 21, November 22

4.1.1 Ecological Land Classification

The vegetation community delineation and description from the 2014 EIS was reviewed and updated using aerial photography and through investigations in the field. The standard Ecological Land Classification (ELC) System for southern Ontario was applied (Lee et al. 1998). Details of vegetation communities were recorded including species composition, dominance, uncommon species or features and evidence of anthropogenic disturbance.

4.1.2 Vegetation Inventories

A fall season inventory of all vegetation communities within the subject property was completed on October 21, 2022, to update the existing conditions from the original 2014 Aboud and Associates vegetation inventories. All species of vascular flora identifiable at the time of the field survey were documented.

4.1.3 Wetland Boundary Delineation

The boundaries of the on-site and adjacent wetlands were delineated according to the Ontario Wetland Evaluation System (OWES) for southern Ontario on October 21, 2022, and surveyed using a sub-metre accuracy Trimble GPS unit. The wetlands are shown on Map 2 and incorporated into all other maps and plans prepared by the team. Although the boundary was determined outside of the growing season, it was found to be near identical to the wetland boundary delineated in 2014 by Aboud and Associates. The GRCA confirmed that no on-site verification with their ecologist was required (email from J. Simons, GRCA November 16, 2022) (Appendix I).

A GRCA mapped wetland is shown within the woodland to the east of the subject property. This area was investigated during the fall 2022 field work and the wetland was found not to exist. The area in question is a hilly wooded landform feature and has no wetland present as shown on Map 2 and documented in the field notes for the forest community FOD5 (Appendix II). These findings are consistent with the findings of Aboud and Associates in their 2014 EIS where they also investigated the woodland for the presence of wetland and found none to be present.

4.1.4 Woodland Dripline Delineation

The dripline of the woodland was delineated at the outer edge of the tree canopy by a trained biologist, and surveyed using a sub-metre accuracy Trimble GPS unit. The dripline is shown on Map 2 and incorporated into all other maps and plans prepared by the team.

4.1.5 Additional Wildlife

All observations of birds, herpetofauna, mammals and insects were documented on all field visits. This included direct observations of individuals, as well as signs of wildlife presence (i.e., tracks, scats, dens, nests etc.). The house on-site was inspected for any evidence of use by nesting birds and/or bats and individual trees were assessed for the presence of cavities suitable for SAR bats following guidance from the *Survey Protocol for Species at Risk Bats within Treed Habitats* (MNRF 2017), *Survey Protocol for Maternity Roost Surveys (Forests/Woodlands)* (MECP 2022) and *Bat Survey Standards Note* (MECP 2022).

5.0 Existing Conditions

5.1 Soils, Terrain and Drainage

The subject property occurs at the northwest boundary of the physiographic region known as the Galt Moraines (Chapman and Putnam 1984) and the flatter low-lying outwash valley orientated from southwest to northeast through the Aberfoyle area. The Galt Moraines typically consist of Wentworth Till, a hard stony sand silt till, but can vary into a sandy till in many areas (Karrow 1987). The southeastern section of the subject property is underlain with the Wentworth Till, while the northwestern section is underlain with outwash gravel. While regional-scale mapping indicates a distinct boundary between these two deposit types, it is not uncommon rather for transitional zones of variable interlayered materials of sand and gravel with varying silt content (CVD 2022a).

The subject property is located within the Mill Creek Subwatershed, with Mill Creek and its associated wetlands found to the northeast and northwest of the subject property. The subject property ranges in elevation from approximately 325mASL in the southeast corner grading downwards to the north and west to a low point near Brock Road of 314mASL. Groundwater in the subject property flows from a shallow water table within granular deposits beneath the northwestern section, and extends westward into the outwash valley and eventually discharging into Mill Creek.

The water table at this property is “laterally-discontinuous” due to the variable and layered geological conditions and topography, ranging from primarily low-permeability sand-silt till in the southeast and transitioning to an interlayered granular and sand-silt till in the north and west, which are frequently overlain by fill.

There is a seasonally variable “perched” water table on top of the till deposit in the southeast corner, near the small wetland pocket. In the spring of 2014, MBN measured the water table elevation there to be above 214 mASL (+/-) and was ~ 0.5 to 1.0 m lower during the winter of 2014. The wetland pockets were observed to be dry in the fall of this 2022 drought year.

A transition from the perched water table area in the southeast to a much lower water across the remainder of the property to the north and west (i.e., <312 mASL) was observed. Based on these data and the elevation of the ponds located west of Brock Road (see note in Figure 1), groundwater flow is interpreted to be directed in a westerly directly across the site and toward

these off-site ponds. The Hydrogeological Report indicates that the small wetlands on-site and adjacent are not considered to be groundwater 'receptors', as they are not expected to be sustained by groundwater discharge. These features are expected to be sustained by overland runoff and are often only seasonally wet.

The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from catchment lands that are higher topographically and east of the subject property. The proposed development and the associated grading are not expected to have any impact on this wetland feature, since it is sustained by overland runoff (and possibly some shallow interflow) originating from higher topographic areas located further east from the property (CVD 2022b).

5.2 Vegetation

5.2.1 Vegetation Communities

The subject property has been almost entirely cleared, graded and filled under the previous Site Alteration Permit, resulting in a very disturbed site. A summary of the ELC communities identified within and adjacent to the subject property is provided in Table 3 and shown on Map 2.

Table 3. Ecological Land Classification Community Descriptions.

ELC Code	Community Type	Community Description
CUM1	Mineral Cultural Meadow Ecosite	The cultural meadow ecosite occupies the majority of the subject property. Due to the past grading, the site is disturbed with new pioneer field species emerging. Fill piles are located along the northwest boundary. Common field species such as Smooth Brome (<i>Bromus inermis</i>), Common Vetch (<i>Vicia Sativa</i>), and Wild Carrot (<i>Daucus carota</i>) occur throughout the cultural meadow, with occasional seedlings of White Pine (<i>Pinus strobus</i>) and Manitoba Maple (<i>Acer negundo</i>) interspersed.
CUT1	Mineral Cultural Thicket Ecosite	The cultural thicket is located along the edges of the property. The understory and groundcover layer is dominated by Orchard Grass (<i>Dactylis glomerata</i>), Kentucky Bluegrass (<i>Poa pratensis</i>), New England Aster (<i>Symphyotrichum novae-angliae</i>) and Red Raspberry (<i>Rubus idaeus</i>). Canopy is composed of Common Buckthorn (<i>Rhamnus cathartica</i>), with occasional White Elm (<i>Ulmus americana</i>) and Sandbar Willow (<i>Salix exigua</i>).
CUW1	Mineral Cultural Woodland Ecosite	The cultural woodland is located in a depression area in the northwest corner of the subject property and is bounded by Brock Rd South and adjacent residential areas. The woodland was been partially disturbed by filling and tree removal and contains open meadow areas with stands of trees or single trees. The understory and groundcover layers are composed of both native and non-native species including Garlic Mustard (<i>Alliaria petiolata</i>), Tartarian HoneySuckle (<i>Lonicera tatarica</i>) and Common Buckthorn. Canopy is dominated by remnant Sugar Maple, Manitoba Maple, with occasional Trembling Aspen (<i>Populus tremuloides</i>) and Hawthorn (<i>Crataegus sp</i>).
FOD5	Dry- Fresh Sugar Maple Deciduous Forest Ecosite	The fresh Sugar Maple deciduous forest ecosite is located in the northeast corner adjacent to the subject property, and extending northwards between agricultural land. A silt fence marks the previous woodland dripline and marks the boundary of the industrial grading in the adjacent CUM1 ecosite. Canopy is composed of Bitternut Hickory (<i>Carya cordiformis</i>), Sugar maple (<i>Acer saccharum</i>), and White Ash (<i>Fraxinus americana</i>),

ELC Code	Community Type	Community Description
		although many of the latter are deceased. Common Buckthorn and Staghorn Sumac (<i>Rhus typhina</i>) compose most of the woodland understory.
H1	Deciduous Hedgerow	The deciduous hedgerows are located along the north/northwest boundary of the subject property, dividing the cultural meadow from the adjacent agricultural land. The hedgerow is composed of medium to large trees including Manitoba maple, Black Cherry (<i>Prunus serotina</i>), Bitternut Hickory, Sugar Maple and White Ash, with Common Buckthorn dominating the understory.
H2	Young Poplar Deciduous Hedgerow	The young poplar deciduous hedgerow is located along the north/northeast boundary of the subject property, dividing the adjacent residential and agricultural land from the CUM1 and CUT1 ecosites. This area consists of saplings and small poplar re-growth.
Res	Residential	Residential areas contain lawn and ornamental plantings.
SWT2-5	Red-Osier Mineral Thicket Swamp Ecosite	The two unevaluated wetlands are located within and adjacent to the southeast corner of the subject property, and were determined to be Red-osier Dogwood Mineral Thicket Swamp ecosites. The understory is dominated by Red-Osier Dogwood (<i>Cornus sercea</i>), with a fringe of Common Buckthorn. Canopy is comprised largely of Trembling Aspen (<i>Populus tremuloides</i>), White Elm and Sandbar Willow.

5.2.2 Vascular Flora

A total of 62 plant species were observed by NRSI biologists within the subject property during fall vegetation inventories and the tree inventory. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix II.

Based on available background information, one SAR plant, Fern-leaved Yellow False Foxglove (*Aureolaria pedicularia*) is reported from the vicinity of the study area (MNRF 2022). This species is found in dry open woods and savanna habitats (MECP 2022), of which there are none on-site or in the study area. NRSI did not observe any provincially or federally significant species within the subject property during the 2022 field visits and none were recorded by Aboud and Associates in 2014.

Two locally significant plant species were found on the site by Aboud and Associates (2014) based on the Dougan and Associates 2009 list; rough avens (*Geum laciniatum*) and meadow

horsetail (*Equisetum pratense*). These species were documented in the forest and wet meadow communities in the north-west part of the property. Those communities have since been removed during the site grading.

5.3 Wildlife

5.3.1 Birds

A total of 114 bird species are reported from the study area or vicinity based on the OBBA and NHIC data bases (BSC et al. 2022; MNRF 2022). NRSI biologist observed 12 species during the 2022 fall field investigations. Aboud and Associates documented 29 species during their 2014 EIS. Their study included surveys during the breeding season and documented 26 species with breeding evidence. Much of the habitat used by those species has since been removed. A complete list of species reported from and observed by NRSI is provided in Appendix III.

Based on available background information, 4 bird SCC and 6 bird SAR are reported from the vicinity of the study area (BSC et al. 2022; MNRF 2022) as summarized in the screening table in Appendix I. Biological monitoring conducted at the Blue Triton Brands' Aberfoyle property (185m to the northwest of the subject property) has not documented any SAR birds during their surveys from 2018-2021 (Beacon Environmental Ltd. 2022). One SCC (eastern wood-pewee) has been documented in the breeding season in the forested habitats on that property. Two SAR birds (barn swallow and bank swallow) and 1 SCC (eastern wood-pewee) were observed overhead on the subject property by Aboud and Associates in 2014, but were determined not to be breeding on-site. The eastern wood-pewee has suitable habitat present within the woodland on and adjacent to the subject property. No significant species of birds are expected to use the remainder of the subject property for breeding based on the alteration that has occurred and lack of habitat on-site.

5.3.2 Amphibians and Reptiles

According to the Ontario Reptile and Amphibian Atlas (ORAA, Ontario Nature 2019), 27 species of herpetofauna, including 3 SCC and 2 SAR are known from within the 10x10km grid overlapping the subject property. Biological monitoring conducted at the Blue Triton Brands' Aberfoyle property did not document any at-risk anuran species during 2018-2021 (Beacon Environmental Ltd. 2022). Turtle surveys at the Blue Triton property found two species of turtles, Midland painted turtle and snapping turtle using the on-site ponds, and turtle nesting was

also observed in the gravel areas surrounding the ponds on that property. Both are listed as Special Concern under SARA and COSEWIC.

NRSI biologists did not observe any herpetofauna species during any of the field investigations although these site visits were outside of the active season for herpetofauna. Aboud and Associates were on-site during the appropriate season, but did not carry out any dedicated amphibian surveys. They did not observe any amphibian or reptile species incidentally during their 2014 EIS.

At the time of the 2014 EIS, the subject property contained a gravel extraction site and a small pond in the northwest part of the site. Turtle nesting surveys were requested as part of the 2014 EIS due to this potential suitable habitat being present. Their study included 3 turtle nesting surveys on May 29, June 19 and July 6, 2013, during the nesting season with no evidence of turtles recorded. Their report states that significant wildlife habitat for turtles is not present on-site. The previously existing wetlands and pond have since been removed from the site during the grading. Given the changes that have occurred on-site and the removal of vegetation and wet areas, no additional surveys for turtles are recommended.

The wetlands in the east part of the site likely provide habitat for a small population of common amphibian species such as spring peeper and gray treefrog as well as reptiles such as eastern gartersnake. The on-site wetlands do not have permanent standing water and are not suitable for turtles or salamander species.

The off-site manmade pond features were not surveyed. These ponds may contain amphibian and reptile species but these are not natural features and do not warrant protection. The SWM pond to the south is entirely contained by chain link fencing, and the ponds across Brock Road are separated from the site by a busy 4 lane road and over 70m of distance. The ponds on the Blue Triton property are over 500m from the subject property. There is very little likelihood of turtles travelling from these ponds onto the subject property.

All species of herpetofauna reported from background sources for the study area are listed in Appendix IV.

5.3.3 Mammals

A total of 48 mammal species are documented from the study area or vicinity based on the Mammal Atlas of Ontario and NHIC database (Dobbyn 1994; MNRF 2022). A single common

mammal species, the Eastern Grey Squirrel (*Sciurus carolinensis*), was observed during the field investigations by NRSI. Aboud and Associates did not document any mammals using the subject property. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix V.

Based on available background information, 1 mammal SCC and 5 mammal SAR are reported from the vicinity of the study area (Dobbyn 1994; MNRF 2022). The woodland potentially provides habitat for SAR bats including little brown myotis (*Myotis lucifungus*), northern myotis (*Myotis septentrionalis*) and tri-coloured bat (*Perimyotis subflavus*). The buildings and isolated trees on-site were assessed for suitability as habitat for SAR bats with one suitable tree being found. As this is one isolated tree, it is not considered to meet the habitat requirements of SAR bat populations. The results will be reported in the Tree Preservation Plan and any removals will be in compliance with the Endangered Species Act and in consultation with MECP.

5.3.4 Butterflies

A total of 58 butterfly species are reported from the study area or vicinity based on the Ontario Butterfly Atlas and NHIC database (MacNaughton et al. 2022; MNRF 2022). NRSI biologists did not conduct any dedicated surveys during the butterfly active season. Aboud and Associates did not observe any butterfly species incidentally during any of the field investigations. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix VI.

Based on available background information, 1 SCC, Monarch (*Danaus plexippus*) is reported from the vicinity of the study area (MacNaughton et al. 2022; MNRF 2022). Although the subject property does contain meadow vegetation, it is not considered preferred habitat for butterflies due to its small size and overall poor quality. No regionally, provincially or federally significant species were observed within the subject property during field surveys and none are expected to be present.

5.3.5 Insects

Based on available background information, 2 SAR/SCC insects have been reported from the vicinity of the study area (MNRF 2022) including Double-striped Bluet (*Enallagma basidens*) and Yellow-banded bumblebee (*Bombus terricola*). No regionally, provincially or federally significant species were observed incidentally within the subject property during field surveys and none are expected to be present due to the lack of preferred habitat.

6.0 Significance and Sensitivity

The subject property is within the eastern headwaters of Mill creek. Mill Creek is a significant creek with important coldwater aquatic habitats which support sensitive coldwater fish species including brook trout. The coldwater thermal regime is created due to the progressive and significant inputs of cold groundwater, discharging to the creek throughout the upper and middle parts of the subwatershed. In order to preserve and maintain this significant habitat, upland recharge and lowland discharge must continue (CH2M Gore and Storrie 1996). The Mill Creek Subwatershed Study provides guidance on maintaining the balance of water to Mill Creek such as impervious cover limits, infiltration practices and erosion and sediment control.

The subject property has been altered through the grading and filling of almost the entire property, as per an approved permit in 2014. The results of the field surveys and background review show that the subject property is mainly occupied by regenerating cultural meadow and disturbed lands which are of low quality and not significant. The minimal natural features on-site include a small wetland and the edge of a significant woodland. These features extend off-site to the north and east; however, they have potential to be affected by development of the subject property.

The on-site wetland and a second smaller off-site wetland are unevaluated but have been mapped and are regulated by GRCA. The previous EIS (Aboud 2014) and supporting Hydrogeological Investigation by MBN Environmental Engineering Inc. (2014) determined that the 2 small wetlands are not connected to the Mill Creek Puslinch Provincially Significant Wetland Complex either by surface water or by groundwater, based on their isolated nature and the direction of groundwater flow being westerly, away from the PSW. This conclusion is supported by the current hydrogeological study (CVD 2022b) which also determined that the wetlands are not connected to the Mill Creek PSW either by surface water or groundwater. Therefore, these two small unevaluated wetlands should not be included in the PSW complex and are not provincially significant. As a result of recent changes to the OWES system, if a wetland evaluation were required, these wetlands would be considered as individual units.

The topography of the site slopes from east to west and away from the wetland. This indicates that the wetland is not influenced by surface water runoff originating on the subject property, rather the wetland is expected to receive water only from the topographically-higher off-site lands to the east from a very localized catchment, and precipitation that falls directly on the wetland itself. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the

subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands. A 15m on-site buffer to the wetland is considered sufficient to maintain its limited water balance and to protect it from any direct impacts of the development. This buffer is also considered sufficient to protect the habitat and the breeding amphibian populations that it may support. Fifteen metres is often used as a buffer for wetlands as it provides sufficient space to retain the wetland vegetation as well as existing adjacent upland habitat and/or suitable adjacent area for enhancements. Fifteen metres is sufficient for foraging and travel by the wildlife species expected to inhabit these wetlands, including as an amphibian movement corridor between the wetlands and the woodland.

Groundwater recharge at the property is expected to move to the west and will ultimately discharge to Mill Creek located about 400m to the west/northwest. Pre-development groundwater recharge quantity at the property (prior to the filling) was heavily influenced by the presence of a large depression in the north end of the property. The previous depression created a considerably higher than normal groundwater recharge and a lower runoff from the property. These influences are to be factored into the pre-post water balance assessment and in the stormwater management plan to maintain and enhance the groundwater discharge function to Mill Creek.

The dripline of the significant woodland was delineated in 2022 as an update to the 2014 study. This woodland was previously given a 5m buffer for protection during the grading activities. During the intervening years, the trees along the edge of the woodland have continued to grow, and presumably their roots to recolonize the graded area. As such, a 5m buffer from the new dripline to any grading has been recommended, and an additional 5m buffer is to be provided to any structures or impervious surfaces. A 5m no-touch buffer on the current dripline is considered sufficient to protect the woodland form, as the majority of the root zone of the edge trees will be within the dripline and the adjacent 5m, especially in this case, as the site was graded in 2017 up to the previous dripline + 5m, thus removing any surface roots beyond that limit at that time. The 5m no-touch buffer was shown to be suitable to protect the woodland feature during the past grading work and it is continued to be recommended.

The woodland on-site and adjacent is habitat for SCC Eastern Wood-Pewee. The woodland is considered candidate SWH for bat maternity roosts and the wetlands on-site and adjacent have potential to provide SWH amphibian breeding habitat (woodland). The woodland and wetland

are recommended to be retained and buffered as described above and an ecological connection maintained and enhanced between these features. These measures are expected to be sufficient to maintain and protect these features, the habitat they provide and their potential significant wildlife habitat functions. Additional wildlife impact mitigation measures are discussed and recommended below in the impact section of this report.

Hedgerows along the shared property lines have been identified as requiring protection to avoid impacts to non-owned off-site trees. These hedgerows (H1) were previously protected during the grading operations by fencing located at the dripline which is still semi in place. It is recommended that these trees be protected by detailed 3D surveying of the tree locations and their dripline and a 1m buffer provided where possible. Trees should be protected using standard tree protection fencing within which no site alteration or disturbance may occur. Individual and isolated trees will be inventoried and assessed for retention and protection measures through a Tree Preservation Plan at the Site Plan stage.

7.0 Impact Analysis and Enhancement Recommendations

7.1 Proposed Development

The proposed development consists of a one storey 20,667 square foot new warehouse facility with approximately 21 loading dock spaces, 75 trailer parking spots, 48 tractor parking spots, office employee parking, a 3-storey office building, septic tank and bed and an infiltration gallery for stormwater management. The parking areas will be asphalt paved. A Conceptual Site Plan has been prepared by Tacoma Engineers (2023) and is superimposed onto the natural feature mapping and shown on Map 3.

A Preliminary Servicing and Stormwater Management Report has been prepared by Meritech (2022) to show how the development will be serviced including water supply, wastewater treatment and stormwater management. Water will be provided by a proposed on-site well, and wastewater will be managed by an on-site treatment system which will discharge treated effluent to the subsurface in accordance with the requirements of the Ontario Building Code. The stormwater management approach will provide parking lot storage and an oil-grit separator to satisfy the criteria for water quantity and quality control. A large underground infiltration gallery for roof runoff will ensure that infiltration targets for this area of the Mill Creek watershed are met.

7.2 Approach to Impact Analysis

This impact analysis has been prepared by comparing the details of the proposed development plan to the natural heritage features within and adjacent to the subject property. NRSI has reviewed the reports and plans provided by other team members including servicing and stormwater management, Conceptual Site Plan, geotechnical and hydrogeological to prepare this section.

The following is a description of the types of impacts discussed in the sections below:

- **Direct impacts** to the natural features on the subject property associated with disruption or displacement caused by the actual proposed footprint of the undertaking.
- **Indirect impacts** associated with changes in site conditions such as drainage and water quantity/quality.

- **Induced impacts** associated with impacts after the development is constructed such as subsequent demand on the resources created by increased use of the area and vicinity.

7.3 Direct Impacts and Recommended Mitigation

7.3.1 Tree and Vegetation Removal

The development of the site has avoided any direct impacts to the significant woodland and the wetlands. These features are retained and buffered and will be protected during construction by fencing and a sediment barrier to be installed at the limit of development. The development has been placed within the disturbed area of cultural meadow which consists of sparse weedy vegetation dominated by non-native species. The development will require the removal of the cultural meadow vegetation and individual trees across the entire site. There are several mature sugar maples and other medium to large trees that will be removed from around the existing house and from the CUW1 at the depression along the frontage on Brock Road South. A tree inventory and preservation plan will provide more detail on species, size, condition and retention vs. removal. Some trees may be able to be retained along Brock Road South and Gilmore Road depending on final grading. Hedgerow trees along the north and east sides of the property will be protected by avoiding and minimizing grading and asphalt within the dripline and providing a 1m buffer where possible. The grading plan includes a low retaining wall along the north limit of the parking lot, in order to match grades within the root zones of off-site trees. The use of a retaining wall in this area is proposed in order to protect the root zones of trees along the shared north property boundary. Detailed elevation surveying along the dripline has been undertaken and will be used to refine the grading plan and identify where retaining walls may be necessary. The retaining wall will only be used where the change in grade is such that it would result in fill being placed over an extensive portion of the root zones of adjacent trees and at too great a depth that would result in impacts to those trees. The details of the retaining wall and tree retention will be determined in the Site Plan stage and reported in the Tree Preservation Plan.

Mitigation

Construction limit fencing and sediment barrier be located and installed at the limit of development to protect the on- and off-site significant woodland, trees and wetlands. A Tree Preservation Plan be prepared to address tree retention and removal within the subject property

and provide recommendations for tree protection measures. Trees should be protected using standard tree protection fencing in which no site alteration or disturbance may occur.

7.3.2 Birds and Their Nests

The removal of trees and meadow vegetation has the potential to harm and disrupt nesting birds. The *Migratory Birds Convention Act* (MBCA, Government of Canada 1994) identifies a list of migratory bird species that are protected. It prohibits the destruction of nests, individuals and activities that would cause an adult bird to abandon a nest. Tree and vegetation removal is to occur outside of the core nesting period for migratory birds as established by the Canadian Wildlife Service (CWS) which extends from approximately April 1 – August 31 (Government of Canada 2018). Every developer, consultant, contractor, etc. is legally obliged to carry out due diligence to protect migratory birds from harm during all construction projects.

Mitigation

Should vegetation/tree removal be required to occur within the core nesting period, a nest search may be conducted by qualified biologists within simple habitat just prior to the removal activity (less than 48 hours prior). Simple habitat means individual trees or small areas of vegetation where the visibility and probability of detecting nests is good. Should any active nest be identified, or signs of an active nest be observed, there shall be no removal or construction activity until sign-off is obtained from the qualified biologist that the nest is no longer active. Vegetated areas and tree(s) identified as having no nesting activity can be removed; however, removal is to occur within 48 hours of the nest search. If removal does not occur within this time frame, additional nest searches are to be conducted.

If a nest search is conducted, a clearance letter is to be prepared by the qualified biologist that undertook the surveys. The letter would be submitted to the client for their files in the event a record of due diligence is requested by the CWS.

7.3.3 SAR Bats

The removal of trees has the potential to harm SAR bats. The primary way to avoid impacts to bats is to retain trees which have suitable habitat for bats such as cavities and loose bark. It is also important to avoid removing any trees during the time when bats are most apt to be using them. Tree and vegetation removal is to occur outside of the core active bat season (April 1 to September 30). Every developer, consultant, contractor, etc. is legally obliged to carry out due diligence to protect migratory birds from harm during all construction projects.

One tree with cavities that are suitable bat roosting habitat was found on-site during the tree inventory and is required to be removed for the proposed development.

Mitigation

Any removal of trees is to be completed outside of the bat active season generally extending from April 1- October 1, with the understanding that SAR are protected during all seasons. Any removals within the bat active season will be in compliance with the Endangered Species Act and in consultation with MECP.

7.4 Indirect Impacts

The following section outlines potential sources of indirect impacts associated with the proposed development.

- Alterations to Drainage and Flow Patterns, Water Quality, Groundwater;
- Wildlife Disturbance; and,
- Erosion and Sedimentation.

7.4.1 Alterations to Drainage and Flow Patterns, Water Quality, Groundwater

A Preliminary Servicing and Stormwater Management Report has been prepared by Meritech (2022) that provides details on the proposed approach to managing and treating stormwater runoff following development. Due to the past alteration of the site, along with the existing soil type and land cover, the water balance of the site is primarily driven by evapotranspiration (Meritech 2022).

The proposed stormwater management plan will control water quantity by providing storage in the parking lots and on the warehouse building rooftop. The parking lots will drain to a storm sewer system which controls the outflow by an appropriately sized orifice, prior to being outlet to an oil/grit separator for quality control. The OGS will provide 'enhanced protection' to meet water quality objectives including long term average removal of 80% of suspended solids in the total runoff volume. Treated water will be released to an existing 750mm culvert under Brock Road South, then flowing north in the roadside ditch and ultimately into Mill Creek.

The Hydrogeological Report prepared by CVD (2022b) indicates that the small wetlands on-site and adjacent are expected to be sustained by overland runoff and are often only seasonally wet.

The majority of the small wetlands' surface water catchment is off-site and to the east and will remain unchanged. On-site the wetlands' catchment is very small and will be largely retained within the buffer. The proposed development is downslope of the wetland and is not expected to have any impact on this wetland feature.

In order to meet the infiltration requirements of the Mill Creek Subwatershed, rooftop water will be directed to underground infiltration galleries sized for 25mm/hr runoff. This infiltration infrastructure has been placed in an area of permeable native soils conducive to infiltration such that post-development will meet and exceed the pre-development infiltration condition, thereby contributing to maintaining and enhancing water balance in the Mill Creek Subwatershed.

The Hydrogeological Assessment report (CVD 2022b) indicates that there will be no impact to groundwater quality or quantity due to the proposed water usage or the wastewater treatment system of the proposed development.

Mitigation

Implement the stormwater management plan as designed and recommended by Meritech.

7.4.2 Wildlife Disturbance

Increased disturbance caused by excessive noise, dust, vibrations, lighting, and proximity of human presence during construction may cause wildlife species on-site and within the adjacent natural features to abandon or avoid the area for travel, nesting or foraging. Additionally, truck noise and parking lot lighting during operation of the facility has potential to disrupt wildlife.

The wildlife species and individuals that are present in the study area are those which have adapted to the current noise, lighting and disturbance conditions which are present due to the existing adjacent trucking facility, heavy equipment business, Brock Road South traffic and neighboring aggregate operations. This includes the common species as well as the significant species which have been noted or have potential to be present within the on-site and adjacent woodland such as Eastern wood-pewee and SAR bats. Any potential significant wildlife habitat functions that are present are expected to be maintained by retaining the natural features in their entirety, maintaining the water balance that supports them, providing a buffer and maintaining connectivity between the woodland and the wetlands.

Construction limit fencing is recommended to ensure that buffers are adhered to prior to and during construction. This fencing should be combined with sediment barrier fencing to also

function as a measure to ensure that wildlife (especially turtles that may inhabit adjacent SWM and aggregate ponds) are not able to enter the work area during construction, where they may be at risk of harm. Daily construction hours are recommended to be between 9:00am and 9:00pm during the spring and summer months (April to August), as a method of mitigating noise and human activity impacts to wildlife. Noise, dust, vibration and lighting disturbance impacts due to construction are anticipated to be localized and temporary.

To avoid and minimize disturbance to wildlife during operation it is recommended that truck movements and noise be limited to the extent possible during the breeding season for birds and wildlife which includes April to August, including nighttime. The proposed hours of operation of the facility are 8:00am to 5:00pm, Monday to Friday, year-round. These hours are not expected to result in noise or other disturbance impacts to breeding birds and other wildlife. Parking lot lighting should be reduced in height, directed away and shielded from shining into natural features.

Mitigation

Combined construction limit fencing/sediment barrier should be installed prior to any works beginning to ensure that buffering of natural features is adhered to and to exclude wildlife from the work area. Construction noise be restricted during spring and summer (April to August) to between 9:00 am and 9:00 pm. Any lighting equipment associated with construction activities should be turned off at the end of daily construction activities. Impacts due to dust should be mitigated for by moistening areas of bare, dry soil with water as needed during construction activities to reduce the amount of dust produced. Permanent parking lot lighting should be shielded and directed away from the adjacent natural features and the height should be reduced as much as possible so as to prevent 'lightwash' of these areas.

7.4.3 Erosion & Sedimentation

During rain or thaw events, erosion of exposed soils has the potential to occur during construction. Sediment laden surface water runoff has potential to flow into receiving catch basins and ditches, potentially impairing downstream water quality. The on-site and adjacent wetlands are located upslope from the development and therefore are not at risk of sedimentation during construction, however, combined construction limit fencing/sediment barrier is recommended along the outer limit of the work area.

Mitigation

ESC measures should be installed along the limit of construction/grading to ensure that sediment laden runoff does not impact the on-site and adjacent natural features, or downstream receiving watercourses or water bodies. An erosion and sediment control plan should be prepared at the Site Plan stage and implemented prior to any construction or site works.

7.5 Induced Impacts

Induced impacts are described as those that are not directly related to the construction or operation of the facilities in question, but rather arise as a result of the use of the natural areas or immediately adjacent lands for the development. The simplest example is an increase in the use of natural areas adjacent to development by residents, feral domestic wildlife, and unauthorized trail/pathway construction and dumping of debris.

Induced impacts are anticipated to be negligible on this subject property. The proposed development has been placed within the disturbed and cultural areas of the property. Human activity is expected to be focused within the development and will not enter natural features.

Mitigation

Fencing of the active portion of the truck facility is recommended to deter human intrusion into the natural features. Debris from the operation of the facility should be contained within the site by a chain link fence as well as routine maintenance and garbage collection, and not allowed to blow into adjacent natural features.

7.6 Enhancements

The buffers and gaps between retained natural features are an opportunity to enhance the natural features and improve ecological connectivity. The lands along the east property boundary, between the woodland and on-site wetlands, as well as the woodland and wetland buffers are good locations for plantings and enhancements. Plantings and naturalization are further recommended to enhance the ecological connectivity between the woodland and the wetlands for wildlife habitat functions such as for an amphibian movement corridor.

Enhancements may include the planting of native larger caliper trees or smaller tree 'whips', shrub plantings and native herbaceous seed mixes, all of which will serve to expand the size of the existing natural features. The selection of species for edge plantings should reflect the native species composition of adjacent natural areas and species that are common and hardy in

the local planting zone. Natural regeneration that is currently present should be considered and retained within the planting plans. Removal of common buckthorn from these areas and the edges of the woodland and wetlands should be considered. Any stumps and root systems of removed native trees can be left in place for habitat and soil stabilization. A landscape plan will be prepared at the Site Plan stage.

8.0 Summary

The proposed undertaking is to construct a warehouse, truck facility and office building with stormwater management and septic system on the subject property. The property has been previously altered by grading and filling, and contains limited on-site and adjacent natural features. The natural features on-site and adjacent are well defined and have been incorporated into the Site Plan along with appropriate buffers and recommended mitigation measures. These measures combined are considered sufficient to protect the common and significant plant and wildlife species, wildlife habitat functions and provide opportunities for ecological enhancement. This EIS has been prepared as an update to a previous study in 2014 and to ensure there are no negative impacts on the remaining natural features.

Below is a summary of mitigation measures provided in this report:

- Implement a no-touch buffer of 15m for the wetlands;
- Implement a 5m no-touch buffer for the woodland followed by an additional 5m buffer where grading is permitted;
- Install combined construction limit fencing/sediment barrier along the outer edge of construction/grading/buffer limit prior to any clearing or construction activity;
- Tree Inventory and Preservation Plan be prepared, including details of protection for off-site hedgerow trees;
- All vegetation/tree clearing should be conducted outside of the core bird nesting season (April 1 to August 31);
- Nest searches should be conducted by a qualified biologist where vegetation/tree clearing cannot be maintained outside of the core bird nesting season;
- All tree clearing should be conducted outside of the active bat season (April 1 to September 30). Any removals of suitable bat habitat trees during the active season are to be conducted in consultation with MECP and in compliance with the ESA;
- Prepare a Landscape Plan with details of buffer plantings, invasive buckthorn control and ecological connectivity enhancement between the woodland and wetlands;
- Implement Stormwater Management Plan and recommendations provided by Meritech;
- Mitigate spring and summer construction noise impacts by restricting activities to between 9:00 am and 9:00 pm during April to August;
- Turn off construction lighting at the end of each day;
- Implement measures to mitigate dust;

- Permanent lighting of the parking lots to be reduced in height, directed away and shielded from shining into the woodland and wetlands;
- Prepare and implement an Erosion and Sediment Control plan.

Providing the protection and mitigation measures recommended within this report, as well as the stormwater management plan and recommendations by other team members are adhered to, no significant negative environmental impacts are anticipated to the natural features on-site and adjacent as a result of the proposed development.

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Appendix I
Terms of Reference

November 8, 2022

Project 2984

Chris Lorenz, Resource Planner
Grand River Conservation Authority
[REDACTED]

Jeff Bunn, Deputy Clerk
Township of Puslinch
[REDACTED]

Dear Mr. Lorenz and Mr. Bunn,

**Re: 128 Brock Road South, Puslinch, Wellington Motor Freight
Environmental Impact Study - Terms of Reference**

Natural Resource Solutions (NRSI) was retained by Wellington Motor Freight to prepare an Environmental Impact Study (EIS) for the property located at 128 Brock Road South, Puslinch Ontario. Wellington Motor Freight has proposed the construction of a warehouse, truck facility and office on the property. An EIS is required for this development to ensure there are no negative impacts on the natural features on the site and surrounding lands including a Significant Woodland and two Unevaluated Wetlands to the east.

The County of Wellington Official Plan designated the natural features within and adjacent to the subject property as Core Greenlands (5.6.1) and Significant Woodlands (5.5.4). In the eastern corner of the property there is an unevaluated wetland which is regulated by the Grand River Conservation Authority (GRCA). The site itself has been largely disturbed by re-grading and levelling. Adjacent lands include active agricultural fields, aggregate extraction and other trucking facilities.

Upon review of the Growth Plan mapping, the subject property is not overlain by the provincial natural heritage system and no key natural heritage features or key hydrologic features are identified on the subject property or adjacent and therefore it is assumed that the policies of the Growth Plan do not apply to this property.

An EIS was conducted by Aboud and Associates in 2014 for the re-grading which was approved and appears to have occurred in 2016. It is requested that this current EIS be prepared as an update to the 2014 EIS. The attached Terms of Reference identify how the EIS update will be prepared, with specific recommendations to the proposed development.

Sincerely,
Natural Resource Solutions Inc.
Elaine Gosnell, B.Sc., P.Biol.
Senior Wetland and Terrestrial Biologist

Wellington Motor Freight EIS
128 Brock Road South, Puslinch
Terms of Reference
November 8, 2022

Introduction

Wellington Motor Freight has proposed the construction of a 16,766m² warehouse and truck facility as well as a 1,600m² office on the subject property at 128 Brock Road South. A stormwater management pond and septic system is proposed at the north end as shown on the Site Plan Concept appended to this document.

The study team includes (as well as other disciplines):

MHBC – Planning

CVD – Geotechnical and Hydrogeology

Meritech Engineering – Stormwater Management, Grading and Servicing

Natural Resource Solutions Inc. – Natural Environment

The subject property is shown on Map 2 with the study area being identified as those lands within 120m of the property boundary, as identified by Dougan and Associates. 120m is considered sufficient adjacent lands to capture natural environment features which could be affected by the proposed undertaking.

Background Information Collection and Review

The subject property was formerly studied through an EIS prepared for the previous owner who applied for a Site Alteration Permit to allow the levelling of the site for the purposes of future development. A Scoped EIS was prepared by Aboud and Associates in 2014 to document the existing conditions and address the impact of development on the wetlands, vegetation and wildlife on the subject property. That study was approved and the site alteration has since taken place which included the grading and filling of the entire property except for the natural features and their recommended buffers. Based on the alteration of the property and the previous work completed, this EIS TOR has been prepared as an update to the 2014 EIS.

Collection and Review of Background Information

Any newer background information will be collected for the study area to update species lists from the 2014 EIS. Species status will be updated where changes have occurred. Wildlife species lists will include the 10kmx10km atlas square that overlaps the subject property. This area is considered sufficient to characterize the natural features and ensure that SAR and other significant and sensitive species known from the area are considered in the proposed development.

The following background information sources will be reviewed in the preparation of the EIS:

- Environmental Impact Study (2014) as prepared by Aboud and Associates;
- Mill Creek Subwatershed Study (CH2M Gore and Storrie Ltd. et al 1996);
- Natural Heritage Information Centre (NHIC) database (NDMNRF 2022);

- County of Wellington Official Plan (OP) (2022);
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019);
- Grand River Conservation Authority (GRCA) Watershed Mapping;
- Puslinch Zoning By-Law (2021);
- Ministry of Environment, Conservation and Parks (MECP) Species at Risk;
- Government of Canada Species at Risk Act (SARA) (2022);
- Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada (BSC) et al. 2006);
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019);
- Mammal Atlas of Ontario (Dobbyn 1994);
- Ontario Butterfly Atlas Online (MacNaughton et al. 2022); and,
- Ontario Odonate Atlas (OOAD 2022).

Screening for Species At Risk

The 2014 EIS found 3 SAR birds during their field work, with none showing evidence of breeding on-site. No other species at risk flora or fauna were observed, and due to the site alteration that has taken place, none are expected to be present on-site. A screening for Species at Risk (SAR) and Species of Conservation (SCC) that may be present on-site has been undertaken using the background information collected in addition to a fall field visit. This screening found no SAR with potential to be present on-site or to be affected by the proposed undertaking. The screening table is included in Appendix I.

Significant Wildlife Habitat Screening

A screening of Significant Wildlife Habitat types for Ecoregion 6E was carried out by comparing the habitats present on the subject property and adjacent lands and using the background information available and based on a fall field visit to the habitat criteria as provided by MNRF (2015). No SWH types are expected to be present on the subject property, although potentially may be present in the woodland on adjacent lands including:

- Bat Maternity Colonies, and,
- Special Concern and Rare Wildlife Species.

Field Surveys

The following surveys have been completed to update the characterization of natural heritage features on and adjacent to the subject property and to identify the presence of wildlife using the habitat on the site. Species information from surveys conducted for the 2014 Aboud and Associates report will be compiled with current data to characterize the adjacent habitats.

Vascular Flora Inventory and Vegetation Community Mapping

A fall season floral inventory and vegetation community mapping survey has been completed on October 21, 2022 to update the existing conditions vegetation community mapping for the study area. Vegetation communities within the study area were mapped and described according to the Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998) and are shown on Map 1. All species of vascular flora identifiable at the time of the field survey were

documented. No significant species of plants or vegetation communities are present on-site and none are expected due to the site alteration that has taken place.

Wetland Boundary Delineation

Two small unevaluated wetlands were delineated in the 2014 EIS and were reviewed in the field on October 21, 2022. The on-site wetland was investigated and surveyed with a sub-metre accuracy Trimble GPS unit and is shown on appended maps. The 2022 wetland boundary was found to be near identical to that delineated in 2014 and as such, is recommended to be accepted, although it is recognized that this work was done outside of the typical growing season and has not been reviewed with GRCA at this time. A fall 2022 site meeting to review the wetlands can be arranged if desired.

A grading limit of 19m from the wetlands was implemented in 2014 to maintain wetland hydrology.

A GRCA mapped wetland is shown within the woodland to the east of the subject property. This area was investigated during the fall 2022 field work and was found not to exist. The area in question is a hilly wooded landform feature and has no wetland present.

Woodland Dripline Delineation

The boundary of the Significant Woodland to the east of the property was also delineated and surveyed using a Trimble GPS unit with sub-metre accuracy during the October 21, 2022 field visit. The woodland boundary is very similar to that identified in the 2014 EIS. This delineation of the dripline as well as the previous 5m buffer for grading will be used to inform development plans along this border of the property.

Wildlife

Based on the alteration of the subject property as well as the previous work completed, it is proposed that this EIS update be prepared based on the existing information available. The 2014 EIS completed 3 breeding bird surveys between late May and early July. Surveys for turtle nesting also occurred during all spring and summer field surveys, with no evidence of turtles or nesting being found. All wildlife species were recorded during the fall current field survey. This included direct observations, as well as signs such as dens, tracks, scats, etc.

Constraints

Natural feature constraints and buffer recommendations for the current proposed undertaking will be based on the existing altered condition of the subject property and the previous buffer limits which were implemented for the grading and filling work. Information on soils, hydrogeology and hydrology contributed by other team members will be used to identify suitable buffers from the wetland and woodland and to assess pre-development and post-development water balance to these features. The previous EIS and supporting Hydrogeological Investigation by MBN Environmental Engineering Inc. (2014) determined that the 2 small wetlands are not connected to the Mill Creek Puslinch Provincially Significant Wetland Complex either by surface water or by groundwater, based on their isolated nature and the direction of

groundwater flow. Therefore, these two small unevaluated wetlands should not be included in the PSW complex and are not provincially significant.

The two small wetlands are supported by surface water runoff from their catchment, which is primarily from the southeast (i.e. off-site). They are not significant in terms of groundwater recharge or discharge based on hydrogeological information. Buffers and other mitigation measures will be recommended based on the aspects of the development proposed immediately adjacent as well as the stormwater management plan or other measures to be implemented.

Reporting

The EIS report will characterize the existing site conditions and identify all natural heritage features, designations and applicable policy. The report will summarize the available background material including the 2014 EIS and update it with 2022 field survey results and study team findings. The SAR, SCC and SWH screenings will be updated and the results discussed.

Significant biological features and their buffers and setbacks will be described. These constraints will be compiled onto mapping to show a combined development limit to inform the proposed Site Plan.

The details of the proposed undertaking will be reviewed and compared to the existing conditions and habitat in the Study Area. Potential impacts will be discussed where there are any areas of conflict between significant natural features, buffers or ecological functions and the proposed development.

The assessment of potential impacts will be divided into three main categories:

- **Direct impacts** associated with removal of natural features caused by the actual 'footprint' of the proposed development.
- **Indirect impacts** associated with changes in site conditions, such as indirect impacts to wildlife, or modifications to drainage and water quantity/quality as it pertains to the site drainage and the adjacent wetland features.
- **Induced impacts** associated with proposed activities and their impact on natural features or species and their habitats over time in space, including, but not limited to, the spread of invasive species or disturbance to natural features or wildlife habitats caused by human use of the property.

Recommendations to avoid, or otherwise minimize or mitigate impacts to significant natural features and functions will be presented in the EIS report. Opportunities for ecological enhancement and restoration on the Subject Property, will be highlighted.

Appendix I. SAR/SCC Screening

								Observed by NRSI (2022) or Aboud (2014)		Suitable Habitats within Subject Property	Carried Forward to EIS?	
Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Background Source		Habitat Requirements			Rationale
Birds												
<i>Ammodramus</i> <i>savannarum</i>	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1	OBBA 2006		Well-drained grassland or prairie with low cover of grasses, taller weeds or sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities. Requires perches for singing and tracts of grassland generally >5ha. ^{3,4}	No	No	Subject property is mainly disturbed soils with sparse weedy groundcover which may be suitable habitat but is smaller than general habitat size (<5ha) and is adjacent to a busy road and trucking facility. Not observed during 2014 breeding bird surveys.
<i>Chaetura pelagica</i>	Chimney Swift	S3B	THR	T	T	Schedule 1	OBBA 2006		Commonly found in urban areas near buildings; nests in chimneys, hollow trees, and crevices of rock cliffs. Feeds over open water. ^{3,4}	No	No	Not an urban area, no buildings with chimneys. Observed foraging during 2014, no evidence of breeding.
<i>Chordeiles minor</i>	Common Nighthawk	S4B	SC	SC	T	Schedule 1	OBBA 2006		Open ground; clearings in dense forests (including burns and logged areas); rock barrens; peat bogs; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs. ^{3,4}	No	No	Subject property is mainly disturbed soils with sparse weedy groundcover. However, site is adjacent to busy road and trucking facility, not suitable.
<i>Contopus virens</i>	Eastern Wood-pewee	S4B	SC	SC	SC	Schedule 1	OBBA 2006, Aboud 2014	X	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in intermediate-age mature forest stands with little understory vegetation. ^{3,4}	Yes	Yes	Suitable forest habitat is present within woodland on and adjacent to subject property. Observed singing from hedgerow during 2014, no evidence of breeding on-site.
<i>Dolichonyx oryzivorus</i>	Bobolink	S4B	THR	T	T	Schedule 1	OBBA 2006		Large (>10 ha), open expansive grasslands, pastures, hayfields, meadows or fallow fields with dense ground cover. Occasionally nest in large (>50 ha) fields of winter wheat and rye in southwestern Ontario. ^{3,4}	No	No	No large open grasslands present on-site.
<i>Hirundo rustica</i>	Barn Swallow	S4B	THR	SC	T	Schedule 1	OBBA 2006, About 2014	X	Farmlands, rural areas and other open or semi-open areas near body of water. Nests almost exclusively on human-made structures such as open barns, buildings, bridges and culverts. ^{3,4}	No	No	No nests observed on on-site buildings. Observed foraging during 2014, no evidence of breeding.
<i>Hylocichla mustelina</i>	Wood Thrush	S4B	SC	T	T	Schedule 1	OBBA 2006		Carolinian and Great Lakes-St. Lawrence forest zones. Undisturbed moist mature deciduous or mixed forest with deciduous sapling growth. Near pond or swamp. Must have some trees higher than 12 m. ^{3,4}	No	No	No suitable forest habitat on-site or adjacent.
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3	SC	E	E	Schedule 1	OBBA 2006		Open, deciduous forest with little understory; fields, parks or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees. Requires cavity trees with at least 40 cm dbh. ^{3,4}	No	No	No suitable forest habitat or trees on-site or adjacent.
<i>Riparia riparia</i>	Bank Swallow	S4B	THR	T	T	Schedule 1	OBBA 2006, Aboud 2014	X	Nests in burrows in natural and human-made settings with vertical faces in silt and sand deposits. Ususally on banks of river and lakes, but also found in sand and gravel pits. ^{3,4}	No	No	No banks present on-site for nest burrows. Observed foraging in 2014, with no evidence of breeding. Local gravel pits are likely used for nesting.
<i>Sturnella magna</i>	Eastern Meadowlark	S4B, S3N	THR	T	T	Schedule 1	OBBA 2006		Open pastures, hayfields, grasslands or grassy meadows with elevated singing perches (small trees, shrubs or fence posts). Also weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >10 ha, but will sometimes use smaller tracts. ^{3,4}	No	No	No large open grasslands present on-site.
Turtles												

Appendix I. SAR/SCC Screening

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Background Source	Observed by NRSI (2022) or Aboud (2014)	Habitat Requirements	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1	ORAA 2019		Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for basking, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for hibernation. ³	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1	ORAA 2019		quiet, warm, shallow water with abundant aquatic vegetation such as ponds, large pools, streams, ditches, swamps, marshy meadows; eggs are laid in sandy places, usually in a bank or hillside, or in fields; bask in groups; not territorial	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	ORAA 2019		large bodies of water with soft bottoms, and aquatic vegetation; basks on logs or rocks or on beaches and grassy edges, will bask in groups; uses soft soil or clean dry sand for nest sites; may nest at some distance from water; home range size is larger for females (about 70 ha) than males (about 30 ha) and includes hibernation, basking, nesting and feeding areas; aquatic corridors (e.g. stream) are required for movement; not readily observed	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
<i>Emydoidea blandingii</i>	Blanding's Turtle (Great Lakes / St. Lawrence population)	S3	THR	E	T	Schedule 1	ORAA 2019		Eutrophic, shallow wetlands such as marshes, ponds, swamps, bogs, fens, or coastal wetlands, with soft, muddy substrates, abundant aquatic vegetation, and basking structures (logs, stumps, hummocks). Large overland movements occur between aquatic habitats and to open sandy or gravelly areas for nesting. Forest habitat is important for upland movements. Overwintering typically occurs in permanent wetlands. ⁷	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
Snakes												
<i>Lampropeltis triangulum</i>	Eastern Milksnake	S4	SC	SC	SC	Schedule 1			Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites. ⁴	No	No	No suitable meadow or forest habitat on-site or adjacent.
Salamanders												
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	S2	END	E	E	Schedule 1	ORAA 2019		Large deciduous or mixed forest containing, or in close proximity to, suitable breeding ponds which include fishless vernal pools or wetlands with suitable hydroperiod for larval development (was present until Aug/Sept). Habitats must contain shelter features including leaf litter, woody debris, rocks, logs, or stumps. Hibernation sites are underground in mammal burrows, root systems, or crevices or fissures in rocks. ¹⁷	No	No	No suitable breeding ponds or large forests present on-site or adjacent.
Frogs and Toads												
<i>Pseudacris triseriata</i> pop.1	Western Chorus Frog (Great Lakes - St. Lawrence - Canadian Shield population)	S4	NAR	T	T	Schedule 1	ORAA 2019		Moist forest, prairie, meadows, cultural meadows, or marshes. Breeds in shallow, temporary, fishless wetlands, including flooded ditches, marshes, flooded fields, pastures, temporary ponds, pools, and swamps. Hibernates in terrestrial habitats under rocks, logs, leaf litter, loose soil, or in animal burrows. ²¹	No	No	No suitable temporary wetlands present on-site or adjacent.
Mammals												

Appendix I. SAR/SCC Screening

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Background Source	Observed by NRSI (2022) or Aboud (2014)	Habitat Requirements	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
<i>Microtus pinetorum</i>	Woodland Vole	S3?	SC	SC	SC	Schedule 1	Dobbyn 1994		Mature deciduous forest in the Carolinian region where there is a deep litter layer that allows it to burrow. ^{3,4}	No	No	No suitable forest present on-site or adjacent.
<i>Myotis leibii</i>	Eastern Small-footed Myotis	S2S3	END				Dobbyn 1994		Roosts in caves, mine shafts, crevices or buildings that are in or near woodland. Hibernates in cold dry caves or mines. Maternity colonies in caves or buildings. Hunts in forests. ^{3,4}	No	No	No suitable buildings or caves present. Buildings will be assessed during tree inventory.
<i>Myotis lucifungus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1	Dobbyn 1994		Uses caves, quarries, tunnels, hollow trees or buildings for roosting. Winters in humid caves. Maternity sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges. ^{3,4}	No	Yes	No suitable buildings or caves present. Significant woodland and isolated trees may provide habitat. Buildings and isolated trees will be assessed during tree inventory.
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1	Dobbyn 1994		Roosts in houses and man-made structures but prefers hollow trees or under loose bark. Hibernates in mines or caves. Hunts within forest, below the canopy. ^{3,4}	No	Yes	No suitable buildings or caves present. Significant woodland and isolated trees may provide habitat. Building and isolated trees will be assessed during tree inventory.
<i>Perimyotis subflavus</i>	Tri-colored Bat	S3?	END	E	E	Schedule 1	Dobbyn 1994		Roosts and maternity colonies in older forests and occasionally in barns or other sturctures. Forage over water and along streams in the forest. Hibernate in caves. ^{3,4}	No	Yes	No suitable buildings or caves present. Significant woodland and isolated trees may provide habitat. Buildings and isolated trees will be assessed during tree inventory.
<i>Taxidea taxus jacksoni</i>	American Badger (Southwestern Ontario population)	S2	END	E	E	Schedule 1	Dobbyn 1994		Open grasslands, oak savannahs, sand barrens and farmland. ^{3,4}	No	No	No grasslands present on-site or adjacent.
Butterflies												
<i>Danaus plexippus</i>	Monarch	S2N, S4B	SC	END	SC	Schedule 1	MacNaughton et al 2022		Adults found in a diversity of habitats with a variety of wildflowers. Caterpillars are confined to meadows and open areas where milkweeds grow (larval food plants). ³	No	No	Subject property is mainly disturbed soils with sparse weedy groundcover. Very limited number of milkweed plants observed in 2022.
Insects												
<i>Bombus terricola</i>	Yellow-banded Bunblebee	S3, S5	SC	SC	SC	Schedule 1			Found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands and urban areas. This species is a forage and habitat generalist, able to use a variety of nectaring plants and environmental conditions.	No	No	Subject property is mostly disturbed soil with sparse groundcover for nectaring plants.
Plants												
<i>Aureolaria flava</i>	Smooth Yellow False Foxglove	S2	THR	T	-	No Schedule			Open oak woods. ⁴	No	No	No suitable woodland habitat on-site or adjacent

3: Ministry of the Environment, Conservation, and Parks (MECP). 2020. Species at Risk in Ontario. Published: 12-07-2018. Updated: 09-11-2020. Available: <https://www.ontario.ca/page/species-risk-ontario>

4: Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. Appendix G: Wildlife Habitat Matrices and Habitat Descriptions for Rare Vascular Plants. October 2000.

7: Ministry of the Environment, Conservation and Parks. 2019. Recovery Strategy for the Blanding’s Turtle (Emydoidea blandingii) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. Adoption of the Recovery Strategy for Blanding’s Turtle (Emydoidea blandingii), Great Lakes / St. Lawrence population, in Canada (Environment and Climate Change Canada 2018). <https://www.ontario.ca/page/blandings-turtle-recovery-strategy#section-1>

17: Linton, J, J. McCarter and H. Fotherby 2018. Recovery Strategy for the Jefferson Salamander (Ambystoma jeffersonianum) and Unisexual Ambystoma (Jefferson Salamander dependent population) (Ambystoma laterale - (2) jeffersonianum) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 58 pp. <https://www.ontario.ca/page/jefferson-salamander-and-jefferson-dependent-unisexual-ambystoma-recovery-strategy#section-1>

19: Markle, T.M., A.R. Yagi and D.M. Green. 2013. Recovery Strategy for the Allegheny Mountain Dusky Salamander (Desmognathus ochrophaeus) and the Northern Dusky Salamander (Desmognathus fuscus) in Ontario. Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 30 pp. <https://www.ontario.ca/page/allegheny-mountain-dusky-salamander-and-northern-dusky-salamander-recovery-strategy#section-1>

21: 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. (www.sararegistry.gc.ca/status/status_e.cfm)

Subject: RE: 128 Brock Road South, Puslinch - TOR for EIS (proj2984)
From: Jenn Simons [REDACTED]
Date: 11/16/2022, 9:36 AM
To: "egosnell@nrsi.on.ca" <egosnell@nrsi.on.ca>

Good morning Elaine,

We are satisfied with the delineation based on the 2014 and 2022 field verification. Thank you for checking with us.
Jenn

From: Elaine Gosnell [REDACTED]
Sent: Tuesday, November 15, 2022 5:10 PM
To: Jenn Simons [REDACTED]
Subject: Re: 128 Brock Road South, Puslinch - TOR for EIS (proj2984)

Thanks Jenn for the quick turnaround. I will pass these comments on to our team, specifically the hydrogeological and stormwater management engineers.

On the item of the wetland boundary delineation, can you confirm if GRCA is satisfied with the delineation based on the 2014 field verification and our fall 2022 field verification, or is a site visit warranted and if so, can that be done this fall?

Thank you.



Elaine Gosnell B.Sc. P.Biol. (she/her/hers)
Senior Terrestrial and Wetland Biologist
Natural Resource Solutions Inc.
415 Phillip Street, Unit C
Waterloo, ON N2L 3X2



[@nrsinews](https://twitter.com/nrsinews) [in](https://www.linkedin.com/company/natural-resource-solutions-inc/) [Natural Resource Solutions Inc.](https://www.naturalresourcesolutionsinc.com/)
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On 2022-11-15 4:10 p.m., Jenn Simons wrote:

Good afternoon Elaine,

GRCA staff has had the opportunity to review the Terms of Reference for Environmental Impact Study related to the address above and offer the following comments:

1. We understand that the previous EIS and supporting Hydrogeological Investigation by MBN Environmental Engineering (2014) determined that the 2 small wetlands are not connected to the Mill Creek-Puslinch Provincially Significant Wetland Complex either by surface or by groundwater, based on their isolated nature and direction of groundwater flow. We would ask that the new EIS and supporting studies identify and demonstrate how the wetland water balance for the 2 small wetland features will be maintained and matched to pre-development conditions.
2. The subject site has a high recharge value and ask that the EIS and supporting studies identify and demonstrate how the sites recharge and infiltration rates will be maintained.

As an advisory comment, due to the high recharge value you may wish to explore opportunities to

infiltrate clean roof water at the detailed design stage.

I trust this is of assistance. Please let me know if you have any questions.

Sincerely,

Jenn Simons

Resource Planner

Grand River Conservation Authority

400 Clyde Road, PO Box 729

Cambridge, ON N1R 5W6

Office: 519-621-2763 ext. 2238

[REDACTED]

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[REDACTED]

Subject: 128 Brock Road South, Puslinch - TOR for EIS (proj2984)

Hello Chris and Jeff,

Natural Resource Solutions has been retained by Wellington Motor Freight as part of a team to prepare an EIS for the development of a truck facility at 128 Brock Road S in Puslinch. I have reviewed the Pre-Consultation notes as well as the previous EIS and hydrogeology reports prepared for the Site Alteration permit for the property. The site has been graded, filled and leveled in 2016, and I have prepared the TOR for the EIS based on it's current condition and the existing background information.

The Terms of Reference are attached for your review and comment. If you have any questions, please contact me.

Elaine

--



Elaine Gosnell B.Sc. P.Biol. (she/her/hers)

Senior Terrestrial and Wetland Biologist

Natural Resource Solutions Inc.

415 Phillip Street, Unit C

Waterloo, ON N2L 3X2

[REDACTED]



[@nrsinews](#)



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Significant Wildlife Habitat Type	Presence Within Study Area	Presence Within Subject Property	Assessment Details
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	Not Present	Not Present	No agricultural crops planted on-site, no flooded fields present in study area.
Waterfowl Stopover and Staging Areas (Aquatic)	Not Present	Not Present	No marshes, natural ponds, swamps or open water present on-site or in study area.
Shorebird Migratory Stopover Area	Not Present	Not Present	No shorelines present on-site or in study area.
Raptor Wintering Area	Not Present	Not Present	No large areas of forest and meadow present on-site or in the study area.
Bat Hibernacula	Not Present	Not Present	No caves, mine shafts or karst topography on-site or in the study area.
Bat Maternity Colonies	Candidate	Not Present	FOD community adjacent to the subject property may contain trees with suitable cavities for bat maternity roosts.
Turtle Wintering Area	Not Present	Not Present	There are no natural ponds on-site or in the study area to provide this habitat.
Reptile Hibernaculum	Not Present	Not Present	No burrows, rock crevices, crumbling foundations that go below the frost line are found on-site or in the study area as well as due to the level of disturbance that has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation, commercial development).
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Not Present	Not Present	No natural exposed banks or eroding areas on-site. Manmade berms and embankments may be present on adjacent lands, but are not SWH.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	Not Present	Not Present	No treed swamps present on-site or in study area.
Colonially - Nesting Bird Breeding Habitat (Ground)	Not Present	Not Present	No rocky islands or peninsulas present on-site or in study area.
Migratory Butterfly Stopover Areas	Not Present	Not Present	Study area is not within 5km of Lake Ontario.
Landbird Migratory Stopover Areas	Not Present	Not Present	Study area is not within 5km of Lake Ontario.
Deer Yarding Areas	Not Present	Not Present	No deer yarding areas identified by OMNRF in the study area.
Deer Winter Congregation Areas	Not Present	Not Present	No deer winter congregation areas identified by OMNRF in the study area.
Rare Vegetation Communities			
Cliff and Talus Slopes	Not Present	Not Present	0
Sand Barrens	Not Present	Not Present	0
Alvar	Not Present	Not Present	0
Old Growth Forest	Not Present	Not Present	0
Savannah	Not Present	Not Present	0
Tallgrass Prairie	Not Present	Not Present	0
Other Rare Vegetation Communities	Not Present	Not Present	0
Specialized Wildlife Habitat			
Waterfowl Nesting Area	Not Present	Not Present	No suitable wetlands and upland habitat present on subject property or in study area.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Not Present	Not Present	No forested shorelines present on subject property or in study area.
Woodland Raptor Nesting Habitat	Not Present	Not Present	No large woodland/forest present on subject property or in study area.
Turtle Nesting Areas	Not Present	Not Present	No suitable natural wetlands on subject property or study area.
Seeps and Springs	Not Present	Not Present	No forested areas with seeps/springs on the subject property or within the study area.
Amphibian Breeding Habitat (Woodland)	Not Present	Possible	On-site wetland is >500m ² in size and within 120m of FOD5 and may possibly contain gray treefrog, spring peeper and/or wood frog, although a high abundance is unlikely due to the lack of permanent water. Wetland is retained and a link provided to the FOD5 community.
Amphibian Breeding Habitat (Wetland)	Not Present	Not Present	No isolated wetlands present on the subject property or adjacent study area lands.
Woodland Area-Sensitive Bird Breeding Habitat	Not Present	Not Present	No forests with interior habitat are present on the subject property or within the study area.
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	Not Present	Not Present	No wetlands with emergent aquatic vegetation are on-site or in study area.
Open Country Bird Breeding Habitat	Not Present	Not Present	No large grassland areas present on-site or in the study area.
Shrub/Early Successional Bird Breeding Habitat	Not Present	Not Present	No successional shrub and thicket habitats on-site or in the study area.
Terrestrial Crayfish	Not Present	Not Present	No suitable wetlands present on-site or in study area. Soils on-site are granular and contain stones, cobbles - not suitable for burrows.
Special Concern and Rare Wildlife Species	Candidate	Not Present	Special concern species Eastern Wood Pewee has been documented in the study area (Aboud 2014) and the adjacent FOD provides suitable breeding habitat.
Animal Movement Corridors			
Amphibian Movement Corridors	Not Present	Possible	Amphibian breeding habitat is possibly present in the on-site wetlands. A movement corridor may exist between the wetlands and the woodland on adjacent lands. Wetland, woodland and corridor are retained.
Deer Movement Corridors	Not Present	Not Present	Deer wintering habitat is not present.
Exceptions			
EcoDistrict 6E-14 Mast Producing Areas	Not Present	Not Present	NA
EcoDistrict 6E-17 Lek	Not Present	Not Present	NA

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial)					Not Present	Not Present
<u>Rationale:</u> Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available ^{exlviii} . <u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • Any mixed species aggregations of 100 or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat ^{cxlviii} . • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST ^{cxlix} Index #7 provides development effects and mitigation measures.	No agricultural crops planted on-site, no flooded fields present in study area.	
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic)					Not Present	Not Present
<u>Rationale:</u> Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked Duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100 ⁱ or more of listed species for 7 days ⁱ , results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH ^{cxlix} • The combined area of the ELC ecosites and a 100m radius area is the SWH ^{cxlviii} • Wetland area and shorelines associated with sites identified within the SWHTG ^{cxlviii} Appendix K ^{cxlix} are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST ^{cxlix} Index #7 provides development effects and mitigation measures.	No marshes, natural ponds, swamps or open water present on-site or in study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Shorebird Migratory Stopover Area					Not Present	Not Present
Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin Whimbrel	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area ^{cxlviii} • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMiST ^{cxlix} Index #8 provides development effects and mitigation measures.	No shorelines present on-site or in study area.	
Wildlife Habitat: Raptor Wintering Area					Not Present	Not Present
Rational: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha ^{cxlviii, cxlix} with a combination of forest and upland. ^{xvi, xvii, xviii, xix, xx, xxi} Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands ^{cxlix} Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water, large trees and snags available for roosting <u>Information Sources</u> • OMNRF Ecologist or Biologist • Field Natural Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from Conservation Authorities CAs.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) ^{cxlix} for a minimum of 20 days by the above number of birds • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMiST ^{cxlix} Index #10 and #11 provides development effects and mitigation measures.	No large areas of forest and meadow present on-site or in the study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Bat Hibernacula					Not Present	Not Present
<u>Rationale</u> Bat hibernacula are rare habitats in Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	<ul style="list-style-type: none">Hibernacula may be found in caves, mine shafts, underground foundations and Karsts.Active mine sites should not be considered as SWHThe locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> <ul style="list-style-type: none">OMNRF for possible locations and contact for local expertsNatural Heritage Information Center (NHIC) Bat HibernaculumMinistry of Northern Development and Mines for location of mine shafts.Clubs that explore caves (eg. Sierra Club)University Biology Departments with bat experts.	<ul style="list-style-type: none">All sites with confirmed hibernating bats are SWH.The habitat area includes a 200m radius around the entrance of the hibernaculum^{cxlviii, ccvii} for most.Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"^{ccv}SWHMiST^{cxlix} Index #1 provides development effects and mitigation measures.	No caves, mine shafts or karst topography on-site or in the study area.	
Wildlife Habitat: Bat Maternity Colonies					Candidate	Not Present
<u>Rationale:</u> Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildings ^{xxii, xxv, xxvi, xxvii, xxxi} (buildings are not considered to be SWH). <ul style="list-style-type: none">Maternity roosts are not found in caves and mines in Ontario^{xxii}Maternity colonies located in Mature deciduous or mixed forest stands^{ccix, ccx} with >10/ha large diameter (>25cm dbh) wildlife trees^{ccvii}Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3^{ccxiv} or class 1 or 2^{ccxii}Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred^{ccx} <u>Information Sources</u> <ul style="list-style-type: none">OMNRF for possible locations and contact for local expertsUniversity Biology Departments with bat experts.	<ul style="list-style-type: none">Maternity Colonies with confirmed use by:<ul style="list-style-type: none">>10 Big Brown Bats>5 Adult Female Silver-haired BatsThe area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies.Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for wind Power Projects"^{ccv}SWHMiS T^{cxlix} Index #12 provides development effects and mitigation measures.	FOD community adjacent to the subject property may contain trees with suitable cavities for bat maternity roosts.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Turtle Wintering Area					Not Present	Not Present
<u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles - ELC Community Classes: SW, MA, OA and SA; ELC Community Series: FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen ^{cix, cx, cxi, cxviii} . • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF ecologist or biologist • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) ^{cvi} • Congregation of turtles is more common where wintering areas are limited and therefore significant ^{cix, cx, cxi, cxii} . • SWHMiST ^{cxlix} Index #28 provides development effects and mitigation measures for turtle wintering habitat.	There are no natural ponds on-site or in the study area to provide this habitat.	
Wildlife Habitat: Snake Hibernaculum					Not Present	Not Present
<u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	<u>Snakes:</u> Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake <u>Special Concern:</u> Milksnake Eastern Ribbonsnake <u>Lizard:</u> <u>Special Concern</u> (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. The existence of features that go below the frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line ^{xliv, i, ii, iii, cxii} . • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures cciii. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information from CAs. • Local Field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. clubs • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. <u>or</u> ; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. <u>or</u> ; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH ⁱ • SWHMiST ^{cxlix} Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST ^{cxlix} Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No burrows, rock crevices, crumbling foundations that go below the frost line are found on-site or in the study area as well as due to the level of disturbance that has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation, commercial development).	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					Not Present	Not Present
<u>Rationale:</u> Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	<ul style="list-style-type: none">Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area.Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles.Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> <ul style="list-style-type: none">Reports and other information available from CAsOntario Breeding Bird Atlas^{ccv}Bird Studies Canada; <i>NatureCounts</i> http://www.birdscanada.org/birdmon/Field Naturalist clubs	Studies confirming: <ul style="list-style-type: none">Presence of 1 or more nesting sites with 8^{cxlvix} or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season.A colony identified as SWH will include a 50m radius habitat area from the peripheral nests^{ccvii}Field surveys to observe and count swallow nests are to be completed during the breeding season Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”^{ccxi}SWHMiST^{cxlix} Index #4 provides development effects and mitigation measures	No natural exposed banks or eroding areas on-site. Manmade berms and embankments may be present on adjacent lands, but are not SWH.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					Not Present	Not Present
<u>Rationale:</u> Large Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	<ul style="list-style-type: none">Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used.Most nests in trees are 11 to 15m from ground, near the top of the tree. <u>Information Sources</u> <ul style="list-style-type: none">Ontario Breeding Bird Atlas^{ccv}, colonial nest records.Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNR).NHIC Mixed Wader Nesting ColonyAerial photographs can help identify large heronriesReports and other information available from CAsMNRF District OfficesLocal naturalist clubs	Studies confirming: <ul style="list-style-type: none">Presence of 5^l or more active nests of Great Blue Heron or other listed species.The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH^{cc, ccvii}Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshellsSWHMiST^{cxlix} Index #5 provides development effects and mitigation measures.	No treed swamps present on-site or in study area.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Ground)					Not Present	Not Present

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
<u>Rationale:</u> Colonies are important to local bird populations, typically sites are only known colony in area and are used annually.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6 MAS1 – 3 CUM CUT CUS	<ul style="list-style-type: none">• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas.• Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. <u>Information Sources</u> <ul style="list-style-type: none">• Ontario Breeding Bird Atlas^{ccv}, rare/colonial species records.• Canadian Wildlife Service• Reports and other information available from CAs• Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area• MNRF District Offices• Field naturalist clubs	Studies confirming: <ul style="list-style-type: none">• Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern^l.• Presence of 5 or more pairs for Brewer's Blackbird.• Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant.• The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH^{cc, ccvii}• Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi}• SWHMIST^{cxlix} Index #6 provides development effects and mitigation measures.	No rocky islands or peninsulas present on-site or in study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Migratory Butterfly Stopover Areas					Not Present	Not Present
<p><u>Rationale:</u> Butterfly stopovers areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.</p>	<p>Painted Lady Red Admiral</p> <p><u>Special Concern:</u> Monarch</p>	<p>Combination of ELC Community Series: Need to have present one Community Series from each landclass:</p> <p><u>Field:</u> CUM CUS CUT</p> <p><u>Forest:</u> FOC FOM FOD CUP</p> <p>Anecdotaly, a candidate sight for butterfly stopover will have a history of butterflies being observed.</p>	<p>A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario^{cxlix}.</p> <ul style="list-style-type: none">• The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south^{xxxii, xxxiii, xxxiv, xxxv, xxxvi}.• The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat cxlvi, cxlix.• Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes^{xxxvii, xxxviii, xxxix, xl, xli}. <p><u>Information Sources</u></p> <ul style="list-style-type: none">• OMNRF (NHIC)• Agriculture Canada in Ottawa may have list of butterfly experts.• Field Naturalist Clubs• Toronto Entomologists Association• Conservation Authorities	<p>Studies confirm:</p> <ul style="list-style-type: none">• The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)^{xliii}. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day^{xxxvii}, significant variation can occur between years and multiple years of sampling should occur^{xl, xliii}.• Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD• MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.• SWHMiST^{cxlix} Index #16 provides development effects and mitigation measures.	Study area is not within 5km of Lake Ontario.	
Wildlife Habitat: Landbird Migratory Stopover Areas					Not Present	Not Present
<p><u>Rationale:</u> Sites with a high diversity of species as well as high number are most significant</p>	<p>All migratory songbirds.</p> <p>Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html</p> <p>All migrant raptors species:</p> <p>Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)</p>	<p>All Ecosites associated with these ELC Community Series:</p> <p>FOC FOM FOD SWC SWM SWD</p>	<p>Woodlots need to be >10 ha^{iv, v} in size and within 5km^{vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv} of Lake Ontario.</p> <ul style="list-style-type: none">• If multiple woodlands are located along the shoreline, those woodlands <2km from Lake Ontario are more significant^{cxlix}• Sites have a variety of habitats; forest, grassland and wetland complexes^{cxlix}.• The largest sites are more significant^{cxlix}• Woodlots and forest fragments are important habitats to migrating birds^{ccxviii}, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH^{cxlviii}. <p><u>Information Sources</u></p> <ul style="list-style-type: none">• Bird Studies Canada• Ontario Nature• Local birders and naturalist club• Ontario Important Bird Areas (IBA) Program	<p>Studies confirm:</p> <ul style="list-style-type: none">• Use of the woodlot by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant.• Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques. <p>Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi}</p> <ul style="list-style-type: none">• SWHMiST^{cxlix} Index #9 provides development effects and mitigation measures.	Study area is not within 5km of Lake Ontario.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Deer Yarding Areas					Not Present	Not Present
<p><u>Rationale:</u> Winter habitat for deer is considered to be the main factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.</p>	White-tailed Deer	<p>Note: OMNRF to determine this habitat.</p> <p>ELC Community Series providing a thermal cover component for a deer yard would include: FOM, FOC, SWM and SWC.</p> <p>Or these ELC Ecosites: CUP2 CUP3 FOD3 CUT</p>	<ul style="list-style-type: none">Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter.The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%^{cxciiv}.OMNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual”^{cxcv}Woodlots with high densities of deer due to artificial feeding are not significant.	<p>No Studies Required:</p> <ul style="list-style-type: none">Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH^{lvi, lvii, lviii, lix, lx, l}.Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO).Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations^{cxcv}.If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.SWHMIST^{cxlix} Index #2 provides development effects and mitigation measures.	No deer yarding areas identified by OMNRF in the study area.	
Wildlife Habitat: Deer Winter Congregation Areas					Not Present	Not Present
<p><u>Rationale:</u> Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions^{cxlviii}</p>	White-tailed Deer	<p>All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD</p> <p>Conifer plantations much smaller than 50ha may also be used.</p>	<ul style="list-style-type: none">Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment.Deer movement during winter in the southern areas of Eco-region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands^{cxlviii}.If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule.Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha^{ccxxiv}.Woodlots with high densities of deer due to artificial feeding are not significant. <p><u>Information Sources</u></p> <ul style="list-style-type: none">MNRF District OfficesLIO/NRVIS	<p>Studies confirm:</p> <ul style="list-style-type: none">Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF^{cxlviii}.Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRⁱ.Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques^{ccxxiv}, ground or road surveys, or a pellet count deer density survey^{ccxxv}.If a SWH is determined for Deer Wintering Area of if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.SWHMIST^{cxlix} Index #2 provides development effects and mitigation measures.	No deer winter congregation areas identified by OMNRF in the study area.	

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Cliff and Talus Slopes					Not Present	Not Present
Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information on their website • Local naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes ^{lxxxviii} • SWHMiST ^{cxlix} Index #21 provides development effects and mitigation measures.		
Sand Barrens					Not Present	Not Present
Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	Any sand barren area, >0.5ha in size. <u>Information Sources</u> • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens ^{lxxxviii} • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) ^l . • SWHMiST ^{cxlix} Index #20 provides development effects and mitigation measures.		

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Alvar					Not Present	Not Present
<p>Rationale: Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregion 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.</p>	<p>ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2</p> <p>Five Alvar</p> <p>Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleochoirs compressa 4) Scutellaria parvula 5) Trichostema branchiatum</p> <p>These indicator species are very specific to Alvars within Ecoregion 6E</p>	<p>An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoo geographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover^{lxxxviii}.</p>	<p>An Alvar site > 0.5 ha in size^{lxxxv}.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none">• Alvars of Ontario (2000), Federation of Ontario Naturalists^{lxxxvi}.• Ontario Nature – Conserving Great Lakes Alvars^{ccviii}.• Natural Heritage Information Center (NHIC) has location information on their website• Field Naturalist clubs• Conservation Authorities	<p>Field studies identify four of the five Alvar indicator species^{lxxxv, cxlix} at a Candidate Alvar site is Significant.</p> <ul style="list-style-type: none">• Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp.).• The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses^{lxxxv}.• SWHMiST^{cxlix} Index #17 provides development effects and mitigation measures.		
Old Growth Forest					Not Present	Not Present
<p>Rationale: Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.</p>	<p>Forest Community Series: FOD FOC FOM SWD SWC SWM</p>	<p>Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.</p>	<p>Woodland Stands areas 30ha or greater in size or with at least 10 ha interior habitat assuming 100m buffer at edge of forest I.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none">• OMNRF Forest Resource Inventory mapping• OMNRF Forester, Ecologist or Biologist• Field Local naturalist clubs• Conservation Authorities• Sustainable Forestry License (SFL) companies will possibly know locations through field operations.• Municipal forestry departments	<p>Field Studies will determine:</p> <ul style="list-style-type: none">• If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat^{cxlviii}• The stand will have experienced no recognizable forestry activities^{cxlviii}• The area of Forest Ecosites combined to make up the stand is the SWH.• Determine ELC Vegetation Type for forest stand^{lxxxviii}• SWHDSS^{cxlix} Index #23 provides development effects and mitigation measures.		
Savannah					Not Present	Not Present
<p>Rationale: Savannahs are extremely rare habitats in Ontario.</p>	<p>TPS1 TPS2 TPW1 TPW2 CUS2</p>	<p>A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.</p>	<ul style="list-style-type: none">• No minimum size to siteSite must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <p><u>Information Sources</u></p> <ul style="list-style-type: none">• Natural Heritage Information Center (NHIC) has location information on their website• OMNRF Ecologists• Field naturalists clubs• Conservation Authorities	<p>Field studies confirm one or more of the Savannah indicator species listed in^{lxxxv} Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used^{cxlviii}.</p> <ul style="list-style-type: none">• Area of the ELC Ecosite is the SWH.• Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics sp.).• SWHMiST^{cxlix} Index #18 provides development effects and mitigation measures.		

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Tallgrass Prairie					Not Present	Not Present
Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	<ul style="list-style-type: none">• No minimum size to site• Site must be restored or a natural site.• Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> <ul style="list-style-type: none">• OMNR Districts• Natural Heritage Information Center (NHIC) has location information available on their website• Field naturalists clubs• Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in ^{lxv} Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used ^{cxlviii} . <ul style="list-style-type: none">• Area of the ELC Ecosite is the SWH• Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).• SWHMiST^{cxlix} Index #19 provides development effects and mitigation measures.		
Other Rare Vegetation Communities					Not Present	Not Present
Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG ^{cxlviii} . Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M ^{cxlviii} The OMNR/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> <ul style="list-style-type: none">• Natural Heritage Information Center (NHIC) has location information available on their website• OMNRF Districts• Field naturalists clubs• Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG ^{cxlviii} . <ul style="list-style-type: none">• Area of the ELC Vegetation Type polygon is the SWH.• SWHMiST^{cxlix} Index #37 provides development effects and mitigation measures.		

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Nesting Area					Not Present	Not Present
<u>Rationale:</u> Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120m ^{cxlix} from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur ^{cxlix} . • Upland areas should be at least 120m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120m ^{cxlviii} from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST ^{cxlix} Index #25 provides development effects and mitigation measures.	No suitable wetlands and upland habitat present on subject property or in study area.	
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					Not Present	Not Present
<u>Rationale:</u> Nest sites are fairly uncommon in Eco-region 6E are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey <u>Special Concern:</u> Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <u>Information Sources</u> • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. • Check the Ontario Breeding Bird Atlas ^{ccv} or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs. • Field naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area ^{cxlviii} . • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300m radius around the nest or the contiguous woodland stand is the SWHccvii, maintaining undisturbed shorelines with large trees within this area is important ^{cxlviii} . • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH ^{cv} , ccvii. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat ^{cv} . • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant ^{ccvii} • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMiST ^{cxlix} Index #26 provides development effects and mitigation measures	No forested shorelines present on subject property or in study area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Woodland Raptor Nesting Habitat					Not Present	Not Present
<u>Rationale:</u> Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat ^{bxxviii, bxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii} . Interior habitat determined with a 200m buffer ^{cxlviii} . • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Cooper's hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF • Check the Ontario Breeding Bird Atlas ^{ccv} or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada • Reports and other information available from CAs	Studies confirm: • Presence of 1 or more active nests from species list is considered significant ^{cxlviii} . • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28ha area of habitat is the SWH ^{ccvii} . • Barred Owl – a 200m radius around the nest is the SWH ^{ccvii} . • Broad-winged Hawk and Coopers Hawk – a 100m radius around the nest is the SWH ^{ccvii} . • Sharp-shinned Hawk – a 50m radius around the nest is the SWH ^{ccvii} . • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST ^{cxlix} Index #27 provides development effects and mitigation measures.	No large woodland/forest present on subject property or in study area.	
Wildlife Habitat: Turtle Nesting Area					Not Present	Not Present
<u>Rationale:</u> These habitats are rare and when identified will often be the only breeding site for local populations of turtles	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) ^{cxlviii} or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs and landowners	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH ⁱ • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH ^{cxlviii} . • Travel routes from wetland to nesting area are to be considered within the SWH ^{cxlix} . • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST ^{cxlix} Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No suitable natural wetlands on subject property or study area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Seeps and Springs					Not Present	Not Present
<u>Rationale:</u> Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system ^{cxvii, cxlix} • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species ^{cxix, cxx, cxxi, cxvii, cxiii, cxiv} <u>Information Sources</u> • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists clubs and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat ^{cxlviii} • SWHMiST ^{cxlix} Index #30 provides development effects and mitigation measures	No forested areas with seeps/springs on the subject property or within the study area.	
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					Not Present	Possible
<u>Rationale:</u> These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m ² (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size) ^{cxvii} Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat ^{cxlviii} <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) ^{lxxi} or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys ^{cviii} will be required during the spring March-June when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the woodland area plus a 230m radius of woodland area ^{lxxii,lxx, lxxi, lxxv, lxxvi, lxxvii, lxxviii, lxx, lxxi} if a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is the be included in the habitat. • SWHMiST ^{cxlix} Index #14 provides development effects and mitigation measures.	On-site wetland is >500m2 in size and within 120m of FOD5 and may possibly contain gray treefrog, spring peeper and/or wood frog, although a high abundance is unlikely due to the lack of permanent water. Wetland is retained and a link provided to the FOD5 community.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					Not Present	Not Present
<u>Rationale:</u> These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Tree frog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	<ul style="list-style-type: none">Wetlands >500m2 (about 25m diameter)^{ccvii} supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats^{clxxxiv}.Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators.Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> <ul style="list-style-type: none">Ontario Herpetofaunal Summary Atlas (or other similar atlases)Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count.OMNRF Districts and wetland evaluationsReports and other information available from CAs.	<p>Studies confirm:</p> <ul style="list-style-type: none">Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species and with at least 20 individuals (adults or eggs masses)^{lxxxi, lxxxiii}, or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant.The ELC ecosite wetland area and the shoreline are the SWH.A combination of observational study and call count surveys^{cviii} will be required during spring March to June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands.If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.SWHMiST^{cxlix} Index #15 provides development effects and mitigation measures.	No isolated wetlands present on the subject property or adjacent study area lands.	
Woodland Area-Sensitive Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-Bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	<ul style="list-style-type: none">Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.^{cv, cxxxi, cxxxii, cxxxiii, cxxxiv, cxxv, cxxvi, cxxvii, cxxviii, cxxix, cxi, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cli, clii, cliii, cliv, clv, clvii, clviii, clix}Interior forest habitats are at least 200m from forest edge habitat. <u>Information Sources</u> <ul style="list-style-type: none">Local bird clubsCanadian Wildlife Service (CWS) for the location of forest bird monitoring.Bird studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to greatest value to interior speciesReports and other information available from CAs.	<ul style="list-style-type: none">Presence of nesting or breeding pairs of 3 or more of the listed wildlife species.Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.Conduct field investigations in spring and early summer when birds are singing and defending their territories.Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{wccxi}SWHMiST^{cxlix} Index #34 provides development effects and mitigation measures.	No forests with interior habitat are present on the subject property or within the study area.	

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	ELC Ecosites	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Marsh Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan <u>Special Concern:</u> Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	<ul style="list-style-type: none">• Nesting occurs in wetlands• All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present^{cxixiv}.• For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. <u>Information Sources</u> <ul style="list-style-type: none">• Contact OMNRF, wetland evaluations are a good source of information.• Field naturalist clubs• Natural Heritage Information Center (NHIC) Records• Reports and other information available from CAs.• Ontario Breeding Bird Atlas^{ccv}	Studies confirm: <ul style="list-style-type: none">• Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed speciesⁱ.• Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWHⁱ.• Area of the ELC ecosite is the SWH• Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats.• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”^{ccxi}.• SWHMiST^{cxlix} Index #35 provides development effects and mitigation measures	No wetlands with emergent aquatic vegetation are on-site or in study area.	
Wildlife Habitat: Open Country Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow <u>Special Concern:</u> Short-eared Owl	CUM1 CUM2	<p>Large grassland areas (includes natural and cultural fields and meadows) >30 ha^{clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix}. Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years)ⁱ.</p> <p>Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.</p> <p>The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.</p> <u>Information Sources</u> <ul style="list-style-type: none">• Agricultural land classification maps, Ministry of Agriculture.• Ask local birders• Ontario Breeding Bird Atlas^{ccv}• Reports and other information available from CAs.	Field Studies confirm: <ul style="list-style-type: none">• Presence of nesting or breeding of 2 or more of the listed species.• A field with 1 or more breeding Short-eared Owl is to be considered SWH.• The area of SWH is the contiguous ELC ecosite field areas.• Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories.• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”^{ccxi}.• SWHMiST^{cxlix} Index #32 provides development effects and mitigation measures.	No large grassland areas present on-site or in the study area.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	ELC Ecosites	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records cxcix.	<u>Indicator spp.:</u> Brown Thrasher Clay-coloured Sparrow <u>Common spp.:</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats>10ha ^{clxiv} in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) ⁱ . Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species ^{clxxiii} . Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> • Agricultural land classification maps Ministry of Agriculture Local bird clubs • Ontario Breeding Bird Atlas ^{ccv} • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species ⁱ . • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMiST ^{cxlix} Index #33 provides development effects and mitigation measures.	No successional shrub and thicket habitats on-site or in the study area.	
Wildlife Habitat: Terrestrial Crayfish					Not Present	Not Present
<u>Rationale:</u> Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. ^{ccii}	Chimney or Digger Crayfish: (<i>Fallicambarus fodiens</i>) Devil Crawfish or Meadow Crayfish: (<i>Cambarus Diogenes</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from “Conservation Status of Freshwater Crayfishes” by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites ^{cci} • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August during in temporary or permanent water Note the presence of burrows or chemistry are often the only indicator of presence, observance or collection of individuals is very difficult ^{cci} • SWHMiST ^{cxlix} Index #36 provides development effects and mitigation measures.	No suitable wetlands present on-site or in study area. Soils on-site are granular and contain stones, cobbles - not suitable for burrows.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	ELC Ecosites	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Special Concern and Rare Wildlife Species					Candidate	Not Present
<u>Rationale:</u> These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites ^{lxviii} . <u>Information Sources</u> <ul style="list-style-type: none">• Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data.• NHIC Website: "Get Information": http://nhic.mnr.gov.on.ca• Ontario Breeding Bird Atlas^{ccv}• Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: <ul style="list-style-type: none">• Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable.• The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.• SWHMiST^{cxlix} Index #37 provides development effects and mitigation measures.	Special concern species Eastern Wood Pewee has been documented in the study area (Aboud 2014) and the adjacent FOD provides suitbale breeding habitat.	

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Movement Corridors					Not Present	Possible
Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat ^{clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi} . Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule ^l . <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center NHIC • Reports and other information available from CAs • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant ^{cxlix} . • Corridors should have at least 15m of vegetation on both sides of waterway ^{cxlix} or be up to 200m wide ^{cxlix} of woodland habitat and with gaps <20m ^{cxlix} . • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat ^{cxlix} . • SWHMiST ^{cxlix} Index #40 provides development effects and mitigation measures.	Amphibian breeding habitat is possibly present in the on-site wetlands. A movement corridor may exist between the wetlands and the woodland on adjacent lands. Wetland, woodland and corridor are retained.	
Wildlife Habitat: Deer Movement Corridors					Not Present	Not Present
Rationale: Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule ^l . • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion ^{clxxxii, clxxxiii, cxlix, cxliv} . • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from CAs • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering yard should be unbroken by roads and residential areas. • Corridors should be at least 200m wide ^{cxlix} with gaps <20m ^{cxlix} and if following riparian area with at least 15m of vegetation on both sides of waterway ^{cxlix} . Shorter corridors are more significant than longer corridors ^{cxlix} . • SWHMiST ^{cxlix} Index #39 provides development effects and mitigation measures.	Deer wintering habitat is not present.	

Significant Wildlife Habitat Assessment Tables

Table 6. Exceptions for Ecodistricts within Ecoregion 6E.

Rationale	Candidate SWH				Confirmed SWH	Assessment Details	
	Wildlife Habitat and Species	Ecosites	Habitat Description	Habitat Criteria and Information Sources ¹	Defining Criteria ¹	Study Area	Subject Property
EcoDistrict: 6E-14							Not Present
<u>Rationale:</u> The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracks with mast producing tree species is important for bears. ^{clxxxvi, ccxvii}	Mast Producing Areas Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	<ul style="list-style-type: none">Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species. ^{clxxxv, clxxxvii, clxxxviii, clxxxix, cxc, cxci, cxcii, cxci, ccxvii}Forested habitats need to be large enough to provide cover and protection for black bears ^{ccxvii.}	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech), Information Sources Important forest habitat for black bears may be identified by OMNRF.	<ul style="list-style-type: none">All woodlands > 30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5SWHMiST ^{cxlix} Index #3 provides development effects and mitigation measures.	NA	Not Present
EcoDistrict: 6E-17							Not Present
<u>Rationale:</u> Sharp-tailed grouse only occur on Manitoulin Island in Ecoregion 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	<ul style="list-style-type: none">The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography^{ccxix}.Leks are typically a grassy field/meadow >15h with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. ^{ccxix}	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland ^{ccxix} . <ul style="list-style-type: none">Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying)Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting^{ccxix} Information Sources <ul style="list-style-type: none">OMNRF district officeBird watching clubsLocal landownersOntario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. <ul style="list-style-type: none">Any site confirmed with sharp-tailed grouse courtship activities is considered significantThe field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitatSWHMiST ^{cxlix} Index #32 provides development effects and mitigation measures	NA	Not Present

Appendix II
Plant Species List

Plant Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Wellington County*	Aboud & Associates (2014)	NHIC Data*	NRSI Observed
		NDMNR 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	Dougan & Associates 2009	Citation	NDMNR 2022	NRSI Results From 2022
Pteridophytes	Ferns & Allies									
Equisetaceae	Horsetail Family									
<i>Equisetum pratense</i>	Meadow Horsetail	S5					R	X		
Gymnosperms	Conifers									
Cupressaceae	Cypress Family									
<i>Thuja occidentalis</i>	Eastern White Cedar	S5						X		X
Pinaceae	Pine Family									
<i>Picea abies</i>	Norway Spruce	SE3								X
<i>Picea glauca</i>	White Spruce	S5						X		X
<i>Picea pungens</i>	Blue Spruce	SE1								X
<i>Pinus strobus</i>	Eastern White Pine	S5								X
<i>Pinus sylvestris</i>	Scots Pine	SE5						X		X
<i>Tsuga canadensis</i>	Eastern Hemlock	S5								X
Dicotyledons	Dicots									
Aceraceae	Maple Family									
<i>Acer negundo</i>	Manitoba Maple	S5						X		X
<i>Acer saccharinum</i>	Silver Maple	S5						X		
<i>Acer saccharum</i>	Sugar Maple	S5								X
Anacardiaceae	Sumac or Cashew Family									
<i>Rhus typhina</i>	Staghorn Sumac	S5						X		X
Apiaceae	Carrot or Parsley Family									
<i>Daucus carota</i>	Wild Carrot	SE5						X		X
Asclepiadaceae	Milkweed Family									
<i>Asclepias syriaca</i>	Common Milkweed	S5						X		
Asteraceae	Composite or Aster Family									
<i>Achillea millefolium</i>	Common Yarrow	SE5?								X
<i>Arctium minus</i>	Common Burdock	SE5						X		
<i>Cirsium arvense</i>	Creeping Thistle	SE5						X		
<i>Erigeron annuus</i>	Annual Fleabane	S5						X		X
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5						X		
<i>Eupatorium perfoliatum</i>	Common Boneset	S5						X		
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	S5								X
<i>Hieracium vulgatum</i>	Common Hawkweed	SE2?								X
<i>Solidago canadensis</i>	Canada Goldenrod	S5								X
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	S5								X
<i>Solidago nemoralis</i>	Gray-stemmed Goldenrod	S5								X
<i>Sonchus arvensis</i> ssp. <i>arvensis</i>	Glandular Field Sow-thistle	SE5						X		
<i>Sonchus asper</i>	Prickly Sow-thistle	SE5								X
<i>Symphyotrichum boreale</i>	Rush Aster	S5						X		
<i>Symphyotrichum novae-angliae</i>	New England Aster	S5						X		X
<i>Symphyotrichum puniceum</i>	Swamp Aster	S5						X		
<i>Tanacetum vulgare</i>	Common Tansy	SE5						X		
<i>Taraxacum officinale</i>	Common Dandelion	SE5						X		
<i>Tragopogon pratensis</i>	Meadow Goat's-beard	SE5						X		
<i>Tussilago farfara</i>	Colt's-foot	SE5								X
Betulaceae	Birch Family									
<i>Betula papyrifera</i>	Paper Birch	S5						X		X
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	S5								X
Boraginaceae	Borage Family									
<i>Echium vulgare</i>	Common Viper's Bugloss	SE5								X
<i>Myosotis scorpioides</i>	True Forget-me-not	SE5						X		
Brassicaceae	Mustard Family									
<i>Alliaria petiolata</i>	Garlic Mustard	SE5						X		
Caprifoliaceae	Honeysuckle Family									
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	SE5						X		X
<i>Viburnum opulus</i> var. <i>americanum</i>	Highbush Cranberry	S5						X		
Caryophyllaceae	Pink Family									
<i>Silene vulgaris</i>	Bladder Campion	SE5						X		
Cornaceae	Dogwood Family									

<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	S5						X		X
<i>Cornus sericea</i>	Red-osier Dogwood	S5						X		X
Cucurbitaceae	Gourd Family									
<i>Echinocystis lobata</i>	Wild Mock-cucumber	S5						X		
Elaeagnaceae	Oleaster Family									
<i>Elaeagnus angustifolia</i>	Russian Olive	SE3								X
Fabaceae	Pea Family									
<i>Glycine max</i>	Soy Bean	SE2						X		
<i>Medicago lupulina</i>	Black Medic	SE5						X		
<i>Medicago sativa</i>	Alfalfa	SE5								X
<i>Medicago albus</i>	White Sweet-clover	SE5								X
<i>Trifolium pratense</i>	Red Clover	SE5								X
<i>Vicia cracca</i>	Tufted Vetch	SE5								X
Grossulariaceae	Currant Family									
<i>Ribes triste</i>	Swamp Red Currant	S5						X		
Juglandaceae	Walnut Family									
<i>Carya cordiformis</i>	Bitternut Hickory	S5								X
<i>Juglans nigra</i>	Black Walnut	S4?								X
Lamiaceae	Mint Family									
<i>Leonurus cardiaca</i>	Common Motherwort	SE5						X		
<i>Lycopus americanus</i>	American Water-horehound	S5						X		
<i>Mentha canadensis</i>	Canada Mint	S5						X		
Oleaceae	Olive Family									
<i>Fraxinus americana</i>	White Ash	S4						X		X
Onagraceae	Evening-primrose Family									
<i>Circaea canadensis</i> ssp. <i>canadensis</i>	Canada Enchanter's Nightshade	S5						X		
<i>Oenothera parviflora</i>	Small-flowered Evening-primrose	S5								X
Oxalidaceae	Wood Sorrel Family									
<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	SE5						X		
Papaveraceae	Poppy Family									
<i>Chelidonium majus</i>	Greater Celandine	SE5						X		
Plantaginaceae	Plantain Family									
<i>Plantago lanceolata</i>	English Plantain	SE5								X
Polygonaceae	Smartweed Family									
<i>Rumex crispus</i>	Curly Dock	SE5								X
Ranunculaceae	Buttercup Family									
<i>Anemonastrum canadense</i>	Canada Anemone	S5						X		
<i>Ranunculus acris</i>	Tall Buttercup	SE5						X		
<i>Ranunculus pensylvanicus</i>	Pennsylvania Buttercup	S5						X		
Rhamnaceae	Buckthorn Family									
<i>Endotropis alnifolia</i>	Alder-leaved Buckthorn	S5						X		
<i>Frangula alnus</i>	Glossy Buckthorn	SE5								x
<i>Rhamnus cathartica</i>	Common Buckthorn	SE5						X		X
Rosaceae	Rose Family									
<i>Crataegus</i> sp.	Hawthorn sp.									X
<i>Fragaria vesca</i>	Woodland Strawberry	S5						X		
<i>Fragaria virginiana</i>	Wild Strawberry	S5						X		X
<i>Geum laciniatum</i>	Rough Avens	S4					R	X		
<i>Malus pumila</i>	Common Apple	SE4						X		
<i>Physocarpus opulifolius</i>	Eastern Ninebark	S5								X
<i>Potentilla recta</i>	Sulphur Cinquefoil	SE5						X		
<i>Prunus avium</i>	Sweet Cherry	SE4								X
<i>Prunus serotina</i>	Black Cherry	S5						X		X
<i>Prunus virginiana</i>	Choke Cherry	S5						X		
<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Wild Red Raspberry	S5						X		X
Rubiaceae	Madder Family									
<i>Galium asprellum</i>	Rough Bedstraw	S5						X		
<i>Galium palustre</i>	Marsh Bedstraw	S5						X		
Salicaceae	Willow Family									
<i>Populus alba</i>	White Poplar	SE5						X		
<i>Populus balsamifera</i>	Balsam Poplar	S5						X		X
<i>Populus deltoides</i>	Eastern Cottonwood	S5								X
<i>Populus tremuloides</i>	Trembling Aspen	S5						X		X
<i>Salix amygdaloides</i>	Peach-leaved Willow	S5						X		
<i>Salix eriocephala</i>	Heart-leaved Willow	S5						X		X
<i>Salix interior</i>	Sandbar Willow	S5								X
Scrophulariaceae	Figwort Family									

<i>Linaria vulgaris</i>	Butter-and-eggs	SE5						X		
<i>Verbascum thapsus</i>	Common Mullein	SE5								X
Solanaceae	Nightshade Family									
<i>Solanum dulcamara</i>	Bittersweet Nightshade	SE5						X		X
Tiliaceae	Linden Family									
<i>Tilia americana</i>	American Basswood	S5								X
Ulmaceae	Elm Family									
<i>Ulmus americana</i>	American Elm	S5						X		X
Vitaceae	Grape Family									
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	S4?						X		
<i>Parthenocissus vitacea</i>	Thicket Creeper	S5						X		
<i>Vitis riparia</i>	Riverbank Grape	S5						X		X
Monocotyledons	Monocots									
Cyperaceae	Sedge Family									
<i>Carex bebbii</i>	Bebb's Sedge	S5						X		
<i>Carex torreyi</i>	Torrey's Sedge	S2						X		
<i>Carex viridula</i>	Greenish Sedge	S5						X		
Poaceae	Grass Family									
<i>Bromus inermis</i>	Smooth Brome	SE5						X		X
<i>Dactylis glomerata</i>	Orchard Grass	SE5						X		X
<i>Elymus trachycaulus</i>	Slender Wildrye	S5						X		
<i>Miscanthus sinensis</i>	Chinese Silver Grass									X
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5						X		X
<i>Phragmites australis ssp. australis</i>	European Reed	SE5								X
<i>Poa pratensis</i>	Kentucky Bluegrass	S5						X		X
Typhaceae	Cattail Family									
<i>Typha latifolia</i>	Broad-leaved Cattail	S5						X		
TOTAL								75	0	62

*NHIC Atlas Square(s): 17NJ6912

References

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

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Oct 14/22

2984

Wellington

EG

Motor Freight

10-1230

5°C, overcast, breezy

blue jay

black-b. vireo

woodland at back of property

g. c. kinglet

- on a hill, steep undulating

r. t. hawk

topography, complex

Am. crow

- appears to be grading on site

cardinal

- to near fence line, still fence along

Am. robin

woodland edge (old)

red-b. woodpecker

- woods are rocky.

m. dove

- large bitterroot, hickory, sugar maple, beech

scattered, buckthorn down in understory

- dead ash in canopy + subcanopy

- mixed composition, lots of variability, open

areas, aspen stands, etc.

- no woodland within 30m of subject property

to East of property

wet spot in ag field - not woodland, cultivated

see photo

FIELD (S)



wellington motor freight -
wetlands

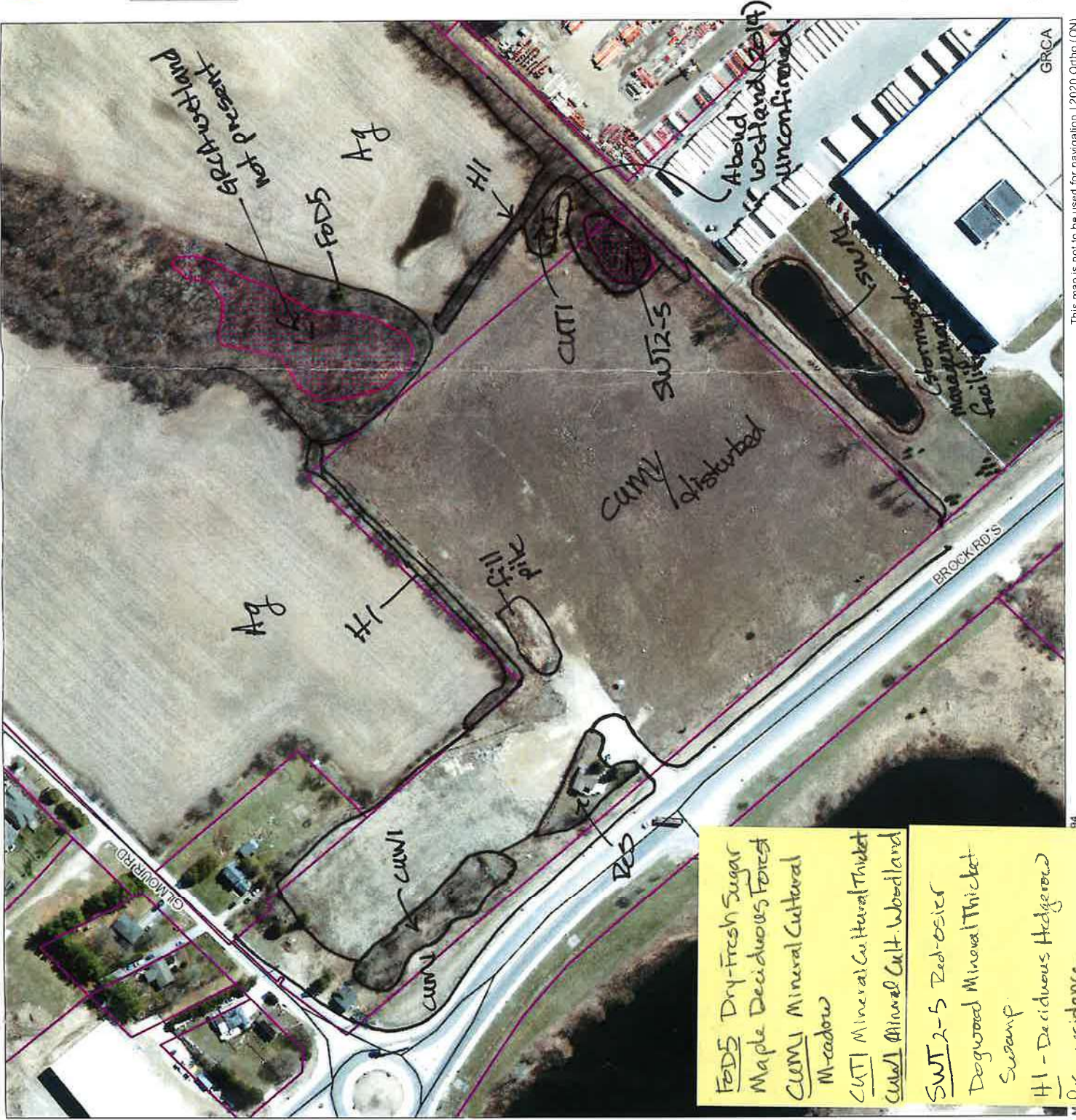
2984

Legend

- Regulation Limit (GRCA)
 - Regulated Watercourse (GRCA)
 - Wetland (GRCA)
 - Floodplain (GRCA)
 - Engineered
 - Estimated
 - Approximate
 - Special Policy Area
 - Slope Valley (GRCA)
 - Slope
 - Oversteep
 - Steep
 - Slope Erosion (GRCA)
 - Oversteep
 - Toe
 - Lake Erie Flood (GRCA)
 - Lake Erie Shoreline Reach (GRCA)
 - Lake Erie Dynamic Beach (GRCA)
 - Lake Erie Erosion (GRCA)
 - Parcel - Assessment (MPAC/MNRF)
- This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

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Disclaimer: This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.
The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to <https://maps.grandriverconservationauthority.com/Citations.pdf>

Scale: 2:779
N
0 15 30 60 90 Meters
NAD 1983 UTM Zone 17N



FODS Dry-Fresh Sugar
Maple Deciduous Forest
CUT1 Mineral Cultural
Meadow
CUT1 Mineral Cultural Thicket
CUT1 Mineral Cult. Woodland
SWT2-5 Red-osier
Disturbed Mineral Thicket
Swamp
H1 - Deciduous Hedgerow
RGS - Residence
Ag - Agricultural Field

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

Site: 2984 Wellington Motorway Jct

Polygon: 

UTM: _____

Date: 09/14/22 Time: 10-1230

Surveyor(s): E. Gossnell

Weather: 50% overcast

Community Classification

Vegetation Type: FDS

Inclusion: _____

Complex: _____

System		Substrate	Topo Feature	Community
<input checked="" type="checkbox"/> Terrestrial	<input checked="" type="checkbox"/> Organic	Lacustrine	Talus	Lake
<input type="checkbox"/> Wetland	<input checked="" type="checkbox"/> Mineral Soil	Riverine	Crevices/Cave	Pond
<input type="checkbox"/> Aquatic	<input type="checkbox"/> Parent Mn.	Bottomland	Alvar	River
	<input type="checkbox"/> Acidic Bedrock	Terrace	Rockland	Stream
	<input type="checkbox"/> Basic Bedrock	Valley Slope	Beachbar	Marsh
	<input checked="" type="checkbox"/> Carb. Bedrock	Tableland	Sand Dune	Swamp
	<input type="checkbox"/> Crib	Rock Upland	Bluff	Fen
	<input type="checkbox"/> Cliff			Bog
	<input type="checkbox"/> Plant Form			Coniferous
<input type="checkbox"/> Open	<input type="checkbox"/> Open Water	Random	Forb	Mixed
<input type="checkbox"/> Shrub	<input type="checkbox"/> Shallow Water	Submerged	Lichen	
<input checked="" type="checkbox"/> Tree	<input checked="" type="checkbox"/> Surficial Dep.	Floating-Lvld.	Bryophyte	
	<input type="checkbox"/> Bedrock	Graminoid	Deciduous	
	<input type="checkbox"/> Site			
	<input type="checkbox"/> Open Water			
	<input type="checkbox"/> Shallow Water			
	<input checked="" type="checkbox"/> Surficial Dep.			
	<input type="checkbox"/> Bedrock			

Stand Description

Layer	HT	Cover	Species
Super-canopy			
1 Canopy	2	4	bitternut hickory, sugar maple
2 Sub-canopy	3	3	sugar maple, buckthorn, w. ash
3 Understorey	3	4	buckthorn
4 Groundcover	6	3	buckthorn, leucosceles

HT Codes: 1: >25m 2: 25-10m 3: 10-2m 4: 2-1m 5: 1-0.5m 6: 0.5-0.2m 7: <0.2m

Cover Codes: 0: none 1: 0-10% 2: 10-25 3: 25-50% 4: >50%

Size Class Analysis	A	< 10	10-24	25-50	> 50
Snags	0	< 10	0	25-50	0
Deadfall Logs	0	< 10	0	25-50	0

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth

Page ____ of ____

Site:	
Polygon:	
JTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Abundance Codes:	Rare / Occasional / Abundant				Sample
	1	2	3	4	
Species					
hill out broken					
swampy					
bed channel					
with elbow					
with ash					
framing a square					
black oak					
buried					
immersed					
can't lock					
it had damaged					
hickory					
hazelnut					
blackberry					
red in ground					

Copy:

Wildlife and Other Notes

grey squirrel
dec (skull)

Polygon Photo Number(s)

Appendix III
Bird Species List

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Aboud and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Aboud 2014	BSC et al. 2006	MNRF 2022	NRSI Results from 2022
Anatidae	Ducks, Geese & Swans									
<i>Aix sponsa</i>	Wood Duck	S5B,S3N						CO		
<i>Anas platyrhynchos</i>	Mallard	S5						CO		
<i>Anas rubripes</i>	American Black Duck	S4						CO		
<i>Branta canadensis</i>	Canada Goose	S5						CO		
Phasianidae	Partridges, Grouse & Turkeys									
<i>Bonasa umbellus</i>	Ruffed Grouse	S5						CO		
<i>Meleagris gallopavo</i>	Wild Turkey	S5					PR	PO		
Podicipediformes	Grebes									
<i>Podilymbus podiceps</i>	Pied-billed Grebe	S4B,S2N						PO		
Columbidae	Pigeons & Doves									
<i>Columba livia</i>	Rock Pigeon	SNA						CO		
<i>Zenaidura macroura</i>	Mourning Dove	S5					PO	CO		OB
Cuculiformes	Cuckoos & Anis									
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	S4S5B						PO		
<i>Coccyzus sp.</i>	Black/Yellow-billed Cuckoo	NP						PO		
Caprimulgidae	Goatsuckers									
<i>Chordeiles minor</i>	Common Nighthawk	S4B	SC	SC	T	Schedule 1		PO		
Apodidae	Swifts									
<i>Chaetura pelagica</i>	Chimney Swift	S3B	THR	T	T	Schedule 1		PO		
Trochilidae	Hummingbirds									
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	S5B						CO		
Rallidae	Rails, Gallinules & Coots									
<i>Porzana carolina</i>	Sora	S5B						PR		
<i>Rallus limicola</i>	Virginia Rail	S4S5B						PR		
Charadriidae	Plovers & Lapwings									
<i>Charadrius vociferus</i>	Killdeer	S4B						CO		
Scolopacidae	Sandpipers & Allies									
<i>Actitis macularia</i>	Spotted Sandpiper	S5B						PR		
<i>Gallinago delicata</i>	Wilson's Snipe	S5B						PO		
<i>Scolopax minor</i>	American Woodcock	S4B						PR		
Ardeidae	Hérons & Bitterns									
<i>Ardea herodias</i>	Great Blue Heron	S4						PO		
<i>Botaurus lentiginosus</i>	American Bittern	S5B						PR		
<i>Butorides virescens</i>	Green Heron	S4B						PR		
Cathartidae	Vultures									
<i>Cathartes aura</i>	Turkey Vulture	S5B,S3N						PR		
Accipitridae	Hawks, Kites, Eagles & Allies									
<i>Accipiter cooperii</i>	Cooper's Hawk	S4	NAR	NAR	NS	No schedule		CO		
<i>Accipiter striatus</i>	Sharp-shinned Hawk	S5	NAR	NAR	NS	No schedule		PO		
<i>Buteo jamaicensis</i>	Red-tailed Hawk	S5	NAR	NAR	NS	No schedule		CO		OB
<i>Buteo platypterus</i>	Broad-winged Hawk	S5B						PR		
Strigidae	Typical Owls									
<i>Asio otus</i>	Long-eared Owl	S4						PR		
<i>Bubo virginianus</i>	Great Horned Owl	S4						CO		
<i>Megascops asio</i>	Eastern Screech-Owl	S4	NAR	NAR	NS	No schedule		PR		

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Aboud and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
Alcedinidae	Kingfishers									
<i>Megaceryle alcyon</i>	Belted Kingfisher	S5B,S4N						PR		
Picidae	Woodpeckers									
<i>Colaptes auratus</i>	Northern Flicker	S5					PR	CO		
<i>Dryobates pubescens</i>	Downy Woodpecker	S5						CO		
<i>Dryobates villosus</i>	Hairy Woodpecker	S5						PR		
<i>Dryocopus pileatus</i>	Pileated Woodpecker	S5						CO		
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	S5						PR		OB
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3	END	E	E	Schedule 1		PR		
Falconidae	Caracaras & Falcons									
<i>Falco sparverius</i>	American Kestrel	S4						CO		
Tyrannidae	Tyrant Flycatchers									
<i>Contopus virens</i>	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	PO	PR		
<i>Empidonax alnorum</i>	Alder Flycatcher	S5B						PR		
<i>Empidonax minimus</i>	Least Flycatcher	S5B						PO		
<i>Empidonax traillii</i>	Willow Flycatcher	S4B						PR		
<i>Myiarchus crinitus</i>	Great Crested Flycatcher	S5B					PO	CO		
<i>Sayornis phoebe</i>	Eastern Phoebe	S5B						CO		
<i>Tyrannus tyrannus</i>	Eastern Kingbird	S4B					PO	CO		
Vireonidae	Vireos									
<i>Vireo gilvus</i>	Warbling Vireo	S5B					PR	CO		
<i>Vireo olivaceus</i>	Red-eyed Vireo	S5B					PO	CO		
<i>Vireo solitarius</i>	Blue-headed Vireo	S5B						PR		
Corvidae	Crows & Jays									
<i>Corvus brachyrhynchos</i>	American Crow	S5						CO		OB
<i>Cyanocitta cristata</i>	Blue Jay	S5					PR	CO		OB
Alaudidae	Larks									
<i>Eremophila alpestris</i>	Horned Lark	S4						PR		
Hirundinidae	Swallows									
<i>Hirundo rustica</i>	Barn Swallow	S4B	THR	SC	T	Schedule 1	OB	CO		
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	S4S5B						PR		
<i>Riparia riparia</i>	Bank Swallow	S4B	THR	T	T	Schedule 1	OB	CO		
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	S4B					OB	PR		
<i>Tachycineta bicolor</i>	Tree Swallow	S4S5B						CO		
Paridae	Chickadees & Titmice									
<i>Poecile atricapillus</i>	Black-capped Chickadee	S5					PO	CO		OB
Sittidae	Nuthatches									
<i>Sitta canadensis</i>	Red-breasted Nuthatch	S5						CO		
<i>Sitta carolinensis</i>	White-breasted Nuthatch	S5						PO		
Certhiidae	Creepers									
<i>Certhia americana</i>	Brown Creeper	S5						PO		
Troglodytidae	Wrens									
<i>Cistothorus palustris</i>	Marsh Wren	S4B,S3N						PO		
<i>Cistothorus stellaris</i>	Sedge Wren	S4B	NAR	NAR	NS	No schedule		PO		
<i>Troglodytes aedon</i>	House Wren	S5B						CO		
<i>Troglodytes hiemalis</i>	Winter Wren	S5B,S4N						CO		
Regulidae	Kinglets									
<i>Regulus satrapa</i>	Golden-crowned Kinglet	S5								OB
Turdidae	Thrushes									

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Abound and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
<i>Catharus fuscescens</i>	Veery	S5B						CO		
<i>Hylocichla mustelina</i>	Wood Thrush	S4B	SC	T	T	Schedule 1		CO		
<i>Sialia sialis</i>	Eastern Bluebird	S5B,S4N	NAR	NAR	NS	No schedule		CO		
<i>Turdus migratorius</i>	American Robin	S5					CO	CO		OB
Mimidae	Mockingbirds, Thrashers & Allies									
<i>Dumetella carolinensis</i>	Gray Catbird	S5B,S3N					PR	CO		
<i>Mimus polyglottos</i>	Northern Mockingbird	S4						PR		
<i>Toxostoma rufum</i>	Brown Thrasher	S4B						PR		
Sturnidae	Starlings									
<i>Sturnus vulgaris</i>	European Starling	SNA					CO	CO		
Bombycillidae	Waxwings									
<i>Bombycilla cedrorum</i>	Cedar Waxwing	S5					PR	PR		
Passeridae	Old World Sparrows									
<i>Passer domesticus</i>	House Sparrow	SNA						CO		
Fringillidae	Finches & Allies									
<i>Haemorhous mexicanus</i>	House Finch	SNA					PO	CO		
<i>Haemorhous purpureus</i>	Purple Finch	S5						PO		
<i>Spinus pinus</i>	Pine Siskin	S5						CO		
<i>Spinus tristis</i>	American Goldfinch	S5					PR	PR		
Emberizidae	New World Sparrows & Allies									
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1		PR		
<i>Junco hyemalis</i>	Dark-eyed Junco	S5								OB
<i>Melospiza georgiana</i>	Swamp Sparrow	S5B,S4N						CO		
<i>Melospiza melodia</i>	Song Sparrow	S5					PR	CO		
<i>Passerculus sandwichensis</i>	Savannah Sparrow	S5B,S3N						CO		
<i>Passerella iliaca</i>	Fox Sparrow	S5B,S3N								OB
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	S4B,S3N						PR		
<i>Poocetes gramineus</i>	Vesper Sparrow	S4B						PO		
<i>Spizella pallida</i>	Clay-colored Sparrow	S4B						CO		
<i>Spizella passerina</i>	Chipping Sparrow	S5B,S3N					PR	CO		
<i>Spizella pusilla</i>	Field Sparrow	S4B,S3N					PR	CO		
<i>Zonotrichia albicollis</i>	White-throated Sparrow	S5						PR		OB
Icteridae	Troupials & Allies									
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	S5					CO	CO		
<i>Dolichonyx oryzivorus</i>	Bobolink	S4B	THR	SC	T	Schedule 1		CO		
<i>Icterus galbula</i>	Baltimore Oriole	S4B					PO	CO		
<i>Icterus spurius</i>	Orchard Oriole	S4B						CO		
<i>Molothrus ater</i>	Brown-headed Cowbird	S5					PO	CO		
<i>Quiscalus quiscula</i>	Common Grackle	S5					CO	CO		
<i>Sturnella magna</i>	Eastern Meadowlark	S4B,S3N	THR	T	T	Schedule 1		CO		
Parulidae	Wood Warblers									
<i>Geothlypis philadelphia</i>	Mourning Warbler	S5B						PO		
<i>Geothlypis trichas</i>	Common Yellowthroat	S5B,S3N						PR		
<i>Leiostyris albidicapilla</i>	Nashville Warbler	S5B						PO		
<i>Mniotilta varia</i>	Black-and-white Warbler	S5B						PR		
<i>Parkesia noveboracensis</i>	Northern Waterthrush	S5B						PR		
<i>Seiurus aurocapilla</i>	Ovenbird	S5B						PR		
<i>Setophaga coronata</i>	Yellow-rumped Warbler	S5B,S4N						PO		
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	S5B						PR		

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Aboud and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
<i>Setophaga petechia</i>	Yellow Warbler	S5B					PR	CO		
<i>Setophaga pinus</i>	Pine Warbler	S5B,S3N						CO		
<i>Setophaga ruticilla</i>	American Redstart	S5B					PR	PO		
<i>Setophaga virens</i>	Black-throated Green Warbler	S5B						CO		
<i>Vermivora cyanoptera</i>	Blue-winged Warbler	S4B						CO		
<i>Vermivora sp.</i>	Blue-winged/Golden-winged Warbler	NP						PR		
Cardinalidae	Cardinals, Grosbeaks & Allies									
<i>Cardinalis cardinalis</i>	Northern Cardinal	S5						CO		OB
<i>Passerina cyanea</i>	Indigo Bunting	S5B						CO		
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	S5B					PO	CO		
<i>Piranga olivacea</i>	Scarlet Tanager	S5B						PO		
Total							29	114	0	12

*OBBA Atlas Square: 17TNJ61

**NHIC Atlas Square: 17NJ6912

References

Ministry of Natural Resources and Forestry (MNR). 2022. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.

All Species List Updated: 2022-04-11. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

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Government of Canada. 2022. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2022-05-11.

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

Appendix IV
Reptiles and Amphibians Species Lists

Reptile and Amphibian Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	ORAA*	NHIC Data**
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Ontario Nature 2019	MNRF 2022
Turtles								
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1	X	
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1	X	
<i>Emydoidea blandingii</i>	Blanding's Turtle (Great Lakes / St. Lawrence)	S3	THR	E	E	Schedule 1	X	
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	X	
<i>Trachemys scripta</i>	Pond Slider	SNA					X	
Snakes								
<i>Lampropeltis triangulum</i>	Milksnake	S4	NAR	SC	SC	Schedule 1	X	
<i>Nerodia sipedon sipedon</i>	Northern Watersnake	S5	NAR	NAR	NS	No schedule	X	
<i>Storeria dekayi</i>	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule	X	
<i>Storeria occipitomaculata</i>	Red-bellied Snake	S5					X	
<i>Thamnophis sauritus septentrionalis</i>	Northern Ribbonsnake	S4	SC	SC	SC	Schedule 1	X	
<i>Thamnophis sirtalis sirtalis</i>	Eastern Gartersnake	S5					X	
Salamanders								
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	S2	END	E	E	Schedule 1	X	
<i>Ambystoma laterale</i>	Blue-spotted Salamander	S4					X	
<i>Ambystoma maculatum</i>	Spotted Salamander	S4					X	
<i>Hemidactylium scutatum</i>	Four-toed Salamander	S4	NAR	NAR	NS	No schedule	X	
<i>Notophthalmus viridescens viridescens</i>	Red-spotted Newt	S5					X	

Reptile and Amphibian Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	ORAA*	NHIC Data**
<i>Plethodon cinereus</i>	Eastern Red-backed Salamander	S5					X	
Frogs and Toads								
<i>Anaxyrus americanus</i>	American Toad	S5					X	
<i>Dryophytes versicolor</i>	Gray Treefrog	S5					X	
<i>Pseudacris triseriata pop. 2</i>	Western Chorus Frog (Great Lakes / St. L	S4	NAR	T	T	Schedule 1	X	
<i>Pseudacris crucifer</i>	Spring Peeper	S5					X	
<i>Lithobates catesbeianus</i>	American Bullfrog	S4					X	
<i>Lithobates clamitans</i>	Green Frog	S5					X	
<i>Lithobates palustris</i>	Pickereel Frog	S4	NAR	NAR	NS	No schedule	X	
<i>Lithobates pipiens</i>	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule	X	
<i>Lithobates septentrionalis</i>	Mink Frog	S5					X	
<i>Lithobates sylvaticus</i>	Wood Frog	S5					X	
Total							27	0

*ORAA Atlas Square: 17NJ61

**NHIC Atlas Square: 17NJ6912

References

Ministry of Natural Resources and Forestry (MNR). 2022. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2022-04-11.

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Appendix V
Mammals Species Lists

Mammal Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Dobbyn 1994	MNRF 2022	NRSI Results from 2022
Didelphimorphia	Opossums								
<i>Didelphis virginiana</i>	Virginia Opossum	S4					X		
Eulipotyphla	Shrews, Moles, Hedgehogs, and Allies								
<i>Blarina brevicauda</i>	Northern Short-tailed Shrew	S5					X		
<i>Condylura cristata</i>	Star-nosed Mole	S5					X		
<i>Parascalops breweri</i>	Hairy-tailed Mole	S4					X		
<i>Sorex cinereus</i>	Masked Shrew	S5					X		
<i>Sorex fumeus</i>	Smoky Shrew	S5					X		
<i>Sorex palustris</i>	Water Shrew	S5					X		
Chiroptera	Bats								
<i>Eptesicus fuscus</i>	Big Brown Bat	S4					X		
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	S4					X		
<i>Lasiurus borealis</i>	Eastern Red Bat	S4					X		
<i>Lasiurus cinereus</i>	Hoary Bat	S4					X		
<i>Myotis leibii</i>	Eastern Small-footed Myotis	S2S3	END				X		
<i>Myotis lucifugus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1	X		
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1	X		
<i>Perimyotis subflavus</i>	Tri-colored Bat	S3?	END	E	E	Schedule 1	X		
Lagomorpha	Rabbits and Hares								
<i>Lepus americanus</i>	Snowshoe Hare	S5					X		
<i>Lepus europaeus</i>	European Hare	SNA					X		
<i>Sylvilagus floridanus</i>	Eastern Cottontail	S5					X		
Rodentia	Rodents								
<i>Castor canadensis</i>	Beaver	S5					X		
<i>Erethizon dorsatum</i>	Porcupine	S5					X		
<i>Glaucomys sabrinus</i>	Northern Flying Squirrel	S5					X		
<i>Marmota monax</i>	Woodchuck	S5					X		
<i>Microtus pennsylvanicus</i>	Meadow Vole	S5					X		
<i>Microtus pinetorum</i>	Woodland Vole	S3?	SC	SC	SC	Schedule 1	X		
<i>Mus musculus</i>	House Mouse	SNA					X		
<i>Napaeozapus insignis</i>	Woodland Jumping Mouse	S5					X		
<i>Ondatra zibethicus</i>	Muskrat	S5					X		
<i>Peromyscus leucopus</i>	White-footed Mouse	S5					X		
<i>Peromyscus maniculatus</i>	Deer Mouse	S5					X		
<i>Rattus norvegicus</i>	Norway Rat	SNA					X		
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	S5					X		X
<i>Synaptomys cooperi</i>	Southern Bog Lemming	S4					X		
<i>Tamias striatus</i>	Eastern Chipmunk	S5					X		
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	S5					X		
<i>Zapus hudsonius</i>	Meadow Jumping Mouse	S5					X		
Canidae	Canines								
<i>Canis latrans</i>	Coyote	S5					X		
<i>Vulpes vulpes</i>	Red Fox	S5					X		
Felidae	Felines								
<i>Lynx rufus</i>	Bobcat	S4					X		
Mephitidae	Skunks and Stink Badgers								
<i>Mephitis mephitis</i>	Striped Skunk	S5					X		
Mustelidae	Weasels and Allies								
<i>Mustela frenata</i>	Long-tailed Weasel	S4					X		

Mammal Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
<i>Mustela richardsonii</i>	American Ermine	S5					X		
<i>Neovison vison</i>	American Mink	S4					X		
<i>Taxidea taxus jacksoni</i>	American Badger (Southwestern Ontario)	S1	END	E	E	Schedule 1	X		
Procyonidae	Raccoons and Allies								
<i>Procyon lotor</i>	Northern Raccoon	S5					X		
Ursidae	Bears								
<i>Ursus americanus</i>	American Black Bear	S5	NAR	NAR	NS	No schedule	X		
Artiodactyla	Deer and Bison								
<i>Odocoileus virginianus</i>	White-tailed Deer	S5					X		
Total							46	0	1

*Mammal Atlas Square Numbers: NU

**NHIC Atlas Squares: 17NJ6912

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Available: <https://www.ontario.ca/page/get-natural-heritage-information>

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Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix VI
Butterfly Species Lists

Butterfly Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Macnaughton et al. 2022	MNRF 2022
Hesperiidae	Skippers							
<i>Anatrytone logan</i>	Delaware Skipper	S4					X	
<i>Ancyloxypha numitor</i>	Least Skipper	S5					X	
<i>Carterocephalus palaemon</i>	Arctic Skipper	S5					X	
<i>Erynnis baptisiae</i>	Wild Indigo Duskywing	S4					X	
<i>Erynnis juvenalis</i>	Juvenal's Duskywing	S5					X	
<i>Euphyes vestris</i>	Dun Skipper	S5					X	
<i>Pholisora catullus</i>	Common Sootywing	S4					X	
<i>Poanes hobomok</i>	Hobomok Skipper	S5					X	
<i>Poanes viator</i>	Broad-winged Skipper	S4					X	
<i>Polites mystic</i>	Long Dash Skipper	S5					X	
<i>Polites peckius</i>	Peck's Skipper	S5					X	
<i>Polites themistocles</i>	Tawny-edged Skipper	S5					X	
<i>Pompeius verna</i>	Little Glassywing	S4					X	
<i>Thymelicus lineola</i>	European Skipper	SNA					X	
<i>Wallengrenia egeremet</i>	Northern Broken Dash	S5					X	
Papilionidae	Swallowtails							
<i>Papilio canadensis</i>	Canadian Tiger Swallowtail	S5					X	
<i>Papilio cresphontes</i>	Giant Swallowtail	S4					X	
<i>Papilio glaucus</i>	Eastern Tiger Swallowtail	S5					X	
<i>Papilio polyxenes</i>	Black Swallowtail	S5					X	
Pieridae	Whites and Sulphurs							
<i>Colias eurytheme</i>	Orange Sulphur	S5					X	
<i>Colias philodice</i>	Clouded Sulphur	S5					X	
<i>Pieris oleracea</i>	Mustard White	S4					X	
<i>Pieris rapae</i>	Cabbage White	SNA					X	
Lycaenidae	Harvesters, Coppers, Hairstreaks, Blues							
<i>Callophrys augustinus</i>	Brown Elfin	S5					X	
<i>Celastrina lucia</i>	Northern Spring Azure	S5					X	
<i>Celastrina sp.</i>	Azure species	SNA					X	
<i>Cupido comyntas</i>	Eastern Tailed Blue	S5					X	
<i>Feniseca tarquinius</i>	Harvester	S4					X	
<i>Glaucopsyche lygdamus</i>	Silvery Blue	S5					X	
<i>Lycaena hyllus</i>	Bronze Copper	S5					X	
<i>Satyrus acadica</i>	Acadian Hairstreak	S4					X	
<i>Satyrus calanus</i>	Banded Hairstreak	S4					X	
Nymphalidae	Brush-footed Butterflies							
<i>Aglais milberti</i>	Milbert's Tortoiseshell	S5					X	
<i>Asterocampa clyton</i>	Tawny Emperor	S3					X	
<i>Boloria bellona</i>	Meadow Fritillary	S5					X	
<i>Boloria selene</i>	Silver-bordered Fritillary	S5					X	
<i>Cercyonis pegala</i>	Common Wood-Nymph	S5					X	

Butterfly Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**
<i>Coenonympha californica</i>	Common Ringlet	S5					X	
<i>Danaus plexippus</i>	Monarch	S2N,S4B	SC	E	SC	Schedule 1	X	
<i>Euphydryas phaeton</i>	Baltimore Checkerspot	S4					X	
<i>Lethe anthea</i>	Northern Pearly-Eye	S5					X	
<i>Lethe appalachia</i>	Appalachian Brown	S4					X	
<i>Lethe eurydice</i>	Eyed Brown	S5					X	
<i>Limenitis archippus</i>	Viceroy	S5					X	
<i>Limenitis arthemis arthemis</i>	White Admiral	S5					X	
<i>Limenitis arthemis astyanax</i>	Red-spotted Purple	S5					X	
<i>Megisto cymela</i>	Little Wood-Satyr	S5					X	
<i>Nymphalis antiopa</i>	Mourning Cloak	S5					X	
<i>Nymphalis l-album</i>	Compton Tortoiseshell	S5					X	
	Northern Crescent	S5					X	
	Pearl Crescent	S4					X	
	Eastern Comma	S5					X	
	Question Mark	S5					X	
	Gray Comma	S5					X	
	Great Spangled Fritillary	S5					X	
	Red Admiral	S5B					X	
	Painted Lady	S5B					X	
	American Lady	S5					X	
							58	0

*TEA Atlas Square: 17NJ61

**NHIC Atlas Square: 17NJ6912

References

Ministry of Natural Resources and Forestry (MNR). 2022. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.

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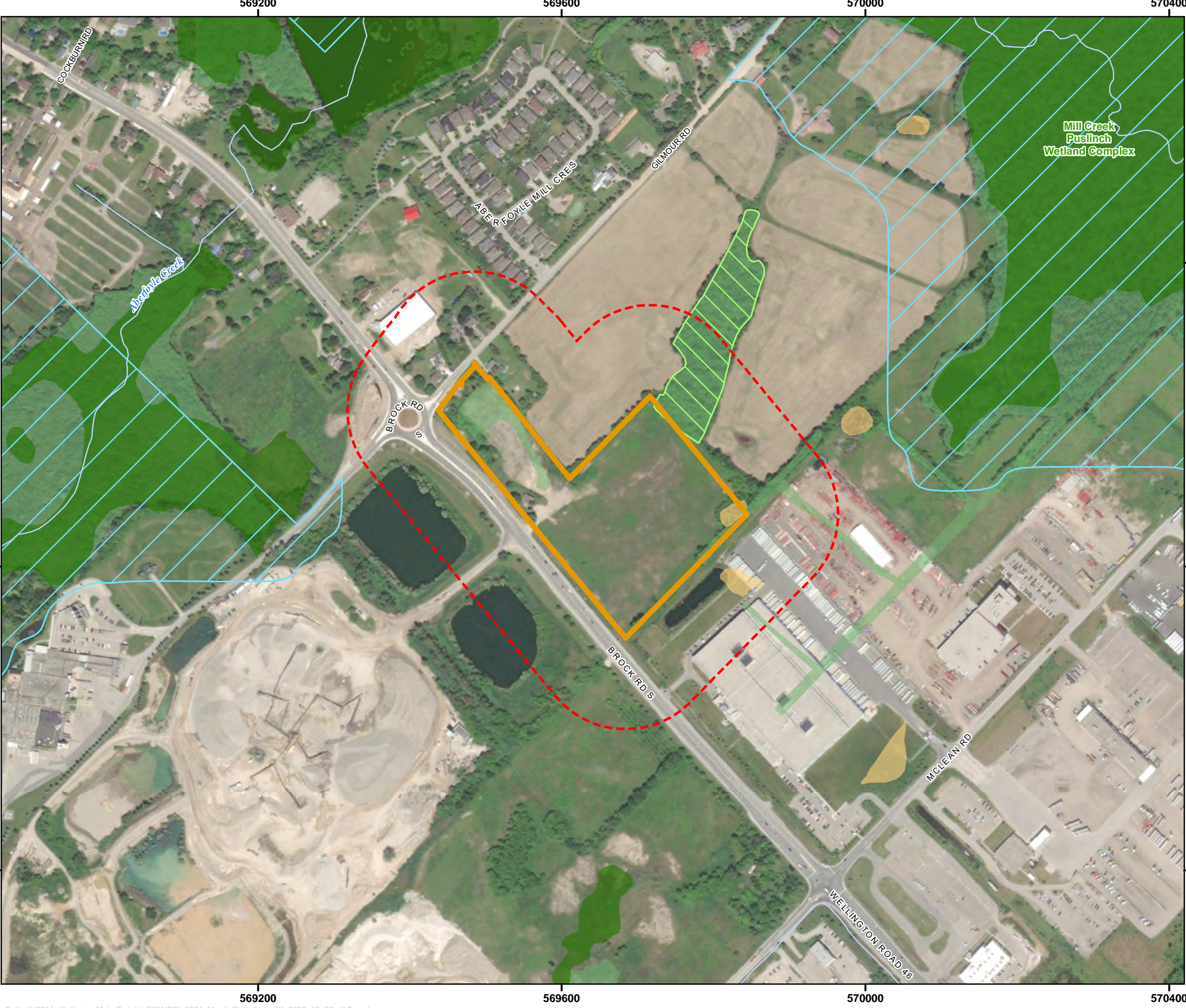
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Updated 2022-01-20. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

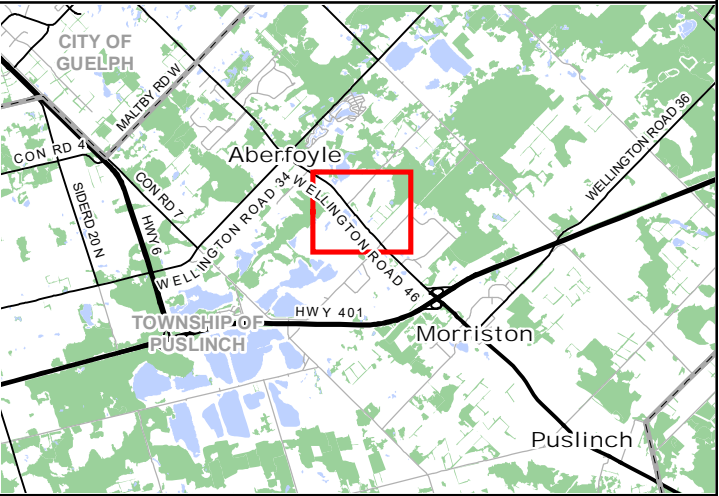
Maps



Map 1

Wellington Motor Freight EIS

Study Area



- Legend**
- Subject Property
 - Study Area (120m Adjacent Lands)
 - Permanent Watercourse
 - Provincially Significant Wetland (PSW)
 - Unevaluated Wetland
 - Wooded Area
 - Significant Woodland (Wellington County 2021)
 - Provincial Natural Heritage System for the Growth Plan (2020)

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Project: 2984 Date: December 22, 2022	NAD83 - UTM Zone 17 Size: 11x17" 1:5,000
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Map 2

Wellington Motor Freight EIS

Existing Conditions

Legend

Subject Property

Surveyed Wetland (NRSI 2022)

Wetland Buffer (15m)

Surveyed Dripline (NRSI 2022)

Dripline Buffer (1m)

Dripline Buffer (5m)

Dripline Buffer (10m)

Ecological Land Classification (ELC)

(Ag)

Agricultural

(CUM1)

Mineral Cultural Meadow Ecosite

(CUT1)

Mineral Cultural Thicket Ecosite

(CUW1)

Mineral Cultural Woodland Ecosite

(FOD5)

Dry - Fresh Sugar Maple Deciduous Forest Ecosite

(H1)

Deciduous Hedgerow

(H2)

Young Poplar Deciduous Hedgerow

(Res)

Residential

(SWT2-5)

Red-osier Dogwood Mineral Thicket Swamp Type

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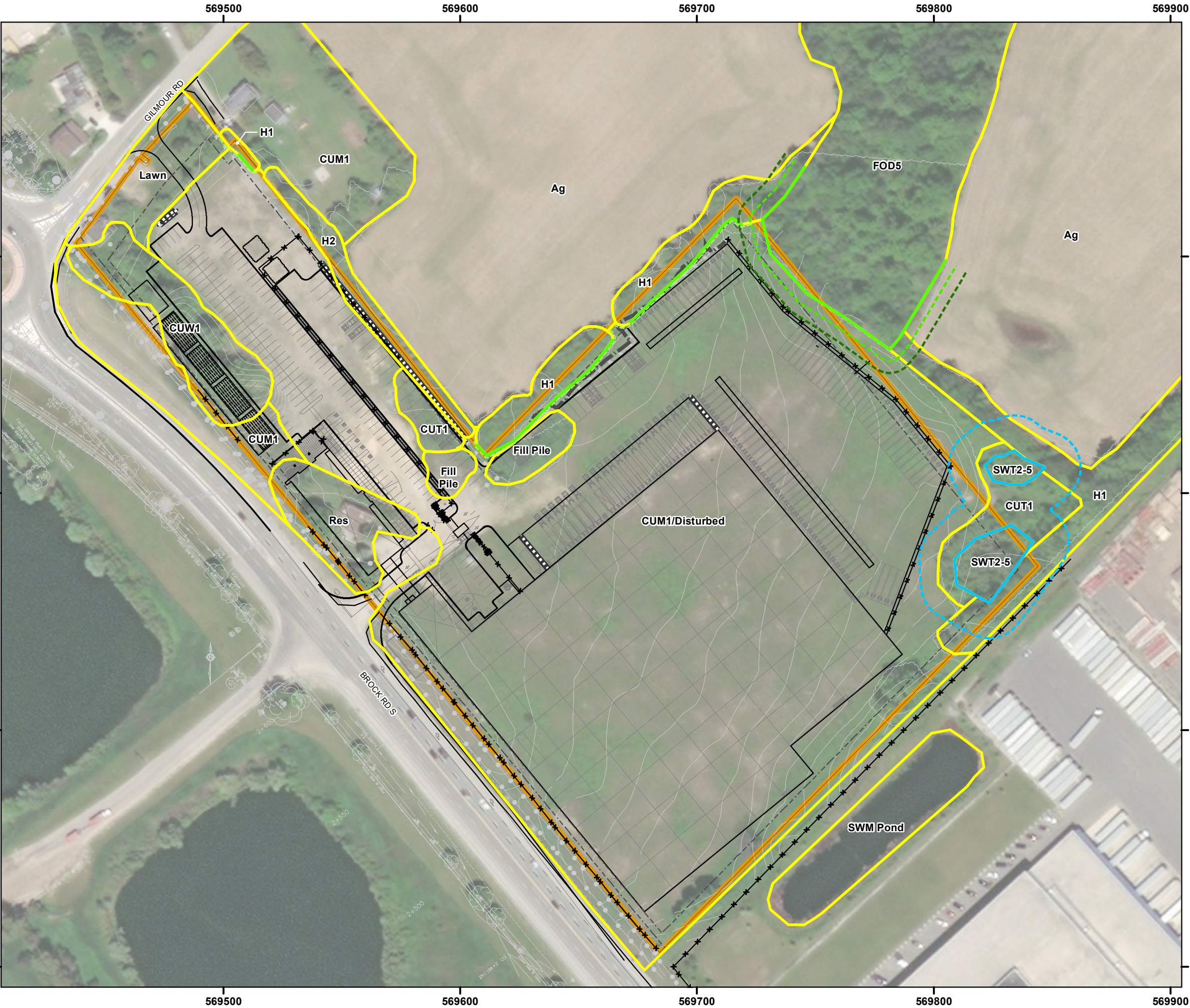
Project: 2984
Date: January 3, 2023

NAD83 - UTM Zone 17
Size: 11x17"
1:1,600

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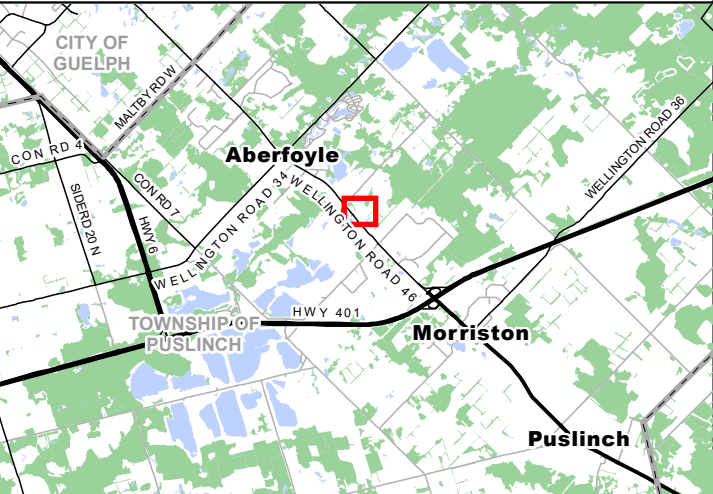
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Map 3

Wellington Motor Freight EIS

Proposed Development



Legend

Subject Property	Ecological Land Classification (ELC)
Limit of Grading	(Ag) Agricultural
Property Setback	(CUM1) Mineral Cultural Meadow Ecosite
Parcel Boundary	(CUT1) Mineral Cultural Thicket
Proposed Site Plan	(CUW1) Mineral Cultural Woodland Ecosite
Proposed Fencing	(FOD5) Dry - Fresh Sugar Maple Deciduous Forest Ecosite
Proposed Retaining Wall	(H1) Deciduous Hedgerow
Utilities	(H2) Young Poplar Deciduous
Existing Conditions	(Res) Residential
Existing Fence	(SWT2-5) Red-osier Dogwood Mineral Thicket Swamp Type
Existing Contours	
Drainage	
Surveyed Wetland (NRSI 2022)	
Wetland Buffer (15m)	
Surveyed Dripline (NRSI 2022)	
Dripline Buffer (1m)	
Dripline Buffer (5m)	
Dripline Buffer (10m)	

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Project: 2984 Date: March 30, 2023	NAD83 - UTM Zone 17 Size: 11x17" 1:1,600
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DOUGAN & ASSOCIATES

ECOLOGICAL CONSULTING & DESIGN

3-7 EDINBURGH ROAD SOUTH GUELPH ON N1H 5N8 T 519.822.1609 F 519.822.5389 www.dougan.ca

March 14, 2023

Lynne Banks
Development and Legislative Coordinator
Township of Puslinch
7404 Wellington Rd. 34, Puslinch, Ontario
N0B 2J0

RE: P11/6678 Ecology Peer Review of: NRSI Response to Comments on the Scoped Environmental Impact Study (EIS) supporting Zoning Bylaw Amendment Application - 128 Brock Road South, Puslinch (Wellington Motor Freight)

INTRODUCTION

Dougan & Associates (D&A) was initially retained by the Township of Puslinch in September 2022 to complete a pre-consultation ecology review of a site plan submitted by Wellington Motor Freight for their property at 128 Brock Road South, Puslinch. Based on our desktop review of the proposal and existing natural heritage features and policy, it was concluded that an Environmental Impact Study (EIS) was required and that a Terms of reference (TOR) be established with the County, Township and Grand River Conservation Authority (GRCA) to confirm the scope. These comments were submitted to the Township on September 20, 2022.

The proponent submitted a Zoning Bylaw Amendment (ZBA) application dated January 9, 2023 which includes a revised site plan and Scoped EIS (hereafter referred to as the "EIS") prepared by NRSI dated January 2023. D&A reviewed NRSI's Scoped EIS and provided comments to the Township on June 29, 2022 and reviewed the comments with NRSI via phone call on February 22, 2023. NRSI prepared a response to D&A's comments which were received on March 8, 2023.

D&A has reviewed NRSI's response and prepared the following comments in response. Please note that a revised EIS was not received as part of this response; D&A's comments are based on the information provided including: comment response table, GRCA correspondence on the Terms of Reference, updated Species at Risk (SAR) and Significant Wildlife Habitat (SWH) tables, and data sheets on the FOD5 ELC community. A few of our responses are pending until we are able to review the revised EIS.

Please do not hesitate to contact the undersigned with any questions or concerns regarding this review.

Regards,



Christina Olar, HBSc, Eco. Mgmt. Tech., ISA
Ecology Manager, Ecologist, Arborist



Todd Fell, OALA, CSLA, CERP
Director, Landscape Arch., Rest. Ecologist

KEY COMMENTS

D&A Comment (January 27, 2023)	Additional Comments and Clarifications
<p>There is no indication whether the Terms of Reference for the Scoped EIS were reviewed or approved by any reviewing agencies. This is concerning given the fact that most of the field surveys conducted by NRSI occurred prior to the submission of the TOR, and because the Scoped EIS relies heavily on field data collected by Aboud & Associates as part of a 2014 EIS. The field data collected by Aboud & Associates in 2013/2014 is considered out-of-date (i.e., > 5 years old). Since that time, the site has undergone significant changes (e.g. clearing and filling of some portions of the property, years of natural vegetation regeneration). Some of the surveys completed by Aboud & Associates were not repeated by NRSI during appropriate survey/breeding windows. As a result, the 2014 data and surveys conducted outside of appropriate survey windows should not be used to draw conclusions about the existing conditions and significance of features on site.</p>	<p>Sufficient documentation of TOR review by GRCA has been provided by NRSI. Please see detailed comments.</p>
<p>Seasonally appropriate field surveys should be conducted to address the above noted deficiencies. Alternatively, (i.e., In absence of such information), a conservative interpretation should be applied to the evaluation and status of existing natural heritage features, unless it can be explicitly explained (preferably with more detailed information) why such an interpretation is not appropriate, and the deficiencies are not of concern. Please refer to the detailed comments below for further reference/guidance</p>	<p>See detailed comments.</p>
<p>The EIS concludes that there will be no negative impacts on natural features onsite or adjacent lands, however this conclusion is likely premature; adequate field studies have not been carried out to support the EIS.</p>	<p>See detailed comments.</p>

DETAILED COMMENTS

Table 1 summarizes our comments, which identify specific concerns and/or requests for clarification based on the review of the Revised Scoped EIS.

Table 1 Detailed comments on NRSI's Scoped Environmental Impact Study

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
1	2.2	Collection and Review of Background Information	One additional source of background information should have been consulted, i.e., the Nestlé Waters Canada Biological Monitoring Program data collected at the 101 Brock Street South location, directly across the road from the subject lands.	Consult with Nestlé Waters Canada to see if they will release their monitoring data for review.	Nestle Waters no longer exists as the company was sold to Blue Triton. The team is in contact with Blue Triton to discuss.	No additional comments.
2	2.2.1	Significant Species Screening	The text indicates that there is suitable habitat present in the study area for only one SAR/SCC 3listed species, Eastern Wood-Pewee.	Please indicate why the SWM pond directly south of the property, and the two Dufferin Aggregates ponds, are not considered suitable habitat for Snapping Turtle.	Snapping turtles may inhabit SWM ponds but these are man-made infrastructure for containing and treating storm runoff and should not be identified as habitat. Similarly, the aggregate ponds across Brock Road may be inhabited by snapping turtle, but these ponds lack natural cover and are across a busy 4-lane road, and are not considered to be connected to the subject	Although manmade structures like SWM ponds cannot qualify for protection as SWH, they should still be considered potential habitat for SAR like Snapping Turtle. Unless sufficient surveys were undertaken to prove the absence of sensitive species, they should be assumed to be present and using the ponds as habitat, and suitable mitigation should be put in place. Please ensure

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
					property. The EIS text has been updated.	this is clarified in the EIS.
3	2.2.1	Significant Species Screening	The text indicates that there is suitable habitat present in the study area for only one SAR/SCC listed species, Eastern Wood-Pewee.	Please indicate why the trees on the subject lands (e.g., CUW1, H1, H2) and adjacent to the property (e.g., FOD5) are not considered suitable maternity roost habitat for SAR listed bats. Text in Section 2.2.2 states that there is potential Bat Maternity Colonies SWH within FOD5.	Bat maternity roost habitat is a type of SWH which is related to woodland or forest communities and not isolated trees.	Although isolated trees do not qualify for SWH designation, they can still provide suitable habitat for SAR bats that should be preserved where possible. Please ensure it is clear in the EIS whether isolated SAR habitat trees are present and that any impacts/removals are in compliance with the Endangered Species Act.
4	2.2	Significant Wildlife Habitat Screening	The EIS text states that <i>"The subject property does not contain habitats that may be significant for wildlife."</i> However, the statement could not be verified because the SWH screening/assessment was not included in the EIS for review.	Please provide the complete SWH screening/assessment for review (i.e., including those features not considered SWH). For example, please indicate why Reptile Hibernaculum SWH (i.e., for snakes) is not present on or adjacent to the subject lands.	The SWH screening table has been provided. Two types of SWH are considered possible for the site and adjacent study area; bat maternity colonies and amphibian breeding habitat (woodland). Snake Hibernaculum SWH is considered not present due to the lack of burrows, rock crevices, crumbling foundations on-site and adjacent, as well as the level of disturbance that	The SWH table indicates that amphibian movement corridors are also possible on the subject property. Please ensure this is included in the text.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
					has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation, commercial development).	
5	3.0	Relevant Policies, Legislation and Planning Studies Table 1: Provincial Policy Statement (OMMAH, 2020)	The Natural Heritage Reference Manual and Significant Wildlife Habitat Technical Guide (OMNR, 2000) were listed as relevant policy documents pertaining to the Provincial Policy Statement. However, the Significant Wildlife Habitat Criteria Schedule (SWHCS) for Ecoregion 6E (OMNR, 2015) was not listed.	Please include the SWHCS for Ecoregion 6E on this list. Reference to this document is made in the Terms of Reference.	This document has been added.	Sufficient if updated in EIS.
6	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	Puslinch Zoning bylaw is a relevant policy document missing from the table.	The Puslinch Zoning By-law should be reviewed and added to the table.	Added.	Sufficient if updated in EIS.
7	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	In the County of Wellington Official Plan section, there is a reference to Schedule A7-3. This schedule only shows Greenbelt designations and there	Refer to Schedule A7 instead of Schedule A7-3	Added.	Sufficient if updated in EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			are none related to this property. Likely this was intended to refer to Schedule A7, which shows the property designated as “secondary agriculture” and illustrates a patch of Core Greenlands adjacent to the property.			
8	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	With respect to the County Official Plan, Schedule B7 shows the property within the “Paris Galt Moraine Policy Area”. The EIS has not considered this policy designation.	Review County Official Plan Schedule B7 and policies related to the <i>Paris Galt Moraine Policy Area</i> designation and clarify whether there are implications that should be addressed in the EIS.	Added.	Sufficient if updated in EIS.
9	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	The Wellington County Official Plan has policies related to wetlands and woodlands that are not clearly noted in Table 1.	Table 1, Wellington County Official Plan, under “project relevance” it should refer to relevant policies regarding wetlands and woodlands.	Added.	Sufficient if updated in EIS.
10	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	It is noted that the unevaluated wetlands may be suitable for complexing with the Mill Creek PSW, however, in result of very recent changes to the OWES system this is no longer the case.	The concept of complexing has been removed from OWES protocol as of January 1, 2023. Please note that if a wetland evaluation were required, these unevaluated wetlands would have to be considered as individual units. No action required at this time.	Noted.	No further comments.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
11	4.0	Field Methods	None of the field surveys took place during the standard wildlife breeding windows. The 2014 survey data is 8.5 years old and considered out-of-date.	Please conduct seasonally appropriate breeding bird, amphibian, and reptile surveys and include the survey results in an EIS addendum. In absence of such information, a conservative interpretation should be applied to the evaluation and status of existing natural heritage features, unless explicitly explained why such an interpretation is not appropriate.	The natural features on-site and adjacent are well defined and have been incorporated into the Site Plan along with appropriate buffers and other mitigation measures such as timing windows for tree removal, construction limit fencing, erosion and sediment control measures, tree protection plan, noise and lighting recommendations and a landscape plan. These measures are considered sufficient to protect the common and significant species, wildlife habitat functions and provide areas for enhancement plantings.	Response pending review of revised EIS.
12	4.1.2	Vegetation Inventories	Aboud & Associates vegetation inventories included only 2 site visits: August 2013 and June 2014. The site has undergone significant change since this time including clearing, fill/grading, and 8+ years of time for natural	Spring and summer vegetation surveys should be completed to accurately characterize the current vegetation composition of the site.	The 2014 data was included for completeness and as valuable for characterizing the natural features which remain on-site and adjacent. The vegetation communities of the woodland and	This rationale is acceptable. No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			vegetation regeneration to occur. The 2013/ 2014 data is therefore of very minimal value at this point. The NRSI vegetation inventories included only mid- to late October visits, which is insufficient to characterize the flora of the site.		wetlands will be retained entirely. The vegetation currently on-site in the area of the proposed undertaking has arisen since the clearing and filling/grading (2016) and is sparse and weedy in nature. Most plant species documented in this area in the 2022 field work are non-native and typical of disturbed sites. Spring and summer vegetation surveys within this area are not expected to provide additional value to the study as there are no significant or sensitive habitats present.	
13	4.1.3	Wetland Boundary Delineation	<p>The report states “<i>The GRCA confirmed that no on-site verification with their ecologist was required (email from J. Simons, GRCA November 16, 2022).</i>”</p> <p><i>A GRCA mapped wetland is shown within the</i></p>	Please provide the email correspondence with GRCA indicating that on-site verification of the wetland is not required. Similarly, please provide additional evidence/field notes to confirm the mapped wetland does not exist including photographs, soil texture and moisture regime, plant species.	GRCA email is provided. Notes and ELC data forms are provided for the FOD5 community, showing no wetland community present.	Acceptable data provided. No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			<i>woodland to the east of the subject property. This area was investigated during the fall 2022 field work and the wetland was found not to exist. The area in question is a hilly wooded landform feature and has no wetland present as shown on Map 2."</i>			
14	4.1.5	Additional Wildlife	The EIS text states: <i>"The house on-site was inspected for any evidence of use by nesting birds and/or bats. Individual trees were assessed for the presence of cavities suitable for SAR bats."</i>	Please indicate what protocols were used to conduct the bat surveys in order to ensure that they were conducted appropriately.	Survey Protocol for Maternity Roost Surveys (Forests/Woodlands) (MECP 2022) Bat Survey Standards Note (MECP 2022) Survey Protocol for Species at Risk Bats within Treed Habitats for Little Brown Myotis, Northern Myotis & Tri-colored Bats (MNRF 2017)	Acceptable response. No further comment.
15	5.1	Soils, Terrain and Drainage	The last paragraph states that the small wetlands are largely surface water dependent, and that <i>"The proposed development and the associated grading are not expected to have any impact on this wetland feature, since</i>	This statement needs to be substantiated. Wetlands sustained by overland runoff may be vulnerable to changes in surficial hydrology. The EIS should clearly demonstrate no negative impact to wetland hydrology.	This analysis of wetland water balance and impacts was provided by CVD in their Scoped Hydrogeological Assessment (2022) report and is based on their analysis of background information,	Acceptable response. No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			<i>it is sustained by overland runoff (and possibly some shallow interflow) originating from higher topographic areas located further east from the property (CVD 2022b)."</i>		geotechnical investigations, water level monitoring and groundwater sampling. Refer to pages 4 and 5 of their report. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands.	
16	5.2.2	Vascular Flora	The second paragraph states that one SAR plant is reported from the vicinity of the property, but there is no habitat for this species within the study area. The common and scientific names of this plant are spelled incorrectly (should be Fern-leaved Yellow False	Please correct the spelling error and qualify this statement by providing a brief overview of the species' habitat vs. habitats within the study area.	Spelling error fixed. This species is found in dry open woods and savanna habitats (MECP 2022), of which there is none present on-site or in the study area.	Acceptable response. No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			Foxglove (<i>Aureolaria pedicularia</i>)). We agree this species is unlikely to exist on the property due to lack of suitable habitat, however this should be justified more specifically in the text.			
17	5.2.2	Vascular Flora	The second paragraph states that no provincially or federally significant species were recorded in the 2014 study or during 2022 field investigations, however, local status does not appear to have been considered.	Please confirm whether any locally significant plant species were documented, using the “Significant Plant List for Wellington County” which can be found on page 128 of the <i>Guelph Natural Heritage Strategy – Phase 2: Terrestrial Inventory and Natural Heritage System</i> document (Dougan & Associates, 2009) available online.	Two locally significant plant species were found on the site based on the Dougan and Associates 2009 list; rough avens (<i>Geum laciniatum</i>) and meadow horsetail (<i>Equisetum pratense</i>). These species were documented by Aboud (2014) in the forest and wet meadow communities in the north-west part of the property. Those communities were removed during the site grading.	Acceptable response. No further comment.
18	5.3.2	Amphibians and Reptiles	It is stated that: “ <i>NRSI biologists did not observe any herpetofauna species during any of the field investigations. Aboud and Associates also did not document any amphibian</i>	Please qualify this statement by acknowledging that with the exception of turtle nesting surveys conducted by Aboud & Associates in 2014, no dedicated surveys to document the presence of herpetofauna were conducted on or adjacent	No additional dedicated surveys for herpetofauna were carried out by Aboud and Associates or NRSI during the studies to date on the subject property, and no studies	Given that amphibian breeding surveys were not undertaken and the wetlands on site possibly contain Amphibian Breeding Habitat SWH, mitigation strategies should

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			<p><i>or reptile species during their 2014 EIS."</i></p> <p>However, except for the turtle nesting surveys carried out by Aboud & Associates, no dedicated reptile and amphibian surveys were carried out by Aboud & Associates or NRSI. For example, no nocturnal amphibian call surveys were conducted at the unevaluated wetland features at the NE edge of the property. Similarly, no snake surveys were conducted. Certainly, the information provided did not indicate that the unevaluated wetland features did not provide suitable amphibian breeding habitat.</p>	<p>to the subject lands, and as a result it can't be concluded that none are presently utilizing the natural features on or adjacent to the property.</p> <p>Also, please indicate whether the SWM pond directly to the south or the Dufferin Aggregates (Aberfoyle Pit 1) ponds across Brock Road were surveyed?</p>	<p>were undertaken at the adjacent SWM pond or the ponds across Brock Road.</p> <p>The wetlands on-site likely provide habitat for a small population of common amphibian species such as spring peeper, gray treefrog and American toad as well as reptiles such as eastern gartersnake. The on-site wetlands do not have permanent standing water and are not suitable for turtles or salamander species. The proposed plan retains the wetlands and provides a suitable buffer for its protection and the habitat necessary for these expected species. The off-site manmade pond features were not surveyed. These ponds may contain amphibian and reptile species but these are not natural features and do not warrant protection. The SWM pond to the south</p>	<p>assume that SWH is present. Additional rationale is required to support that a 15 m buffer is sufficient to specifically protect amphibian breeding populations from indirect impacts of the development.</p>

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
					is entirely contained by chain link fencing and the ponds across Brock Road are separated from the site by a busy 4 lane road and over 70m of distance. There is very little likelihood of turtles travelling from these ponds onto the subject property.	
19	5.3.2	Amphibians and Reptiles	The EIS text states: <i>"Their study included turtle nesting surveys during the nesting season with no evidence of turtles recorded"</i> .	For clarity, please indicate how many turtle nesting survey visits were conducted by Aboud & Associates and whether NRSI considers the effort consistent with standard survey protocol.	The turtle nesting surveys were requested as part of the previous EIS as the subject property previously contained a gravel extraction site and a small pond in the NW part of the site. Aboud & Associates carried out turtle nesting surveys in conjunction with the breeding bird surveys on May 29, June 19 and July 6, 2013. No evidence of turtles or nesting was found, and the on-site wetlands and wet areas have since been removed. Given the changes on-site, no additional surveys for turtles are	Acceptable response. No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
					recommended to be required.	
20	5.3.3	Mammals	The EIS text states: <i>“Based on available background information, 1 mammal SCC and 5 mammal SAR are reported from the vicinity of the study area (Dobbyn 1994; MNRF 2022). No regionally, provincially or federally significant species, or their preferred habitats, were observed within the subject property during the 2014 or 2022 field surveys and none are expected to be present.”</i>	Please include the list of SAR/SCC mammal species and indicate why they are not expected to be present within the study area.	The SAR screening table has been updated based on field work and is included in the appendices of the EIS (and appended to this response), and provides rationale as to why all SAR mammals and their habitat have potential to be present or not present in the study area. With respect to bat SAR, during the recent tree inventory, only one tree was documented to have habitat features suitable for roosting bats (common species or SAR), and this is not considered to meet the habitat requirements of SAR bats.	Response is generally acceptable. Please note that Appendix I indicates that no suitable habitat is present within subject property for Little Brown Myotis, Northern Myotis and Tricolored Bat but the rationale column conflicts with this assessment stating that isolated trees may provide habitat. Please clarify.
21	5.3.4	Butterflies	NRSI states: “NRSI biologists and Abound and Associates did not observe any butterfly species during any of the field investigations.”	At least as it applies to NRSI’s field surveys, please qualify this statement by indicating that NRSI field surveys were conducted well outside the prime survey windows for documenting butterflies,	No dedicated butterfly surveys were carried out by Aboud & Associates or NRSI. No regionally, provincially or federally significant species were observed within the subject property during	Response is acceptable. Please clarify in the report that dedicated surveys were not carried out, and no incidental observations of these species were recorded.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
				<p>explaining why none were observed.</p> <p>With respect to the surveys conducted by Aboud & Associates, please indicate whether any dedicated butterfly surveys were carried out. If not, please qualify the statement to indicate that and that the results may not be considered reflective of the species present.</p>	the 2022 field surveys and none are expected to be present due to the small size and overall poor quality of the meadow habitat.	
22	5.3.5	Insects	NRSI states: <i>"No regionally, provincially or federally significant species were observed within the subject property during the 2022 field surveys and none are expected to be present."</i>	While the conclusion is not necessarily disputed, please provide rationale to support the statement.	No regionally, provincially or federally significant species were observed incidentally within the subject property during field surveys and none are expected to be present due to the lack of preferred habitat.	This comment has been clarified through the Appendix I: SAR/SCC Screening. No further comment.
23	6.0	Significance and Sensitivity	Please note that the discussion regarding wetland complexing is no longer necessary as complexing has been removed from the OWES system as of January 1, 2023.	N/A. See comment 10.		No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
24	6.0	Significance and Sensitivity	<p>The EIS concludes that “A 15 m buffer to the wetland is recommended to maintain its limited water balance and to protect it from any direct impacts of the development.”</p> <p>It is later stated that “The previous depression created a considerably higher than normal groundwater recharge and a lower runoff from the property. These influences are to be factored into the pre-post water balance assessment and in the stormwater management plan to maintain and enhance the groundwater discharge function to Mill Creek.”</p> <p>Appendix I: TOR notes that a grading limit of 19 m from the wetlands was implemented in 2014 to maintain wetland hydrology. The 2014 EIS indicates that grading would be limited to approximately 19 m or</p>	<p>Please demonstrate that there will be no changes to wetland hydrology of the unevaluated wetlands if a 15 m buffer is applied vs. the recommended 19 m buffer in the 2014 EIS. Justification for the basis of the 15 m buffer should be clearly provided.</p> <p>Also, please note that section 4.1.7 and 4.3.4 of the Planning Justification Report (MHBC, 2023) state that a buffer of 37 m is applied between the development and environmental features (including unevaluated wetlands). This should be reviewed for consistency between reports.</p>	<p>A minimum 15m buffer is applied to the wetland on the site plan. This buffer is considered sufficient to protect the wetland hydrology as the majority of the wetland’s surface water catchment is to the east. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands. The limit of construction is generally more than 15m from the wetlands as can be seen by the fencing limit on the Site Plan. The Planning Report makes reference to the actual 37m</p>	<p>Response is acceptable regarding wetland hydrology. Please see additional comment 26.</p>

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			more from the wetlands in order to cause no impact to wetland hydrology (Aboud & Associates, 2014, page 7).		setback, which is the distance from the wetland to the warehouse building.	
25	6.0	Significance and Sensitivity	The second last paragraph recommends the trees in HR1 be protected at or 1m beyond their surveyed dripline. The last	While we do not disagree with this statement, please include a recommendation that trees should be protected using standard tree protection fencing in which no site alteration or	The Tree Preservation Plan is separate and will be submitted at the Site Plan Application stage. Details of tree	Response is acceptable pending review of the TPP. No further comment.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			sentence recommends that a Tree Preservation Plan should be prepared to inventory and assess trees and recommend protection measures.	disturbance may occur. A Tree Preservation Plan should be submitted for review at the Site Plan Application/detailed design phase.	protection fencing will be provided in the TPP.	
26	6.0	Significance and Sensitivity	With respect to the Significant Woodland, it is stated that <i>"a 5m buffer from the new dripline to any grading has been recommended, and an additional 5m buffer be provided to any structures or impervious surfaces."</i>	Section 4.31 of the Puslinch Zoning By-law requires a 30 m setback for buildings or structures from lands designated "Natural Environment Zone". As per the bylaw mapping, the Significant Woodland is considered Natural Environment Zone, and therefore this setback is applicable. The EIS should clarify whether the proposed development is in compliance with bylaw setback requirements (e.g. the proposed retaining wall is only 10 m from the dripline. If the Township planners consider this a structure, the required setback will need to be considered).	The building is well over 30m from the significant woodland. A low retaining wall (0.2-0.5m in height; not a structure according to the OBC) may be implemented along the northern edge of the parking area to protect adjacent trees from grading impacts. The 1.5m retaining wall along the east edge of the truck parking area has been removed from the design.	Acceptable clarification provided to demonstrate compliance with the Zoning Setback. Please provide additional rationale to demonstrate that a 5 m 'no touch' buffer is adequate to protect the Significant Woodland feature (i.e. tree rooting zones) and its ecological functions which include but are not limited to SWH and SAR habitat (Eastern Wood-Pewee).
27	6.0	Significance and Sensitivity	The EIS states that <i>"There are no significant species or other habitats present on the property..."</i>	There is insufficient information to support this conclusion. Presence/absence of significant species cannot be confirmed based on the scope of field surveys completed.	See previous responses to comments regarding significant species and habitats. EIS text updated.	Acceptable response if EIS text has been updated.
28	7.1	Proposed Development	The EIS states: <i>"A Conceptual Site Plan has</i>	Please indicate whether land along the southeastern	The lands along the eastern property	Section 7.6 has not been included with this

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			<i>been prepared by Tacoma Engineers (2022) and is superimposed onto the natural feature mapping and shown on Map 3.”</i> In addition, a more detailed version of the Conceptual Site Plan is included at the end of Appendix I.	periphery of the property will be dedicated as a terrestrial linkage, to provide connectivity between the natural habitats around the unevaluated wetlands and the SWM pond immediately to the south.	boundary are available for plantings and enhancements. It is agreed that the lands between the woodland and the on-site wetlands are a good opportunity for plantings to enhance connectivity. A new section 7.6 has been added to the EIS to discuss enhancement opportunities. Along the south boundary is not recommended as a linkage as it is not recommended that wildlife be encouraged to travel toward SWM ponds and busy roads. A landscape plan will be prepared at the Site Plan stage.	response. Please forward for review.
29	7.3.1	Tree and Vegetation Removal	It is unclear why a retaining wall would be required “to match grade with root zones of offsite trees”. Installation of the retaining wall could negatively impact tree root zones and result in hazard trees. No avoidance/ mitigation measures have been	Clarify why the retaining wall is needed. Elaborate on impacts regarding how the retaining wall could impact tree roots and avoidance/mitigation measures to address this.	The grading plan includes a low retaining wall along the north limit of the parking lot, in order to match grades within the root zones of off-site trees. The use of a retaining wall in this area was proposed in order to protect the root zones of trees along the	Sufficient clarification regarding the retaining wall. Please also see additional comment number 26.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			recommended to address this potential impact.		shared north property boundary. Detailed elevation surveying along the dripline has since taken place and will be used to refine the grading plan and identify where retaining walls may be necessary. The retaining wall will only be used where the change in grade is such that it would result in fill being placed over an extensive portion of the root zones of adjacent trees and at too great a depth that would result in impacts to those trees. The details of the retaining wall and tree retention will be determined in the Site Plan stage and reported in the Tree Preservation Plan.	
30	7.3.2	Birds and Their Nests	On page 23, the EIS states: <i>"Should any active nest be identified, ..."</i>	Given that it is not recommended to search vegetatively dense or otherwise complex natural habitats for fear of disturbing nesting birds and contravening the Act, please consider revising the text to read, <i>"Should any active nest</i>	Text has been revised.	Sufficient if updated in EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
				<i>be identified, or signs of an active nest be observed, there shall be"..."</i>		
31	7.4.1	Alterations to Drainage and Flow Patterns, Water Quality, Groundwater	This section is missing a discussion of potential hydrological impacts to wetlands. The EIS should clearly demonstrate that wetland hydrology will be maintained.	Please include a clear demonstration that wetland hydrology will be maintained post-development.	The Hydrogeological Report prepared by CVD indicates that the small wetlands on-site and adjacent are expected to be sustained by overland runoff and are often only seasonally wet. The majority of the small wetlands' surface water catchment is off-site and to the east and will remain unchanged. On-site the wetlands' catchment is very small and will be largely retained within the buffer. The proposed development is downslope of the wetland and is not expected to have any impact on this wetland feature. See also previous responses and refer to CVD Hydrogeological Investigation report.	Acceptable response regarding water balance. No further comment.
32	7.4.2	Wildlife Disturbance	The EIS states: <i>"Common and tolerant species of wildlife were documented"</i>	Please revise the statement to acknowledge the potential presence of the significant	The EIS statement has been revised.	Response pending review of revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			<p><i>using the wetlands and woodland during the 2014 EIS and this study."</i></p> <p>While this statement singles out wildlife use of wetlands and woodlands, all wildlife species, regardless of the habitats they use, can be disturbed by the proposed development.</p> <p>In addition, some of the wildlife species documented by Aboud & Associates and NRSI are not considered 'common'. Three Species at Risk were documented (i.e., BANS, BARS, & EAWP), as well as 7 locally significant species (i.e., significant in Wellington County): AMRE, BAOR, EAKI, FISP, NOFL, RBGR, and RBWO. Please refer to Appendix B (Significant Wildlife List for Wellington County) in the Guelph Natural Heritage Strategy, Phase 2: Terrestrial Inventory & Natural Heritage System – Volume 2: Technical</p>	<p>species noted in the 2014 EIS, and discuss any potential impacts to these species resulting from the proposed development.</p>	<p>The wildlife species and individuals that are present in the study area are those which have adapted to the current noise, lighting and disturbance conditions which are present due to the existing adjacent trucking facility, heavy equipment business, Brock Road South traffic and neighboring aggregate operations. This includes the common species as well as the significant species which have been noted or have potential to be present within the on-site and adjacent woodland such as Eastern wood-pewee and SAR bats.</p>	

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			Appendices (2009) for more details.			
33	7.4.2	Wildlife Disturbance	<p>The EIS states: <i>“To avoid and minimize disturbance to wildlife during operation it is recommended that truck movements and noise be limited to the extent possible during the breeding season for birds and wildlife which includes April to August, including nighttime.”</i></p> <p>The EIS goes on to state: <i>“Construction noise [should] be restricted during spring and summer (April to August) to between 7:00 am and 7:00 pm.”</i></p>	<p>While such a general statement is always desirable, is it feasible given the proposed purpose of the development? If so, please provide examples of tangible restrictions that could be implemented considered to limit truck movement and noise.</p> <p>According to the Township of Puslinch Noise Control bylaw (5001-05), it appears that noise restrictions apply between 9:00 p.m. and 7:00 a.m. Therefore, this recommendation would reduce daily construction noise by of 2 hours. However, given that wildlife species are likely to be more active early in the morning vs. early in the evening, it is recommended that the onset of construction activities be delayed 2 hours in the morning to 9:00 a.m.</p>	<p>The recommended daily construction timing restriction for noise has been edited to between 9:00am and 9:00pm during the spring and summer months (April to August).</p> <p>In terms of operational noise restrictions, the proposed hours of operation of the facility are 8:00am to 5:00pm, Monday to Friday, year round. These hours are not expected to result in noise impacts to breeding birds and other wildlife.</p>	Sufficient if updated in EIS.
34	7.4.2	Wildlife Disturbance	<p>The EIS states: <i>“Permanent parking lot lighting should be shielded and directed away from the adjacent natural features so as to prevent ‘lightwash’ of these areas.”</i></p>	<p>While these recommendations are supported, please also include a recommendation that the height of the light standards be reduced as much as possible, to further reduce the incidence of ‘lightwash’.</p>	<p>Noted. Reduction in height of light standards has been included in the recommendations.</p>	Sufficient if updated in EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
35	7.4.3	Erosion and Sedimentation	It is unclear whether there are any possible impacts related to runoff entering the wetlands.	Clarify whether there could be any impacts to the wetlands regarding erosion and sedimentation and how such impacts would be addressed.	The on-site and adjacent wetlands are located upslope from the development and therefore are not at risk of sedimentation during construction, however, erosion/construction limit fencing is recommended along the outer limit of the work area. An Erosion and Sediment Control Plan will be prepared at the Site Plan stage.	Acceptable response. No further comment.
36	7.5	Induced Impacts	Dumping of debris is listed as an example of an induced impact.	Although it seems unlikely intentional dumping would occur during normal operations, please confirm if any mitigation measures are proposed to help ensure debris associated with the normal operation of the facility will not collect in adjacent natural areas.	Debris from the operation of the facility will be contained within the site by a chain link fence as well as routine maintenance and garbage collection, and will not blow into adjacent natural features.	Acceptable response. No further comment.
37	8.0	Summary	The EIS concludes that there will be no negative impacts on natural features onsite or adjacent lands, however this conclusion is premature; adequate field studies to support	See comments 11, 12, 18,21, and 27.	Based on the background review, fall field work, subsequent analysis and the buffers and mitigation measures proposed, our conclusion remains that there will be no negative impacts on natural	Response pending review of revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			the EIS have not been completed.		features onsite or on adjacent lands.	
38	Appendix I	Terms of Reference	Text in the Reporting Section states: <i>“Recommendations to avoid, or otherwise minimize or mitigate impacts to significant natural features and functions will be presented in the EIS report. Opportunities for ecological enhancement and restoration on the Subject Property, will be highlighted.”</i> Ecological enhancement and restoration opportunities are not mentioned in the EIS.	Given the previous and proposed loss of natural habitat, ecological enhancement and restoration opportunities should be recommended. One area that could be considered for enhancement is the land between the unevaluated wetland at the NE corner of the property and the proposed parking area. In addition, the connection between this same area and the SWM pond to the south could be enhanced.	Enhancement plantings have now been recommended in the east parts of the property including the buffers to the woodland and wetlands as well as gaps between existing vegetation. See new Section 7.6 of the revised EIS. A landscape plan will be prepared at the Site Plan stage.	Response pending review of revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
39	Appendix I	SAR/SCC Screening	The table indicates that there is no suitable woodland or treed habitat for: Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tricolored Bat. However, based on MECP's Survey Protocol for SAR Bats in Treed Habitats (2021), the following ELC codes present suitable habitat for SAR bats: FOD, FOM, FOC, SWD, SWM, SWC. The FOD5 community therefore present potentially suitable habitat for these species. Further, the EIS notes that many mature isolated trees are present within the study area. These trees may provide similar habitat for SAR bats.	Please revise this table to indicate that suitable habitat is present for these species. It is recommended that snag trees be inventoried during the forthcoming Tree Preservation Plan in accordance with MECP survey protocols. Note that an Information Gathering Form (IGF) should be submitted to MECP if impacts to suitable SAR bat habitat are anticipated.	The FOD5 community provides potentially suitable habitat for some SAR bats, as described in the SAR screening table. Isolated trees on-site were assessed for suitable bat habitat during the tree inventory with one being noted.	See response to comment 3.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
40	Appendix II	Plant Species List	This table does not include regional/local status information.	Please update to include species status information from the <i>Guelph Natural Heritage Strategy, Phase 2: Terrestrial Inventory & Natural Heritage System</i> (D&A, 2009). Any locally significant species and their habitats within the study area should be addressed in the EIS.	Added.	Sufficient if updated in EIS.
41	Appendix II	Plant Species List	Appendix H of the Aboud & Associates report, <i>"Additional Vegetation Study for Wet Depression in Gravel Pit"</i> appears to contain additional plant species that were not incorporated into the NRSI report.	Please review Appendix H of the Aboud & Associates report and ensure all plant species are incorporated into the plant species list.	Plant species in Appendix H have been added to the plant species list. However, those species were recorded in the habitats present in the northern portion of the site, associated with the former gravel pit, which have since been removed.	Sufficient if updated in EIS.
42	Appendix II	Plant Species List	False Hop Sedge (<i>Carex lupuliformis</i>) is recorded on the plant list and attributed to the Aboud & Associates 2014 study. This is an extremely rare sedge that is easily confused with the much more common Hop Sedge (<i>Carex lupulina</i>). A review of Aboud & Associates field data sheets suggests	Please confirm whether False Hop Sedge (<i>C. lupuliformis</i>) was reported erroneously and, if so, correct the record to Hop Sedge (<i>C. lupulina</i>).	Aboud and Associates confirm that the sedge species could not be identified due to the timing of the survey and it was listed as <i>Carex</i> sp. In their plant list. <i>Carex lupuliformis</i> was included in the NRSI plant species appendix in error, and has been corrected.	Sufficient if updated in EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	Additional Comments and Clarifications
			that False Hop Sedge was reported erroneously.			

April 3, 2023

Memorandum

To: Lynne Banks – Development and Legislative Coordinator, Township of Puslinch

Cc: Meagan Ferris – Manager of Planning and Environment, Wellington County

From: Danielle Walker, Source Protection Coordinator, Wellington Source Water Protection

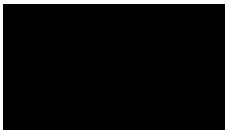
RE: 128 Brock Road South, Township of Puslinch – Zoning By-law amendment

Based on our review of the response matrix submitted on March 3, 2023, in support of the abovementioned application, please see the below comments.

- The applicant has noted that MHBC is to complete and submit the Source Water Protection screening form. Once this document is submitted for review, comments will be provided to the applicant. Please note, as previously stated, a Threats Disclosure Report and associated Management Plan(s) may be recommended, depending on the information disclosed in the screening form.
- The response matrix indicates that there are transport pathways proposed for this site. Please discuss and provide details during future applications.
- Given the size of the proposed development within the draft WHPA-Q, we will be requesting a condition during site plan that the Township require the applicant to install a flow meter to monitor water takings.
- As noted in our memo dated January 27, 2023, we are in support of the Township Hydrogeologist's comments, and that water balances for the period prior to filling of the depression and the post development period should be prepared and presented to the Township.

Further comments will be provided during the site plan process and the requested conditions and recommendations will be updated at that time. The applicant's response matrix has noted the conditions, however, their inclusion in the site plan agreement will be reassessed once all requested documentation has been received and reviewed.

For more information, please contact the undersigned:



2023/04/03

Danielle Walker, Source Protection Coordinator
519-846-9691 ext 236 dwalker@centrewellington.ca

Wellington Source Water Protection
Risk Management Office | 7444 Wellington Rd 21, Elora, ON, N0B 1S0
1-844-383-9800 | sourcewater@centrewellington.ca | wellingtonwater.ca

Noise Feasibility Study

Proposed Industrial Development

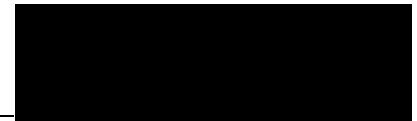
128 Brock Street South

Puslinch, Ontario

Prepared for:

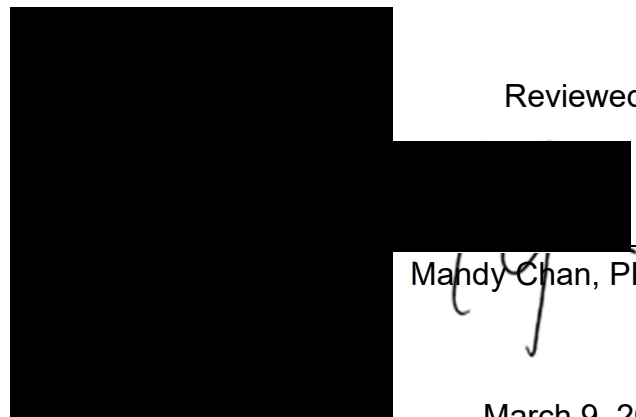
Wellington Motor Freight
7419 McLean Road West
Guelph, ON N1H 6H9

Prepared by



Andrew Rogers, BASc

Reviewed by



Mandy Chan, PEng

March 9, 2023

HGC Project No. 02200716

VERSION CONTROL

Noise Feasibility Study,
128 Brock Street South,
Puslinch, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	March 9, 2023	Noise Feasibility Study in support of a Zoning by-law amendment and Site Plan Approval.	A. Rogers/ M. Chan

Limitations

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Any conclusions and/or recommendations herein reflect the judgment of HGC Engineering based on information available at the time of preparation, and were developed in good faith on information provided by others, as noted in the report, which has been assumed to be factual and accurate. Changed conditions or information occurring or becoming known after the date of this report could affect the results and conclusions presented.



ACOUSTICS



NOISE



VIBRATION

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Table of Contents

1	Introduction and Summary	1
2	Site Description.....	2
2.1	Noise Source Description	2
3	Noise Level Criteria.....	2
3.1	D1 – D6 Guidelines for Land Use Compatibility.....	2
3.2	Criteria Governing Stationary Noise Sources	3
4	Assessment Methodology	5
5	Assessment Results and Recommendations	7
5.1	Recommendations	8
6	Conclusions.....	10
6.1	Implementation.....	10
7	References.....	11

Figure 1: Key Plan

Figure 2: Proposed Site Plan

Figure 3: Predicted Daytime/Evening Hour Non-Impulsive Sources Sound Level Contours

Figure 4: Predicted Impulsive Sources Sound Level Contours

Figure 5: Proposed Site Plan Showing Noise Barrier Location

Figure 6: Predicted Impulsive Sources Sound Level Contours with Mitigation

Appendix A – Acoustical Assessment Methods

Appendix B – Employee Vehicle Traffic Data

Appendix C – Calibration Stamson Output

1 Introduction and Summary

Howe Gastmeier Chapnik Limited (HGC Engineering) was retained by Wellington Motor Freight to undertake a noise assessment for a proposed industrial development located at 128 Brock Street South in Puslinch, Ontario. The noise study is required by the municipality as part of the approvals process, specifically for a Zoning by-law amendment and Site Plan Approval. The study has been completed in accordance with the guidelines of the Municipality and the Ministry of Environment, Conservation and Parks (MECP).

An investigation of the potential noise impact from the proposed general industrial building onto the existing sensitive receptors was conducted. The analysis is based on information obtained from discussion with Wellington Motor Freight personnel, site visits, and HGC Engineering's past experience with similar facilities. The analysis includes assessment of the noise emissions of the anticipated trucking activities, rooftop mechanical equipment, and employee vehicle activities with respect to the closest existing residences. The results of the analysis indicate the development is feasible at the site and can be within the limits of the MECP guidelines with the inclusion of noise control measures. The reader is referred to the main body of the report for assumptions and results of the analysis.

The acoustic recommendations may be subject to modifications if the site plan is changed significantly, operating scenarios are significantly different to those assumed in the assessment or there is a significant increase in background sound levels.



2 Site Description

The site is located on the northeast side of Brock Road South, southeast of Gilmour Road in Puslinch, Ontario. Figure 1 shows a key plan of the area. One industrial building and one office building with parking areas, trucking routes, and loading areas are indicated on the site plan prepared by Tacoma Engineers Inc. dated December 21, 2022, and is attached as Figure 2.

HGC Engineering visited the site in November 2022 to confirm the locations of the existing sensitive receptors and observe the acoustical environment. The area surrounding the subject site is best categorized as a Class 2 (Semi-Urban) acoustical environment, under MECP noise assessment guidelines where the daytime sound levels are dominated by human activities and road traffic. The most potentially impacted residences are located to the north of the site, along Gilmour Road, and northwest of the site, on Brock Road South. East, south and west of the site are existing industrial facilities. There is significant grading in the area of and surrounding the site, sloping up to the south and east from the intersection of Brock Road South and Gilmour Road.

2.1 Noise Source Description

The primary sources of sound associated with the proposed buildings will be arriving, departing, and idling trucks and employee vehicles, and rooftop air conditioning condenser equipment. The facility will operate during daytime hours only.

3 Noise Level Criteria

3.1 D1 – D6 Guidelines for Land Use Compatibility

The requirements for this study requested by the Municipality refers to determining if the proposed development is feasible and compatible with adjacent existing residential uses. The MECP D1 [1] and D6 [2] Guidelines address issues of compatibility between industrial and noise sensitive land uses in relation to land use changes.

For planning purposes for greenfield sites, the potential zone of influence of a Class I industrial use is 70 m and the minimum recommended distance setback is 20 m. The potential zone of influence of a Class II industry is 300 m and the minimum recommended distance setback is 70 m. For infill



projects or projects located in transitional areas the recommended minimum distance setbacks can be reduced, based on the results of technical studies such as this study.

For the size and use of the industrial building, the proposed development can be considered a Class II industrial use. Typically, the recommended minimum distance setbacks apply between the property lines of the facilities, but exceptions can be made if the property lines are adjoined and portions of the residential or industrial lands are reserved for non- noise related uses, such as driveways, snow storage, parking lots or earth berms. In this case, there is approximately 70 m between the nearest existing residence and the tractor parking area, between which are lands reserved for snow storage which can be included in the setback distance. This meets the minimum separation distance for a Class II industry. Furthermore, the results from the assessment in Section 5 indicated that the MECP limits can be met with the inclusion of noise controls.

3.2 Criteria Governing Stationary Noise Sources

MECP Guideline NPC-300 [3] is the MECP guideline for use in investigating Land Use Compatibility issues with regard to noise. An industrial or commercial facility is classified in the MECP Guideline NPC-300 as a stationary source of sound (as compared to sources such as traffic or construction, for example) for noise assessment purposes. A stationary noise source encompasses the noise from all the activities and equipment within the property boundary of a facility including regular on-site truck traffic, material handling and mechanical equipment. Noise from these sources may potentially impact the existing sensitive receptors. In terms of background sound, the development is located in a semi-urban Class 2 acoustical environment which is characterized by an acoustical environment dominated by road traffic and human activity during the daytime hours.

Non-Impulsive Sources

NPC-300 is intended for use in the planning of both residential and commercial/industrial land uses and provides the acceptability limits for sound due to commercial operations in that regard. The facade of a residence (i.e., in the plane of a window), or any associated usable outdoor area is considered a sensitive point of reception (within 30 m of a dwelling façade). NPC-300 stipulates that the exclusionary non-impulsive sound level limit for a stationary noise source in a semi-urban Class 2 area is taken to be 50 dBA during daytime hours (07:00 to 23:00), and 45 dBA during nighttime hours (23:00 to 07:00) at the plane of the windows of noise sensitive spaces. If the



background sound levels due to road traffic exceed the exclusionary limits, then that background sound level becomes the criterion. The background sound level is defined as the sound level that occurs when the source under consideration is not operating, and may include traffic noise and natural sounds.

Commercial activities such as the occasional movement of customer/employee vehicles and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. However, the Town of Puslinch has indicated that employee vehicle activity should be considered in the assessment.

Thirteen existing residences near the site are considered to be the representative noise sensitive receptors (R1 to R13) in this study. R1, R2, R4 to R7 and R12 are 2-storey houses and R3, R8 to R11 and R13 are 1-storey houses. Receptor locations are shown on Figures 3, 4 and 6.

Impulsive Sources

Acceptability limits for frequently occurring sounds that are impulsive in character (such as those from coupling and decoupling of trailers) are also provided in NPC-300. The limit is determined in a similar fashion to non-impulsive sounds and the same limits apply in the case.

The table below summarizes the applicable sound level limits to which the operation of the proposed industrial facility is assessed.

Table 1: Applicable Sound Level Limits, L_{EQ}/L_{LM} (dBA/dBAI)

Receptor	Sound Level Limits		
	Day (07:00 to 19:00)	Evening (19:00 to 23:00)	Night (23:00 to 07:00)
R1 to R13	50	50	45

Compliance with MECP criteria generally results in acceptable levels of sound at the sensitive receptors although there may be residual audibility during periods of low background sound.

4 Assessment Methodology

Predictive noise modelling was used to assess the potential noise impact of mechanical equipment, trucking activities, and employee vehicle activities at the residential receptors. Assumed operational information outlined below and surrounding building locations obtained from aerial photography were used as input to a predictive computer model (Cadna/A 2023 build: 195.5312), in order to estimate the sound levels from the proposed buildings at the existing receptors. Cadna/A is a computer implementation of ISO Standard 9613-2 [4] which considers attenuation due to distance (geometrical spreading), shielding by intervening structures (such as barriers), air attenuation and ground absorption. Additional information, including a figure showing the stationary noise source locations, is provided in Appendix A.

Topographical data obtained from Government of Canada's High Resolution Digital Elevation Model was used for the site and surrounding areas, along with proposed grading information on the site plan. A Traffic Impact Study prepared by Paradigm Transportation Solutions Ltd. dated December 2022 was reviewed to assess the volume of employee vehicles arriving and departing the site during a peak hour (see Appendix B).

For general warehousing facilities, the building would typically be ventilated passively and only the office building would be provided with air conditioning.

The facility will generally operate during daytime hours only (7:00 – 17:00); therefore, nighttime assessment is not considered further. In this impact assessment, we have considered the following worst-case (busiest hour) scenarios for the daytime hours. It has been assumed truck engines will idle for 10 minutes out of each hour as outlined in the Guelph by-law Number (1998)-15945. Figure 3 shows the location of the steady noise source locations and Figure 4 shows the location of the impulsive noise source locations. Vehicles are also conservatively assumed to idle for 5 minutes in the employee parking area. Truck idling, car idling, and rooftop HVAC units are shown as green crosses, truck pass-bys and car pass-bys are shown as a green line, and truck coupling/decoupling is shown as a green hatched area.



Assumed daytime/evening worst-case hour scenario:

- 23 trucks arrive and depart the facility or park at the tractor parking area;
- Trucks are assumed to idle in the loading bay or parking area for 10 minutes;
- 106 employee cars arrive and depart the facility or park in the employee parking area;
- Employee cars are assumed to idle in the parking area for 5 minutes;
- Employee cars idling while waiting to exit the facility for a combined total of 15 minutes;
- All rooftop equipment operates at full capacity for the full hour.

Additional information and assumptions used in the analysis:

- The height of the proposed building is 15 m;
- The facility is assumed to operate only during daytime hours;
- Rooftop HVAC units are assumed to be 1.5 m tall.

Sound emission data for the trucking activities, rooftop equipment, and employee vehicle activity was obtained from HGC Engineering project files which were measured from past similar projects. The employee vehicle movement noise source was included in the model as a line source producing equivalent sound pressure levels at a reference distance to those predicted by STAMSON 5.04, a computer algorithm developed by the MECP, based on the traffic volumes presented in the Traffic Impact Study. The calibration output from STAMSON is included in Appendix C. The sound power levels for non-impulsive and impulsive sources measured from similar facilities were used in our analysis and are summarized in Table 2.

Table 2: Sound Power Levels Used in the Analysis [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]								A
	63	125	250	500	1k	2k	4k	8k	
HVAC Unit, 10-ton	91	89	86	84	84	78	76	67	88
Truck, traveling on truck route	101	100	94	96	97	95	91	86	101
Truck, idling	96	91	88	88	91	90	81	70	95
Car, idling	90	86	76	72	71	68	62	58	77
Car, traveling through parking area	64	64	62	63	59	59	52	44	65

Impulsive noises are assessed separately from the non-impulsive sound sources. Two types of impulsive sounds are expected to be emitted from the facility: loading/unloading of trailers by forklifts and coupling/decoupling of trucks to/from trailers. The multiple impulsive noises are

combined to obtain a logarithmic mean impulse sound level (L_{LM}) of 110 dBAI. This was calculated based on measurements conducted by HGC Engineering for similar past projects. Impulsive sounds were modeled and distributing the assumed source sound power levels throughout the loading and parking area of the site. The impulsive sounds were assumed to be emitted during all daytime and evening time periods.

5 Assessment Results and Recommendations

Non-Impulsive Sources

The predicted sound levels due to the trucking activities (arriving, idling and departing) and rooftop mechanical equipment at the representative receptors (R1 to R13) during a worst-case busiest hour operating scenario, are summarized in the following table and shown graphically in Figure 3.

Table 3: Predicted Non-Impulsive Source Sound Levels at Receptors during a Worst-case Operating Scenario hour (Without Mitigation), Leq (dBA)

Receptor	Description	Criteria Day/Eve (dBA)	Daytime OLA	Daytime/ Evening (dBA)
R1	95 Brock Road South	50 / 50	<40	42
R2	2 Gilmour Road	50 / 50	47	48
R3	4 Gilmour Road	50 / 50	46	45
R4	6 Gilmour Road	50 / 50	46	45
R5	5 Gilmour Road	50 / 50	50	49
R6	10 Aberfoyle Mill Crescent	50 / 50	45	46
R7	9 Aberfoyle Mill Crescent	50 / 50	43	45
R8	20 Gilmour Road	50 / 50	<40	43
R9	24 Gilmour Road	50 / 50	40	41
R10	30 Gilmour Road	50 / 50	<40	<40
R11	34 Gilmour Road	50 / 50	<40	<40
R12	38 Gilmour Road	50 / 50	<40	<40
R13	37 Gilmour Road	50 / 50	<40	<40

Impulsive Sources

The predicted impulsive sound levels are provided in Figure 4 and also summarized in Table 4.

**Table 4: Predicted Impulsive Sound Levels at Residential Receptors
(Without Mitigation), L_{LM} (dBAI)**

Receptor	Description	Criteria Day/Eve (dBAI)	Predicted Impulsive Sound Levels (dBAI)
R1	95 Brock Road South	50 / 50	48
R2	2 Gilmour Road	50 / 50	52
R3	4 Gilmour Road	50 / 50	49
R4	6 Gilmour Road	50 / 50	51
R5	5 Gilmour Road	50 / 50	53
R6	10 Aberfoyle Mill Crescent	50 / 50	51
R7	9 Aberfoyle Mill Crescent	50 / 50	51
R8	20 Gilmour Road	50 / 50	48
R9	24 Gilmour Road	50 / 50	48
R10	30 Gilmour Road	50 / 50	46
R11	34 Gilmour Road	50 / 50	42
R12	38 Gilmour Road	50 / 50	<40
R13	37 Gilmour Road	50 / 50	45

The results of this analysis indicate that the predicted non-impulsive sound levels due to trucking activities, mechanical equipment, and employee vehicle activities at the proposed facility are expected to be within the applicable limits at the noise sensitive receptors during an assumed worst-case operational scenario. However, the impulsive sound levels due to trucking activities are expected to exceed the applicable limits at the noise sensitive receptors during an assumed worst-case operational scenario. Noise control measures are required and provided in Section 5.1.

5.1 Recommendations

Calculations indicate that a 2.2 m high noise barrier (approximately 90 m in length), relative to proposed grade, northwest of the loading bays, as shown in Figure 5, will provide sufficient noise mitigation. A noise barrier can consist of an earth berm or a noise wall on top of an earth berm. The noise wall can be constructed from a variety of materials such as wood, metal, brick, pre-cast concrete or other concrete/wood composite systems provided that it is free of gaps or cracks and has a solid construction, with a surface density of no less than 20 kg/m².

The predicted impulsive sound levels with the inclusion of the noise barrier mentioned above are summarized in Tables 5, and shown on Figure 6.

**Table 6: Predicted Impulsive Sound Levels at Residential Receptors
(With Mitigation), L_{LM} (dBAI)**

Receptor	Description	Criteria Day/Eve (dBAI)	Predicted Impulsive Sound Levels (dBAI)
R1	95 Brock Road South	50 / 50	46
R2	2 Gilmour Road	50 / 50	50
R3	4 Gilmour Road	50 / 50	47
R4	6 Gilmour Road	50 / 50	48
R5	5 Gilmour Road	50 / 50	50
R6	10 Aberfoyle Mill Crescent	50 / 50	49
R7	9 Aberfoyle Mill Crescent	50 / 50	49
R8	20 Gilmour Road	50 / 50	48
R9	24 Gilmour Road	50 / 50	47
R10	30 Gilmour Road	50 / 50	46
R11	34 Gilmour Road	50 / 50	42
R12	38 Gilmour Road	50 / 50	<40
R13	37 Gilmour Road	50 / 50	45



6 Conclusions

The acoustical analysis indicates that sound levels predicted under worst case operating scenarios and incorporating the noise control measures recommended herein, are expected to comply with the applicable MECP limits for non-impulsive and impulsive sounds at neighbouring receptors.

The acoustic recommendations may be subject to modifications if the site plan is changed significantly, operating scenarios are significantly different to those assumed in the assessment or there is a significant increase in background sound levels.

6.1 Implementation

1) Prior to the issuance of building permits for this development or at appropriate approvals stage by the municipality, a Professional Engineer qualified to provide acoustical engineering services in Ontario shall review the site, building plans, rooftop mechanical specification and grading plans to confirm that the assumptions are in accordance with the approved noise study and that the appropriate height and extent of the required noise barrier have been incorporated to meet MECP guideline limits at adjacent receptors.



7 References

1. Ontario Ministry of the Environment Publication Guideline D1, *Land Use Compatibility*, July 1995
2. Ontario Ministry of the Environment Publication Guideline D6, *Compatibility Between Industrial Facilities and Sensitive Land Uses*, July 1995
3. Ontario Ministry of the Environment Publication NPC-300, *Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning*, August 2013.
4. International Organization for Standardization, *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation*, ISO-9613-2, Switzerland, 1996.





Figure 1: Key Plan



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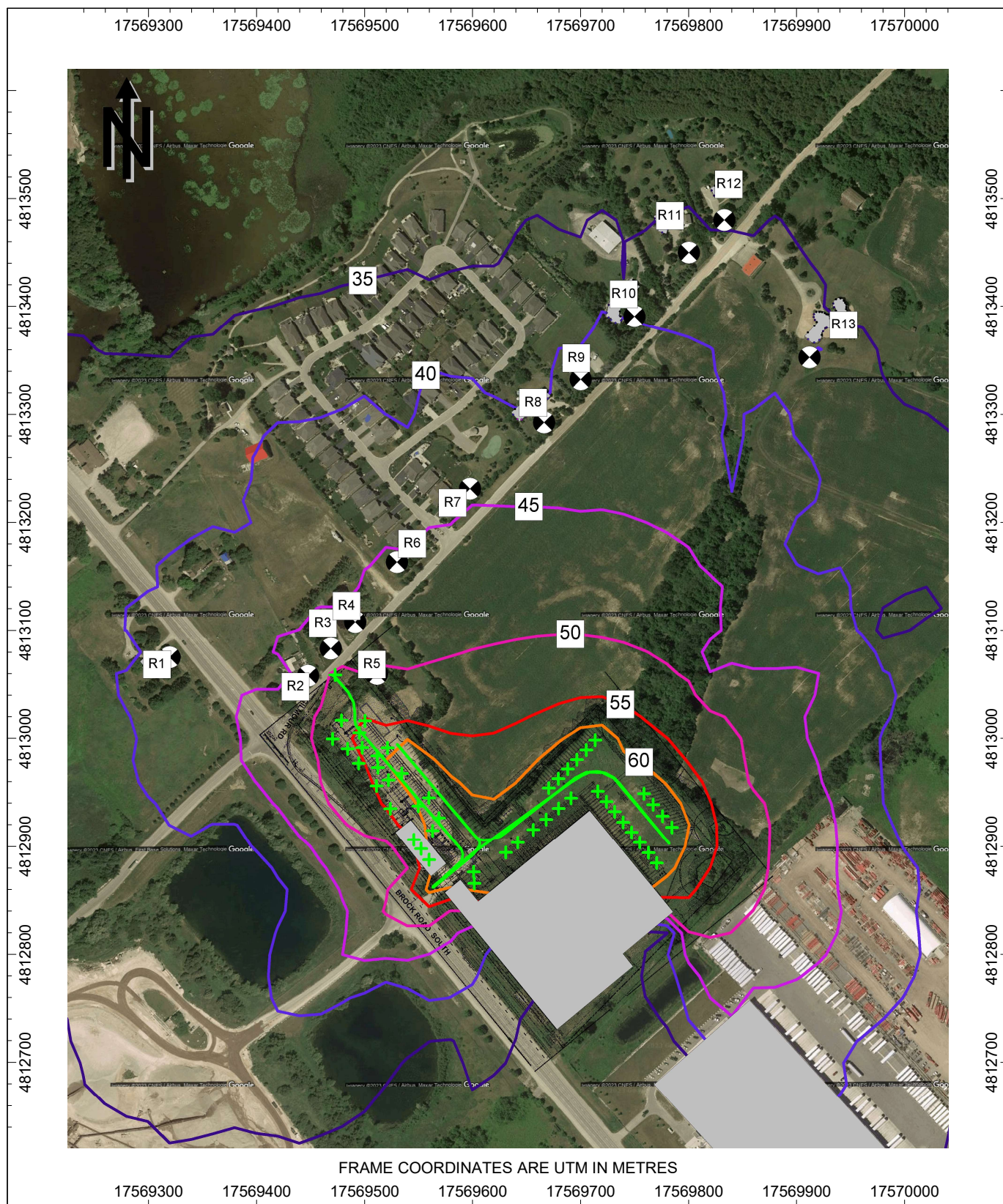


Figure 3: Predicted Daytime/Evening Hour Non-Impulsive Sources Sound Level Contours

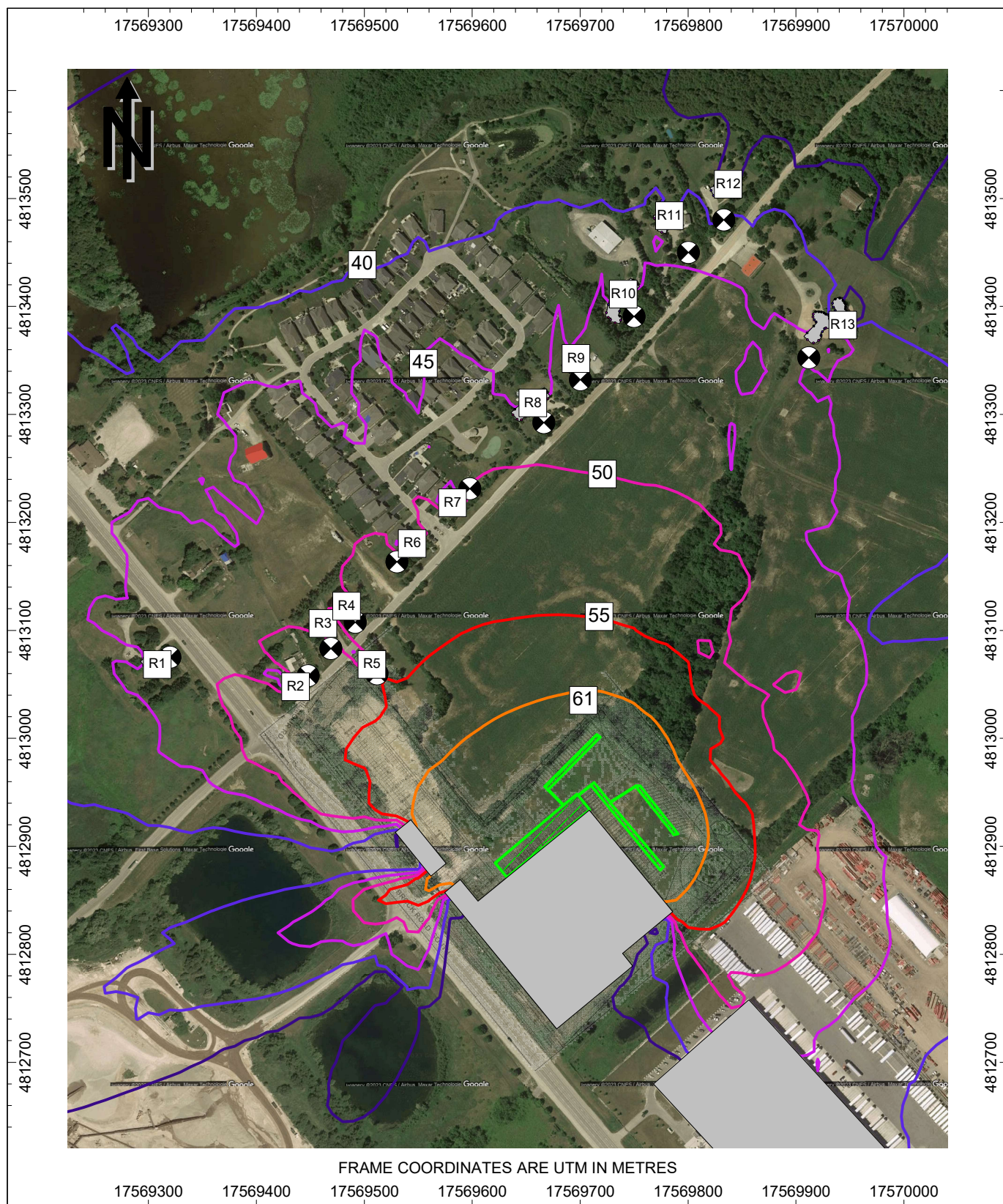


Figure 4: Predicted Impulsive Sources Sound Level Contours

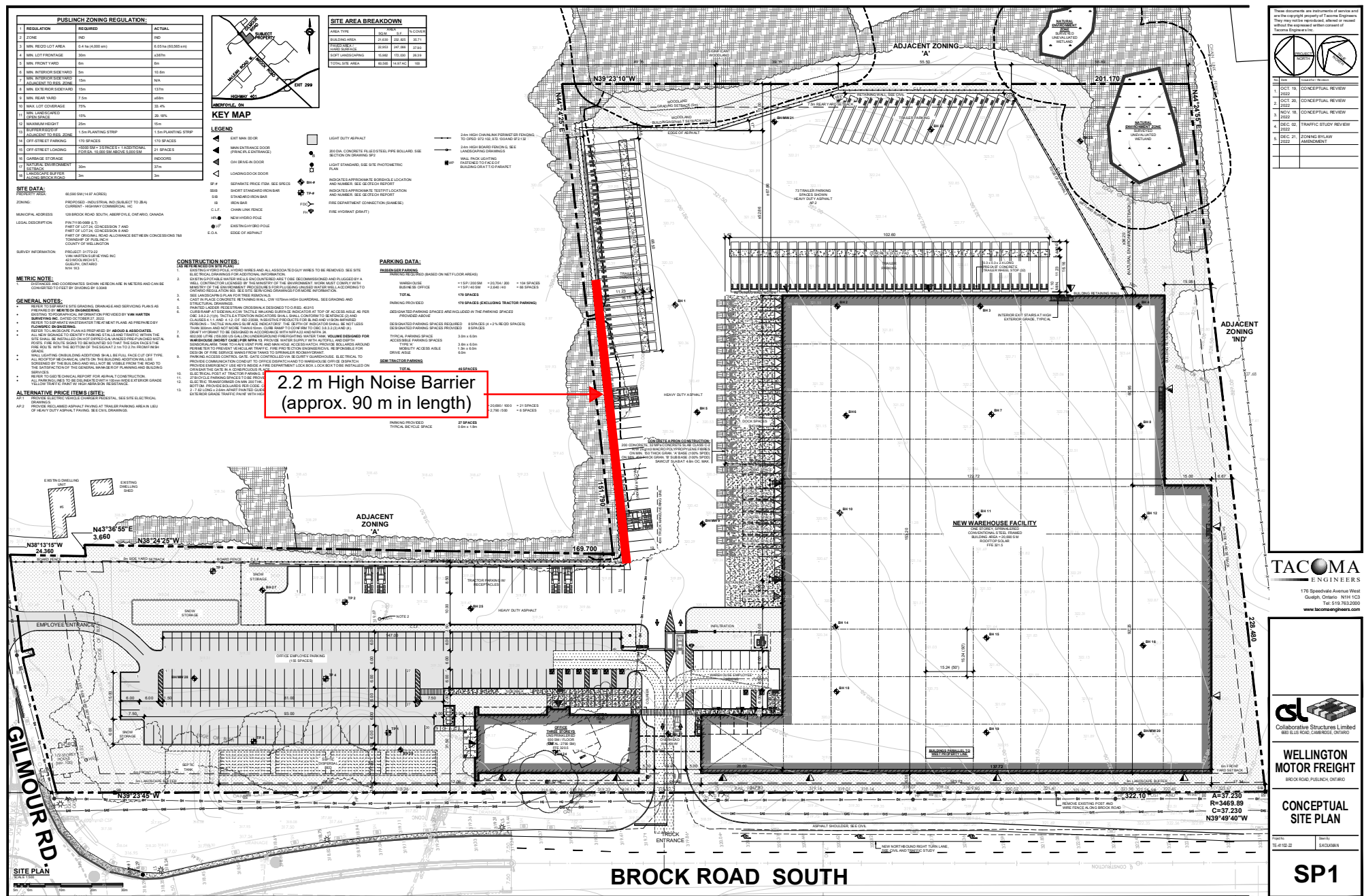


Figure 5 - Proposed Site Plan Showing Noise Barrier Location

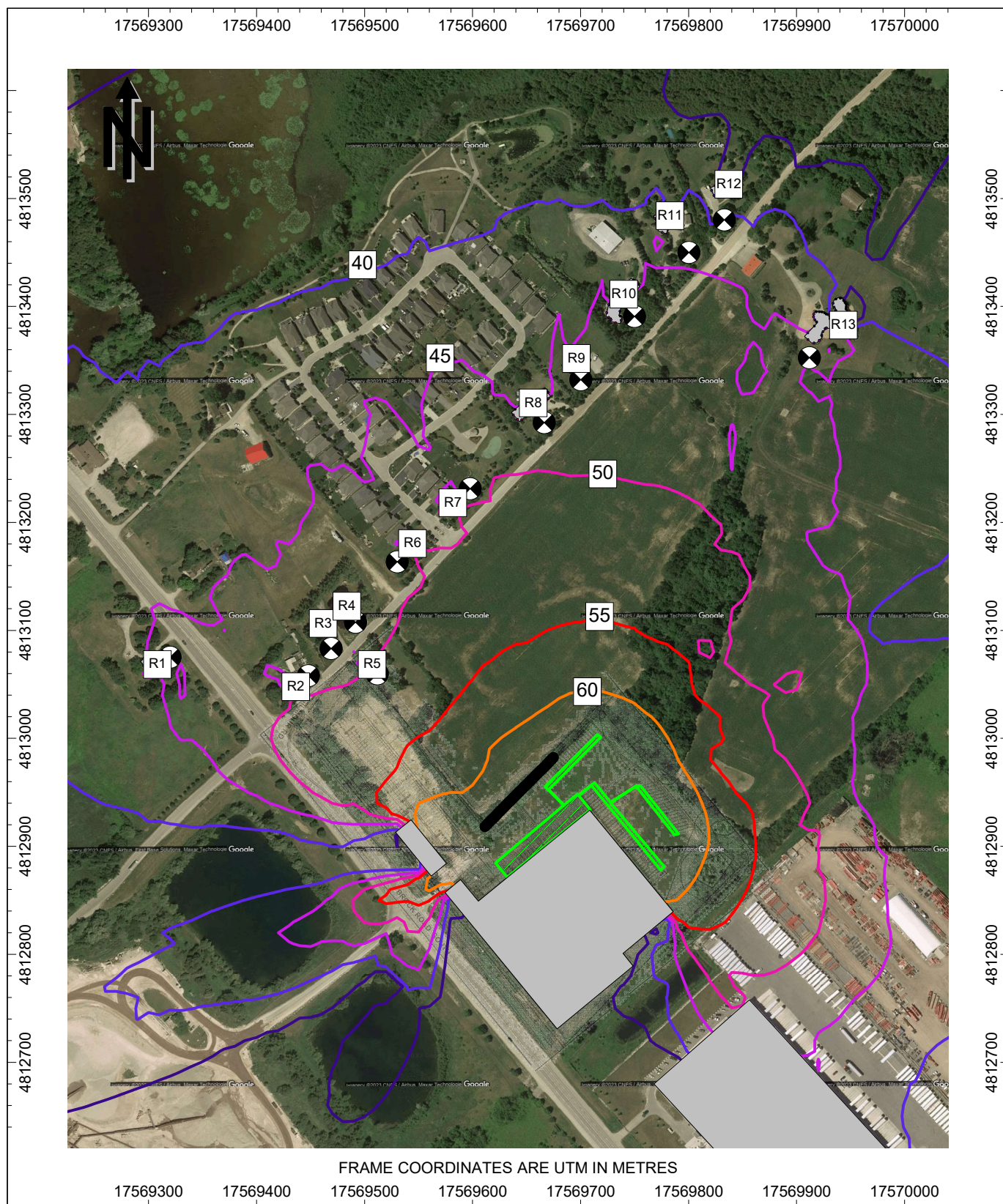


Figure 6: Predicted Impulsive Sources Sound Level Contours with Mitigation

APPENDIX A

Acoustical Modelling Assumptions



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The predictive model used for this Assessment (*Cadna-A version 2023 Build 195.5312*) is based on methods from ISO Standard 9613-2.2 “Acoustics - Attenuation of Sound During Propagation Outdoors”, which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures such as buildings. This modeling technique is acceptable to the MECP.

The subject site and surrounding area were modelled based on observations during the site visit. Foliage was not included in the modelling. Ground attenuation was assumed to be spectral for all sources, with a ground factor (G) of 0.25 in paved areas (site area) and 0.9 for soft-ground areas (surrounding lands). The temperature and relative humidity were assumed to be 10° C and 70%, respectively.

The predictive modelling considered one order of reflection, the sufficiency of which was verified through an iterative convergence analysis, using successively increasing orders of reflection.

All mechanical sources, with the exception of on-site truck/employee vehicle movements, were modeled as point sources of sound, shown as crosses in Figures 3 and A1. On-site truck and employee vehicle movements were modeled as line sources that are shown as green lines in Figures 3 and A1. The impulsive noise sources, including loading/unloading of trailers by forklifts and coupling/decoupling of trucks to/from trailers, were modeled as an area source that is shown as a green hatched area in Figures 4 and 6.



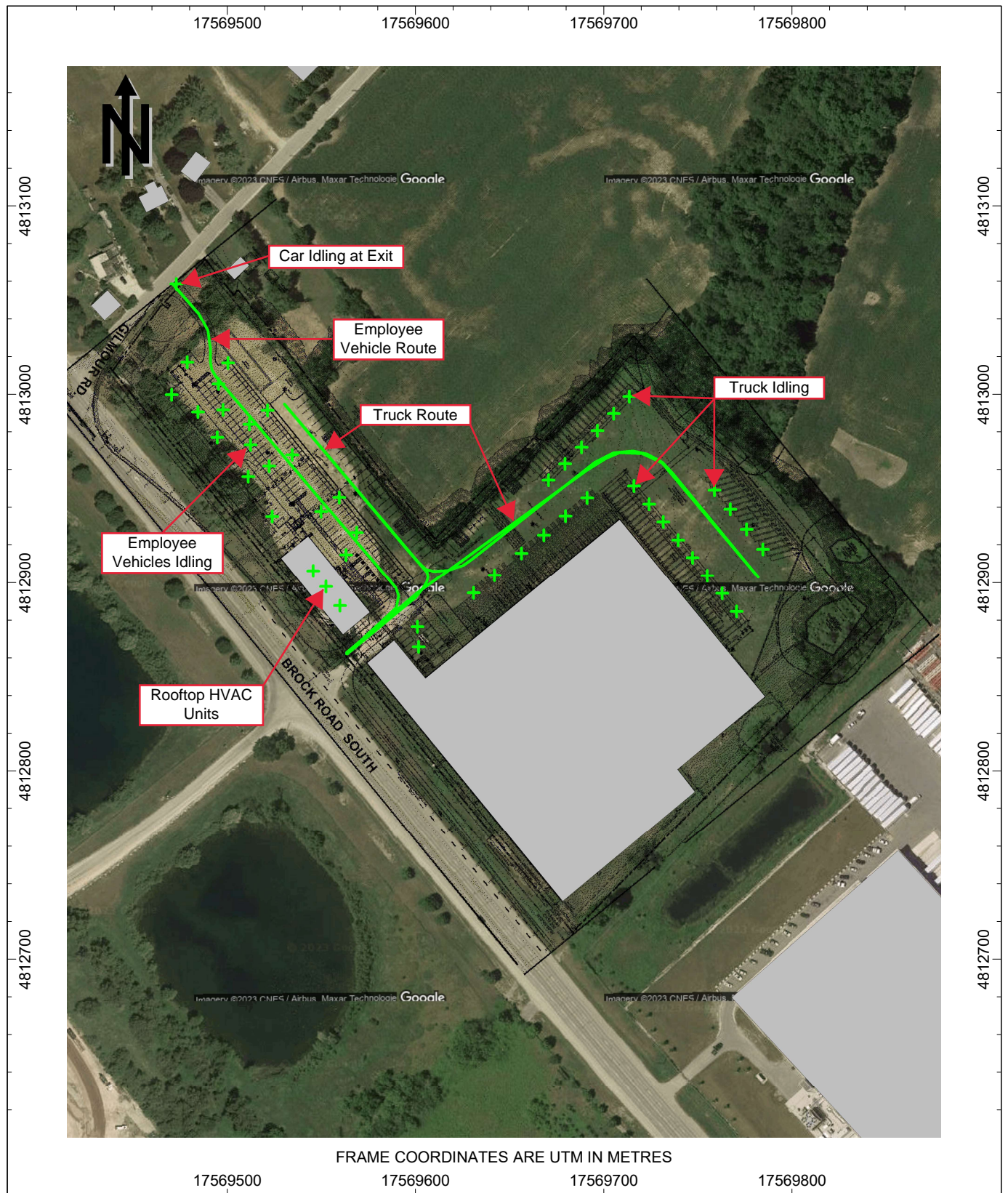


Figure A1: Non-Impulsive Noise Source Locations

APPENDIX B

Employee Vehicle Traffic Data



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3.2 Development Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation⁴ methods are used to estimate the site trip generation. The following Land Use Codes (LUC) were used to estimate the site generated trips:

- ▶ LUC 150 (Warehouse); and
- ▶ LUC 710 General Office Building.

Regression equation rates were used to calculate the trips generated by the warehouse use. **Table 3.1** summarizes the estimated trip generation and is estimated to be approximately 108 AM peak hour trips and 112 PM peak hour trips. No reductions for alternative modes of transportation were used in the calculation. **Appendix D** contains the ITE trip generation data sheets.

Table 3.1 summarizes the forecast number of net new trips generated by the proposed development.

TABLE 3.1: TRIP GENERATION

ITE Land Use	Units	Vehicle Type	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 150 - Warehouse (GFA/1,000ft ²)	207.6	Vehicles	36	9	45	11	34	45
		Trucks	2	2	4	3	3	6
LUC 710 - General Office Building (GFA/1,000ft ²)	30.0	Vehicles	52	7	59	10	51	61
Total Trip Generation			90	18	108	24	88	112

LUC 150: AM $T = 0.12(X) + 23.62$ | PM $T = 0.12(X) + 26.48$

LUC 710: AM $\ln(T) = 0.87 \ln(X) + 3.05$ | PM $\ln(T) = 0.83 \ln(X) + 1.29$

3.3 Development Trip Distribution and Assignment

The trip distribution used for this study was based on the existing trip distribution for Brock Road (Wellington Road 46) as the site traffic would likely use this route for trips to/from Guelph and/or Highway 401. The trip distribution is shown in **Table 3.2**.

⁴ *Trip Generation Tenth Edition*, Institute of Transportation Engineers, Washington D.C., 2017



APPENDIX C

Calibration Stamson Output



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STAMSON 5.0 NORMAL REPORT Date: 09-03-2023 10:28:57
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: vehcal.te Time Period: 1 hours
 Description: **Employee vehicle movement calibration.**

Road data, segment # 1:

 Car traffic volume : 106 veh/TimePeriod
 Medium truck volume : 0 veh/TimePeriod
 Heavy truck volume : 0 veh/TimePeriod
 Posted speed limit : 40 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1:

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 30.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1:

 Source height = 0.50 m

ROAD (0.00 + 46.62 + 0.00) = 46.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	49.63	0.00	-3.01	0.00	0.00	0.00	0.00	46.62

Segment Leq : 46.62 dBA

Total Leq All Segments: 46.62 dBA

TOTAL Leq FROM ALL SOURCES: 46.62



March 13, 2023

Township of Puslinch
7404 Wellington Road 34
Puslinch, Ontario
N0B 2J0

Attention: Lynne Banks
[REDACTED]

VIA E-MAIL

**Re: Peer Review of Noise Feasibility Study
Proposed Wellington Motor Freight Facility
Puslinch, Ontario
VCL File: 123-0058**

Dear Ms. Banks:

We have completed our review of the “*Noise Feasibility Study, Proposed Industrial Development, 128 Brock Street South, Puslinch, Ontario*”, dated March 9, 2023, prepared by Howe Gastmeier Chapnik Limited (HGC).

Our comments are outlined herein.

1.0 COMMENTS

- a) The noise assessment has applied the Ministry of Environment, Conservation and Parks (MECP) noise guideline requirements of NPC-300. This is considered appropriate.
- b) Section 2.1 of the HGC report indicates the facility will only operate during the daytime hours (i.e., between 0700 and 1900 hours). There should be a restriction to prevent the existing and any future operations at the facility from occurring during the evening and at night since the analysis results indicate the evening and nighttime noise guideline limits would be exceeded. If there is the potential for the facility to operate during the evening and/or nighttime hours, the assessment should be updated to include these time periods.
- c) Table 1 provides the MECP noise guideline limits that are applicable at the exterior plane of window of a noise sensitive receptor location. The guideline limits at an outdoor point of reception (anywhere within 30 m of a dwelling) are somewhat different than the limits presented in Table 1. In particular, the evening limit at an outdoor point of reception is 5 dBA lower than the plane of window criteria in a Class 2 area such as this.

It should be noted that page 6 and Table 3 in the report indicate evening operations. The results in Table 3 indicate the evening outdoor point of reception criteria are exceeded at R2, R5 and R6. Clarification is needed.

- d) We have these questions/comments about the analysis scenarios and operating assumptions:
- a. Will there be any shunting movements between the loading bay and trailer parking areas? If so, how were these included in the assessment?
 - b. A Stamson output is provided as Appendix C and is indicated as being a calibration output. It is not clear what this result is being used to calibrate since there are no sample calculations provided within the report.
 - (1) The report should include sample calculations. Alternatively, the CadnaA model could be provided for our review;
 - (2) The Stamson output indicates a 40 km/hr speed has been used for employee vehicles travelling on the site. Presumably this is for automobiles travelling on the site. It is unlikely that vehicles would be travelling at this high a speed on the site. Vehicles travelling at a lower speed will take longer to get to their destination resulting in higher noise generation;
 - (3) The report indicates an average impulse reference sound level of 110 dBAI has been used in the assessment. What sound level was used for the impulses generated in the trailer parking areas where there would be no loading/unloading impulses. Our experience is that coupling/uncoupling impacts generate sound levels higher than the loading/unloading impacts;
 - (4) The results presented in Table 3 appear to not include employee vehicle movements (see paragraph above the table). As per comments from the Town, the assessment is to include all vehicle movements on the site; and
 - (5) Appendix A indicates all sources, except vehicle movements, have been modelled as point sources of sound. Review of Figure 6 seems to indicate that the impulses were modelled as a line source(s). An explanation of how the impulses were modelled and why this represents a predictable worst-case scenario is needed.

2.0 CONCLUSIONS


Our review of the noise feasibility study prepared in support of the motor freight facility indicates there are a few items, as outlined above, that require further clarification and assessment before we can concur with its findings and conclusions

If there are any questions, please do not hesitate to call.

Yours truly,

VALCOUSTICS CANADA LTD.

Per:



John Emeljanow, P.Eng.

JEV
J:\2023\1230058\000\Letters\2023-03-13 Peer Review V1.0.docx

Noise Feasibility Study

Proposed Industrial Development

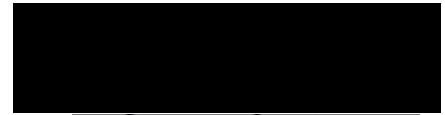
128 Brock Road South

Puslinch, Ontario

Prepared for:

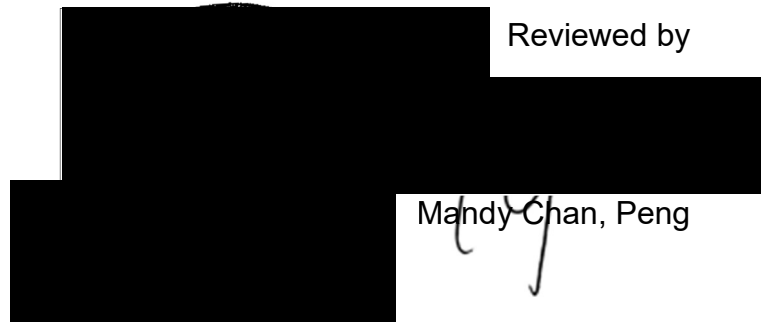
Wellington Motor Freight
7419 McLean Road West
Guelph, ON N1H 6H9

Prepared by



Andrew Rogers, BASc

Reviewed by



Mandy Chan, Peng

March 20, 2023

HGC Project No. 02200716



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VERSION CONTROL

Noise Feasibility Study,
128 Brock Road South,
Puslinch, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	March 9, 2023	Noise Feasibility Study in support of a Zoning by-law amendment and Site Plan Approval.	A. Rogers/ M. Chan
1	March 20, 2023	Revisions to address peer review comments.	A. Rogers/ M. Chan

Limitations

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www.hgcengineering.com

Table of Contents

1	Introduction and Summary	1
2	Site Description.....	2
2.1	Noise Source Description	2
3	Noise Level Criteria.....	2
3.1	D1 – D6 Guidelines for Land Use Compatibility.....	2
3.2	Criteria Governing Stationary Noise Sources	3
4	Assessment Methodology	5
5	Assessment Results and Recommendations	7
5.1	Recommendations	9
6	Conclusions.....	11
6.1	Implementation.....	11
7	References.....	12

Figure 1: Key Plan

Figure 2: Proposed Site Plan

Figure 3: Predicted Daytime Hour Non-Impulsive Sources Sound Level Contours

Figure 4: Predicted Evening/Nighttime Hour Non-Impulsive Sources Sound Level Contours

Figure 5: Predicted Impulsive Sources Sound Level Contours

Figure 6: Proposed Site Plan Showing Noise Barrier Location

Figure 7: Predicted Daytime Hour Non-Impulsive Sources Sound Level Contours with Mitigation

Figure 8: Predicted Impulsive Sources Sound Level Contours with Mitigation

Appendix A – Acoustical Assessment Methods

Appendix B – Employee Vehicle Traffic Data

Appendix C – Calibration Stamson Output & Cadna/A Calculation Summary

Appendix D – Response to Peer Review Comments

1 Introduction and Summary

Howe Gastmeier Chapnik Limited (HGC Engineering) was retained by Wellington Motor Freight to undertake a noise assessment for a proposed industrial development located at 128 Brock Street South in Puslinch, Ontario. The noise study is required by the municipality as part of the approvals process, specifically for a Zoning by-law amendment and Site Plan Approval. The study has been completed in accordance with the guidelines of the Municipality and the Ministry of Environment, Conservation and Parks (MECP).

This study has been updated to include responses to peer review comments from Valcoustics Canada Ltd. dated March 13, 2023 in Appendix D.

An investigation of the potential noise impact from the proposed general industrial building onto the existing sensitive receptors was conducted. The analysis is based on information obtained from discussion with Wellington Motor Freight personnel, site visits, and HGC Engineering's past experience with similar facilities. The analysis includes assessment of the noise emissions of the anticipated trucking activities, rooftop mechanical equipment, and employee vehicle activities with respect to the closest existing residences. The results of the analysis indicate the development is feasible at the site and can be within the limits of the MECP guidelines with the inclusion of noise control measures. The reader is referred to the main body of the report for assumptions and results of the analysis.

The acoustic recommendations may be subject to modifications if the site plan is changed significantly, operating scenarios are significantly different to those assumed in the assessment or there is a significant increase in background sound levels.



2 Site Description

The site is located on the northeast side of Brock Road South, southeast of Gilmour Road in Puslinch, Ontario. Figure 1 shows a key plan of the area. One industrial building and one office building with parking areas, trucking routes, and loading areas are indicated on the site plan prepared by Tacoma Engineers Inc. dated December 21, 2022, and is attached as Figure 2.

HGC Engineering visited the site in November 2022 to confirm the locations of the existing sensitive receptors and observe the acoustical environment. The area surrounding the subject site is best categorized as a Class 2 (Semi-Urban) acoustical environment, under MECP noise assessment guidelines where the daytime sound levels are dominated by human activities and road traffic. The most potentially impacted residences are located to the north of the site, along Gilmour Road, and northwest of the site, on Brock Road South. East, south and west of the site are existing industrial facilities. There is significant grading in the area of and surrounding the site, sloping up to the south and east from the intersection of Brock Road South and Gilmour Road.

2.1 Noise Source Description

The primary sources of sound associated with the proposed buildings will be arriving, departing, and idling trucks and employee vehicles, and rooftop air conditioning condenser equipment. The facility will primarily operate during daytime hours; however, there may be limited arriving and idling trucks during the evening and nighttime hours.

3 Noise Level Criteria

3.1 D1 – D6 Guidelines for Land Use Compatibility

The requirements for this study requested by the Municipality refers to determining if the proposed development is feasible and compatible with adjacent existing residential uses. The MECP D1 [1] and D6 [2] Guidelines address issues of compatibility between industrial and noise sensitive land uses in relation to land use changes.

For planning purposes for greenfield sites, the potential zone of influence of a Class I industrial use is 70 m and the minimum recommended distance setback is 20 m. The potential zone of influence of a Class II industry is 300 m and the minimum recommended distance setback is 70 m. For infill



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projects or projects located in transitional areas the recommended minimum distance setbacks can be reduced, based on the results of technical studies such as this study.

For the size and use of the industrial building, the proposed development can be considered a Class II industrial use. Typically, the recommended minimum distance setbacks apply between the property lines of the facilities, but exceptions can be made if the property lines are adjoined and portions of the residential or industrial lands are reserved for non- noise related uses, such as driveways, snow storage, parking lots or earth berms. In this case, there is approximately 70 m between the nearest existing residence and the tractor parking area, between which are lands reserved for snow storage which can be included in the setback distance. This meets the minimum separation distance for a Class II industry. Furthermore, the results from the assessment in Section 5 indicated that the MECP limits can be met with the inclusion of noise controls.

3.2 Criteria Governing Stationary Noise Sources

MECP Guideline NPC-300 [3] is the MECP guideline for use in investigating Land Use Compatibility issues with regard to noise. An industrial or commercial facility is classified in the MECP Guideline NPC-300 as a stationary source of sound (as compared to sources such as traffic or construction, for example) for noise assessment purposes. A stationary noise source encompasses the noise from all the activities and equipment within the property boundary of a facility including regular on-site truck traffic, material handling and mechanical equipment. Noise from these sources may potentially impact the existing sensitive receptors. In terms of background sound, the development is located in a semi-urban Class 2 acoustical environment which is characterized by an acoustical environment dominated by road traffic and human activity during the daytime hours.

Non-Impulsive Sources

NPC-300 is intended for use in the planning of both residential and commercial/industrial land uses and provides the acceptability limits for sound due to commercial operations in that regard. The facade of a residence (i.e., in the plane of a window), or any associated usable outdoor area (within 30 m of a dwelling façade) are considered the sensitive points of reception. NPC-300 stipulates that the exclusionary non-impulsive sound level limit for a stationary noise source in a semi-urban Class 2 area is taken to be 50 dBA during daytime/evening hours (07:00 to 23:00), and 45 dBA during nighttime hours (23:00 to 07:00) at the plane of the windows of noise sensitive spaces, and



50 dBA during daytime hours (07:00 to 19:00) and 45 dBA during the evening hours (19:00 to 23:00) at outdoor areas. If the background sound levels due to road traffic exceed the exclusionary limits, then that background sound level becomes the criterion. The background sound level is defined as the sound level that occurs when the source under consideration is not operating, and may include traffic noise and natural sounds.

Commercial activities such as the occasional movement of customer/employee vehicles and garbage collection are not of themselves considered to be significant noise sources in the MECP guidelines. However, the Town of Puslinch has indicated that employee vehicle activity should be considered in the assessment.

Thirteen existing residences near the site are considered to be the representative noise sensitive receptors (R1 to R13) in this study. R1, R2, R4 to R7 and R12 are 2-storey houses and R3, R8 to R11 and R13 are 1-storey houses. Receptor locations are shown on Figures 3, 4, 5, 7, and 8.

Impulsive Sources

Acceptability limits for frequently occurring sounds that are impulsive in character (such as those from coupling and decoupling of trailers) are also provided in NPC-300. The limit is determined in a similar fashion to non-impulsive sounds and the same limits apply in the case.

The table below summarizes the applicable sound level limits to which the operation of the proposed industrial facility is assessed.

Table 1: Applicable Sound Level Limits, L_{EQ}/L_{LM} (dBA/dBAI)

Receptor	Sound Level Limits		
	Day (07:00 to 19:00)	Evening (19:00 to 23:00)	Night (23:00 to 07:00)
R1 to R13, Facade	50	50	45
R1 to R13, OLA	50	45	--

Compliance with MECP criteria generally results in acceptable levels of sound at the sensitive receptors although there may be residual audibility during periods of low background sound.

4 Assessment Methodology

Predictive noise modelling was used to assess the potential noise impact of mechanical equipment, trucking activities, and employee vehicle activities at the residential receptors. Assumed operational information outlined below and surrounding building locations obtained from aerial photography were used as input to a predictive computer model (Cadna/A 2023 build: 195.5312), in order to estimate the sound levels from the proposed buildings at the existing receptors. Cadna/A is a computer implementation of ISO Standard 9613-2 [4] which considers attenuation due to distance (geometrical spreading), shielding by intervening structures (such as barriers), air attenuation and ground absorption. Additional information, including a figure showing the stationary noise source locations, is provided in Appendix A.

Topographical data obtained from Government of Canada's High Resolution Digital Elevation Model was used for the site and surrounding areas, along with proposed grading information on the site plan. A Traffic Impact Study prepared by Paradigm Transportation Solutions Ltd. dated December 2022 was reviewed to assess the volume of trucks and employee vehicles arriving and departing the site during a peak hour (see Appendix B).

For general warehousing facilities, the building would typically be ventilated passively and only the office building would be provided with air conditioning.

The facility will primarily operate during daytime hours (7:00 – 17:00); however, there may be limited arriving and idling trucks outside of those hours. In this impact assessment, we have considered the following worst-case (busiest hour) scenarios for the daytime, evening, and nighttime hours. It has been assumed truck engines will idle for 10 minutes out of each hour as outlined in the Guelph by-law Number (1998)-15945. Figures 3, 4, and 7 show the location of the steady noise source locations and Figures 5 and 8 show the location of the impulsive noise source locations. Vehicles are also conservatively assumed to idle for 5 minutes in the employee parking area. Truck idling, car idling, and rooftop HVAC units are shown as green crosses, truck pass-bys and car pass-bys are shown as a green line, and truck coupling/decoupling and loading/unloading is shown as a green hatched area.



Assumed daytime worst-case hour scenario:

- 23 trucking movements (includes trucks arriving and departing the facility, truck movements within the site or tractors in the parking area);
- Trucks are assumed to idle in the loading bay or parking area for 10 minutes;
- 106 employee cars arrive and depart the facility or park in the employee parking area;
- Employee cars are assumed to idle in the parking area for 5 minutes;
- Employee cars idling while waiting to exit the facility for a combined total of 15 minutes;
- All rooftop equipment operates at full capacity for the full hour.

Assumed evening/nighttime worst-case hour scenario:

- 3 trucks arrive at the facility and park at the loading bays or at the trailer parking areas;
- One truck is assumed to idle in the loading bay for 10 minutes;
- All rooftop equipment operates at full capacity for 15 minutes.

Additional information and assumptions used in the analysis:

- The height of the proposed building is 15 m;
- The facility is assumed to operate primarily during daytime hours, with limited operations during evening and nighttime hours;
- Rooftop HVAC units are assumed to be 1.5 m tall.

Sound emission data for the trucking activities, rooftop equipment, and employee vehicle activity was obtained from HGC Engineering project files which were measured from past similar projects. The employee vehicle movement noise source was included in the model as a line source producing equivalent sound pressure levels at a reference distance to those predicted by STAMSON 5.04, a computer algorithm developed by the MECP, based on the traffic volumes presented in the Traffic Impact Study. The calibration output from STAMSON is included in Appendix C. The sound power levels for non-impulsive and impulsive sources measured from similar facilities were used in our analysis and are summarized in Table 2.



Table 2: Sound Power Levels Used in the Analysis [dB re 10-12 W]

Source	Octave Band Centre Frequency [Hz]								A
	63	125	250	500	1k	2k	4k	8k	
HVAC Unit, 10-ton	91	89	86	84	84	78	76	67	88
Truck, traveling on truck route	101	100	94	96	97	95	91	86	101
Truck, idling	96	91	88	88	91	90	81	70	95
Car, idling	90	86	76	72	71	68	62	58	77
Car, traveling through parking area	67	67	65	66	62	62	55	47	68

Impulsive noises are assessed separately from the non-impulsive sound sources. Two types of impulsive sounds are expected to be emitted from the facility: loading/unloading of trailers by forklifts and coupling/decoupling of trucks to/from trailers. The multiple impulsive noises are combined to obtain a logarithmic mean impulse sound level (L_{LM}) of 110 dBAI. This was calculated based on measurements conducted by HGC Engineering for similar past projects. Impulsive sounds were modeled by distributing the assumed source sound power levels throughout the loading and parking area of the site. The impulsive sounds were assumed to be emitted during all daytime hours.

5 Assessment Results and Recommendations

Non-Impulsive Sources

The predicted sound levels due to the trucking and employee vehicle activities (arriving, idling and departing) and rooftop mechanical equipment at the representative receptors (R1 to R13) during a worst-case busiest hour operating scenario, are summarized in the following table and shown graphically in Figures 3 and 4. Cadna/A calculation summaries are also provided in Appendix C.

Table 3: Predicted Non-Impulsive Source Sound Levels at Receptors during a Worst-case Operating Scenario hour (Without Mitigation), Leq (dBA)

Receptor	Description	Daytime OLA	Daytime Facade	Evening OLA	Evening/ Nighttime Facade
R1	95 Brock Road South	<40	42	<35	<35
R2	2 Gilmour Road	50	49	<35	<35
R3	4 Gilmour Road	47	46	<35	<35
R4	6 Gilmour Road	47	45	<35	<35
R5	5 Gilmour Road	51	50	36	<35
R6	10 Aberfoyle Mill Crescent	45	46	<35	<35
R7	9 Aberfoyle Mill Crescent	43	45	<35	<35
R8	20 Gilmour Road	<40	43	<35	<35
R9	24 Gilmour Road	41	41	<35	<35
R10	30 Gilmour Road	<40	<40	<35	<35
R11	34 Gilmour Road	<40	<40	<35	<35
R12	38 Gilmour Road	<40	<40	<35	<35
R13	37 Gilmour Road	<40	<40	<35	<35



Impulsive Sources

The predicted impulsive sound levels are provided in Figure 5 and also summarized in Table 4.

**Table 4: Predicted Impulsive Sound Levels at Residential Receptors
(Without Mitigation), L_{LM} (dBAI)**

Receptor	Description	Criteria Daytime (dBAI)	Predicted Impulsive Sound Levels, Façade (dBAI)	Predicted Impulsive Sound Levels, OLA (dBAI)
R1	95 Brock Road South	50	48	44
R2	2 Gilmour Road	50	52	51
R3	4 Gilmour Road	50	49	50
R4	6 Gilmour Road	50	51	52
R5	5 Gilmour Road	50	53	54
R6	10 Aberfoyle Mill Crescent	50	51	50
R7	9 Aberfoyle Mill Crescent	50	51	50
R8	20 Gilmour Road	50	48	46
R9	24 Gilmour Road	50	47	47
R10	30 Gilmour Road	50	46	45
R11	34 Gilmour Road	50	42	<40
R12	38 Gilmour Road	50	<40	<40
R13	37 Gilmour Road	50	45	41

The results of this analysis indicate that the predicted non-impulsive and impulsive sound levels due to activities at the proposed facility are expected to exceed the applicable limits at the noise sensitive receptors during an assumed worst-case operational scenario during daytime hours. Noise control measures are required and provided in Section 5.1.

5.1 Recommendations

Calculations indicate that a 2.9 m high noise barrier (approximately 190 m in length), relative to proposed grade, northwest of the loading bays and northeast of the office building, as shown in Figure 6, will provide sufficient noise mitigation. A noise barrier can consist of an earth berm or a noise wall on top of an earth berm. The noise wall can be constructed from a variety of materials such as wood, metal, brick, pre-cast concrete or other concrete/wood composite systems provided that it is free of gaps or cracks and has a solid construction, with a surface density of no less than 20 kg/m².

The predicted non-impulsive and impulsive sound levels with the inclusion of the noise barrier mentioned above are summarized in Tables 5 and 6 below, and shown graphically on Figures 7 and 8.

Table 5: Predicted Non-Impulsive Source Sound Levels at Receptors during a Worst-case Operating Scenario hour (With Mitigation), Leq (dBA)

Receptor	Description	Daytime OLA	Daytime Facade
R1	95 Brock Road South	<40	41
R2	2 Gilmour Road	49	48
R3	4 Gilmour Road	46	45
R4	6 Gilmour Road	45	43
R5	5 Gilmour Road	50	49
R6	10 Aberfoyle Mill Crescent	43	44
R7	9 Aberfoyle Mill Crescent	42	43
R8	20 Gilmour Road	<40	42
R9	24 Gilmour Road	<40	<40
R10	30 Gilmour Road	<40	<40
R11	34 Gilmour Road	<40	<40
R12	38 Gilmour Road	<40	<40
R13	37 Gilmour Road	<40	<40

Table 6: Predicted Impulsive Sound Levels at Residential Receptors (With Mitigation), L_{LM} (dBAI)

Receptor	Description	Criteria Daytime (dBAI)	Predicted Impulsive Sound Levels, Façade (dBAI)	Predicted Impulsive Sound Levels, OLA (dBAI)
R1	95 Brock Road South	50	45	43
R2	2 Gilmour Road	50	49	49
R3	4 Gilmour Road	50	46	47
R4	6 Gilmour Road	50	47	48
R5	5 Gilmour Road	50	49	50
R6	10 Aberfoyle Mill Crescent	50	47	47
R7	9 Aberfoyle Mill Crescent	50	47	46
R8	20 Gilmour Road	50	47	46
R9	24 Gilmour Road	50	45	44
R10	30 Gilmour Road	50	44	44
R11	34 Gilmour Road	50	42	<40
R12	38 Gilmour Road	50	<40	<40
R13	37 Gilmour Road	50	45	41



6 Conclusions

The acoustical analysis indicates that sound levels predicted under worst case operating scenarios and incorporating the noise control measures recommended herein, are expected to comply with the applicable MECP limits for non-impulsive and impulsive sounds at neighbouring receptors.

The acoustic recommendations may be subject to modifications if the site plan is changed significantly, operating scenarios are significantly different to those assumed in the assessment or there is a significant increase in background sound levels.

6.1 Implementation

1) Prior to the issuance of building permits for this development or at appropriate approvals stage by the municipality, a Professional Engineer qualified to provide acoustical engineering services in Ontario shall review the site, building plans, rooftop mechanical specification and grading plans to confirm that the assumptions are in accordance with the approved noise study and that the appropriate height and extent of the required noise barrier have been incorporated to meet MECP guideline limits at adjacent receptors.



7 References

1. Ontario Ministry of the Environment Publication Guideline D1, *Land Use Compatibility*, July 1995
2. Ontario Ministry of the Environment Publication Guideline D6, *Compatibility Between Industrial Facilities and Sensitive Land Uses*, July 1995
3. Ontario Ministry of the Environment Publication NPC-300, *Environmental Noise Guideline – Stationary and Transportation Sources – Approval and Planning*, August 2013.
4. International Organization for Standardization, *Acoustics – Attenuation of Sound during Propagation Outdoors – Part 2: General Method of Calculation*, ISO-9613-2, Switzerland, 1996.





Figure 1: Key Plan

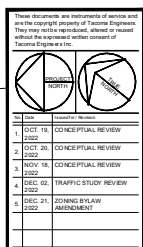


Figure 2 - Proposed Site Plan

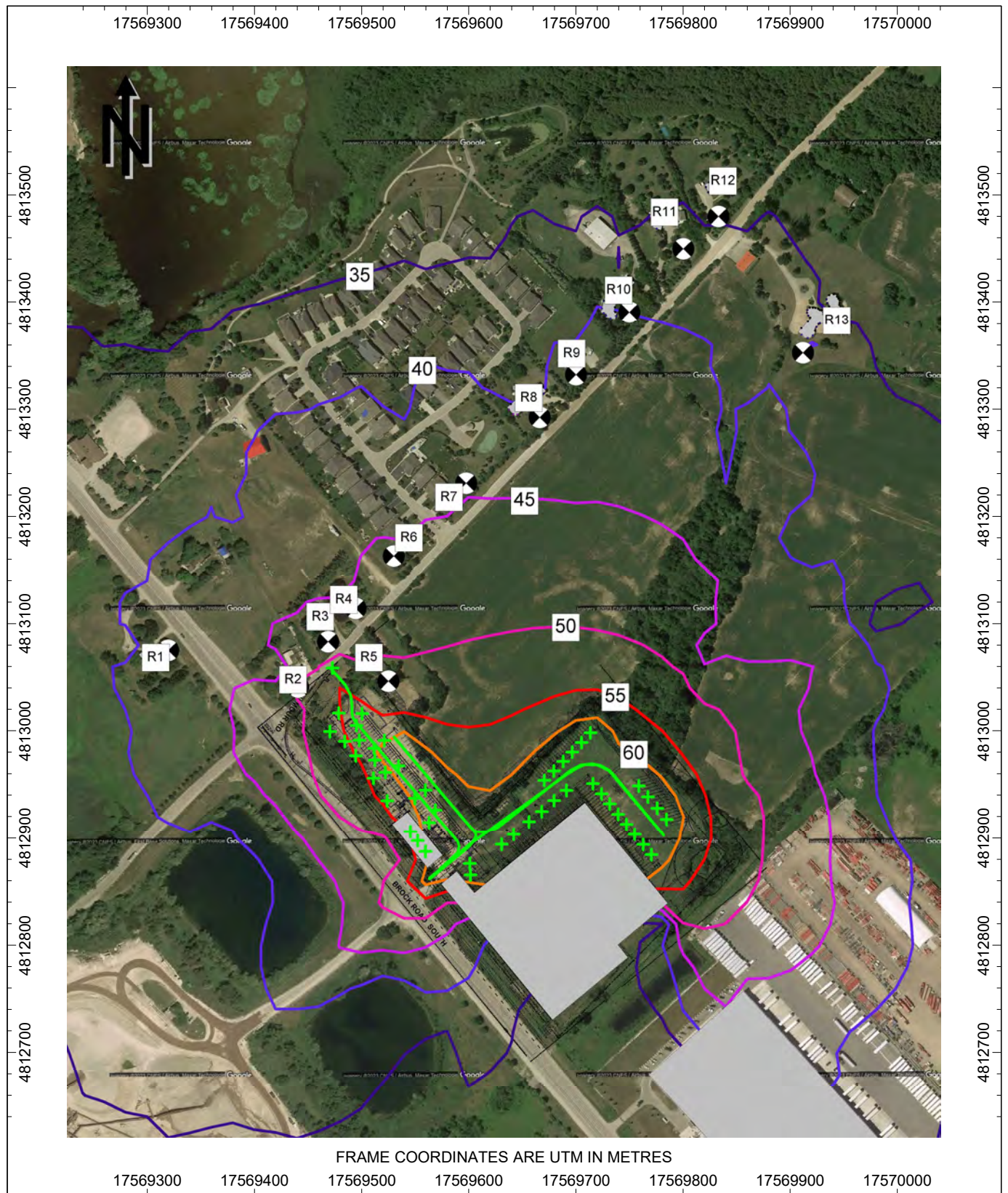


Figure 3: Predicted Daytime Hour Non-Impulsive Sources Sound Level Contours (at a height of 4.5 m)

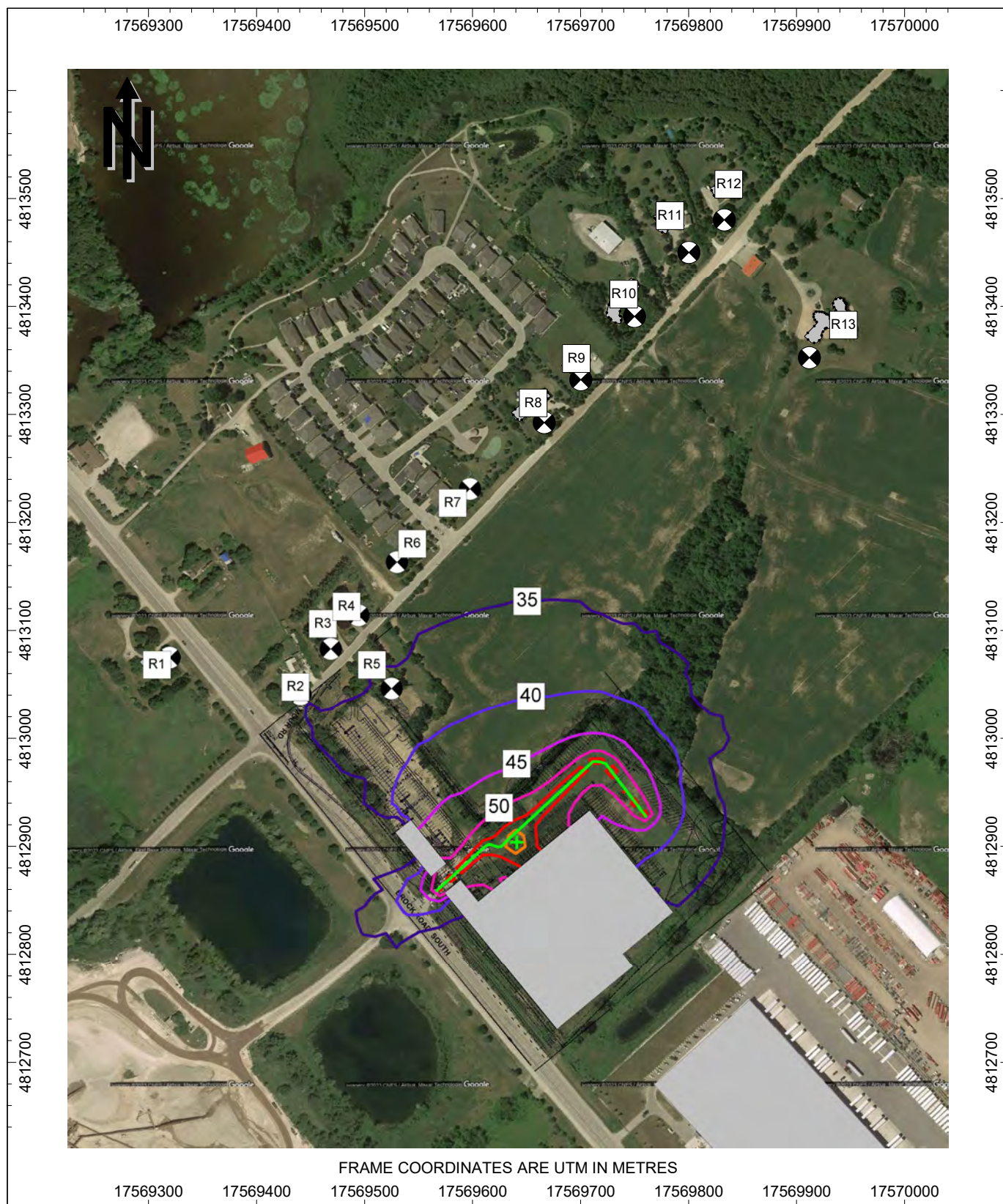


Figure 4: Predicted Evening/Nighttime Hour Non-Impulsive Sources Sound Level Contours (at a height of 4.5 m)

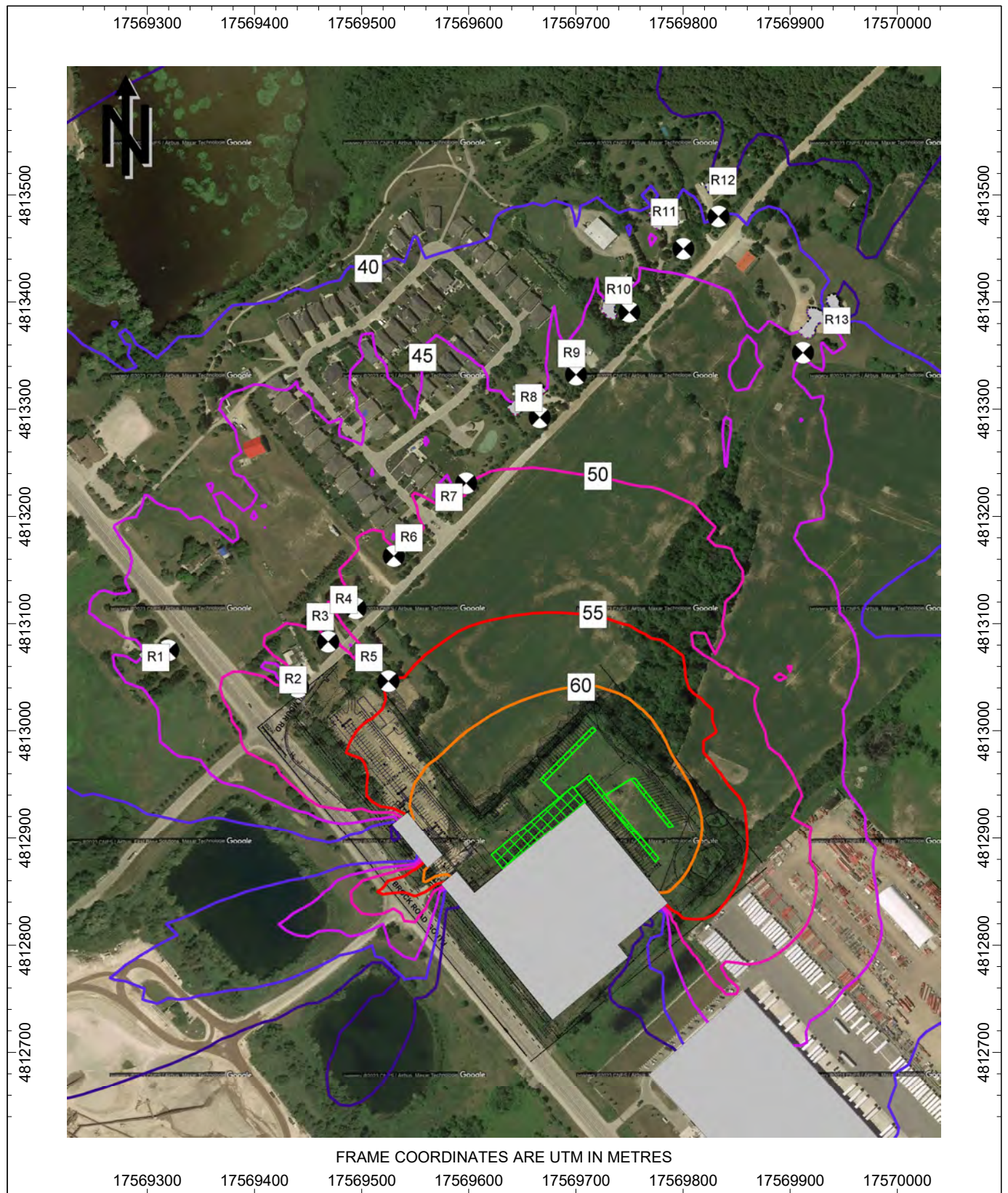


Figure 5: Predicted Impulsive Sources Sound Level Contours (at a height of 4.5 m)

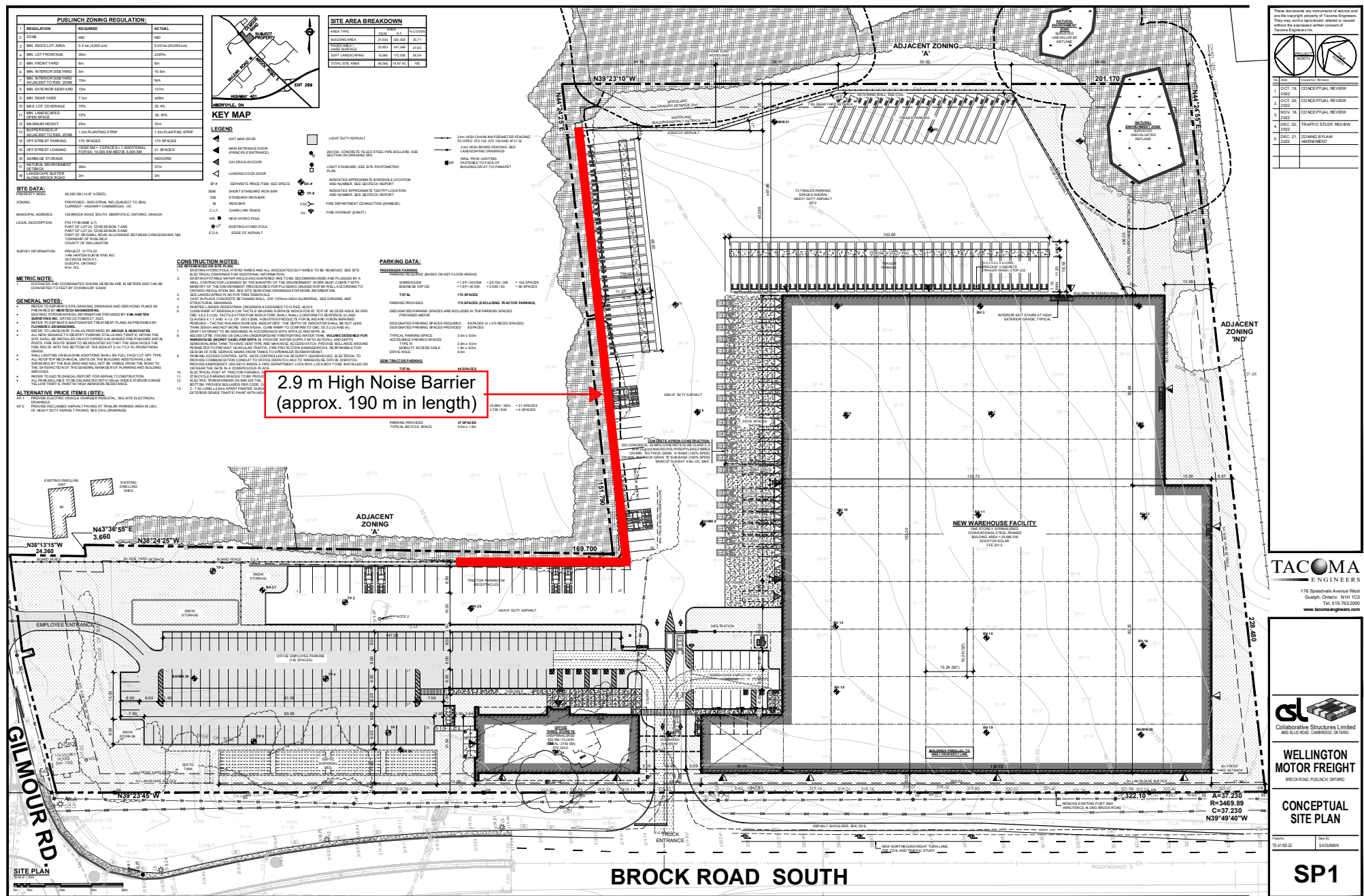


Figure 6 - Proposed Site Plan Showing Noise Barrier Location

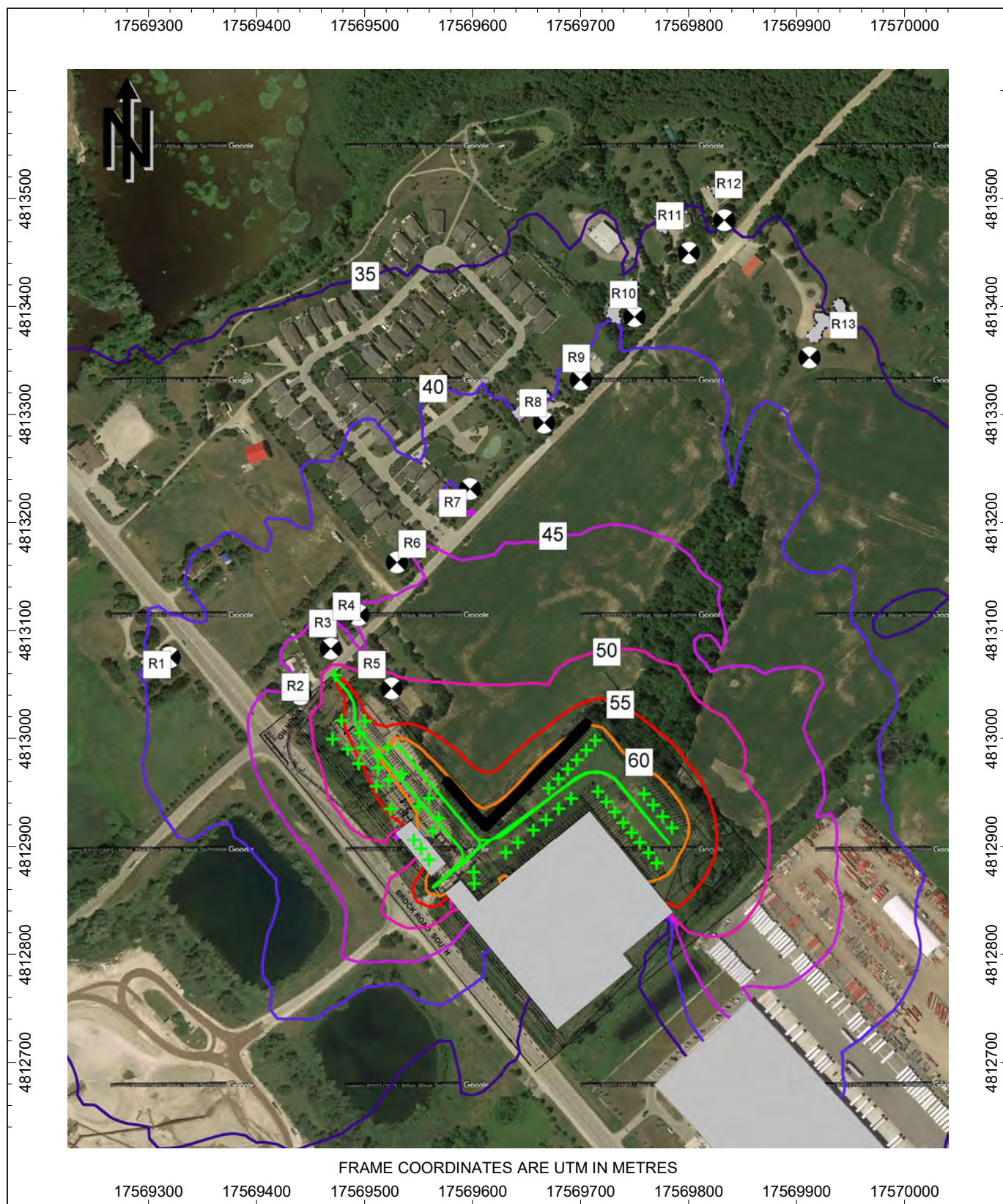


Figure 7: Predicted Daytime Hour Non-Impulsive Sources Sound Level Contours with Mitigation (at a height of 4.5 m)

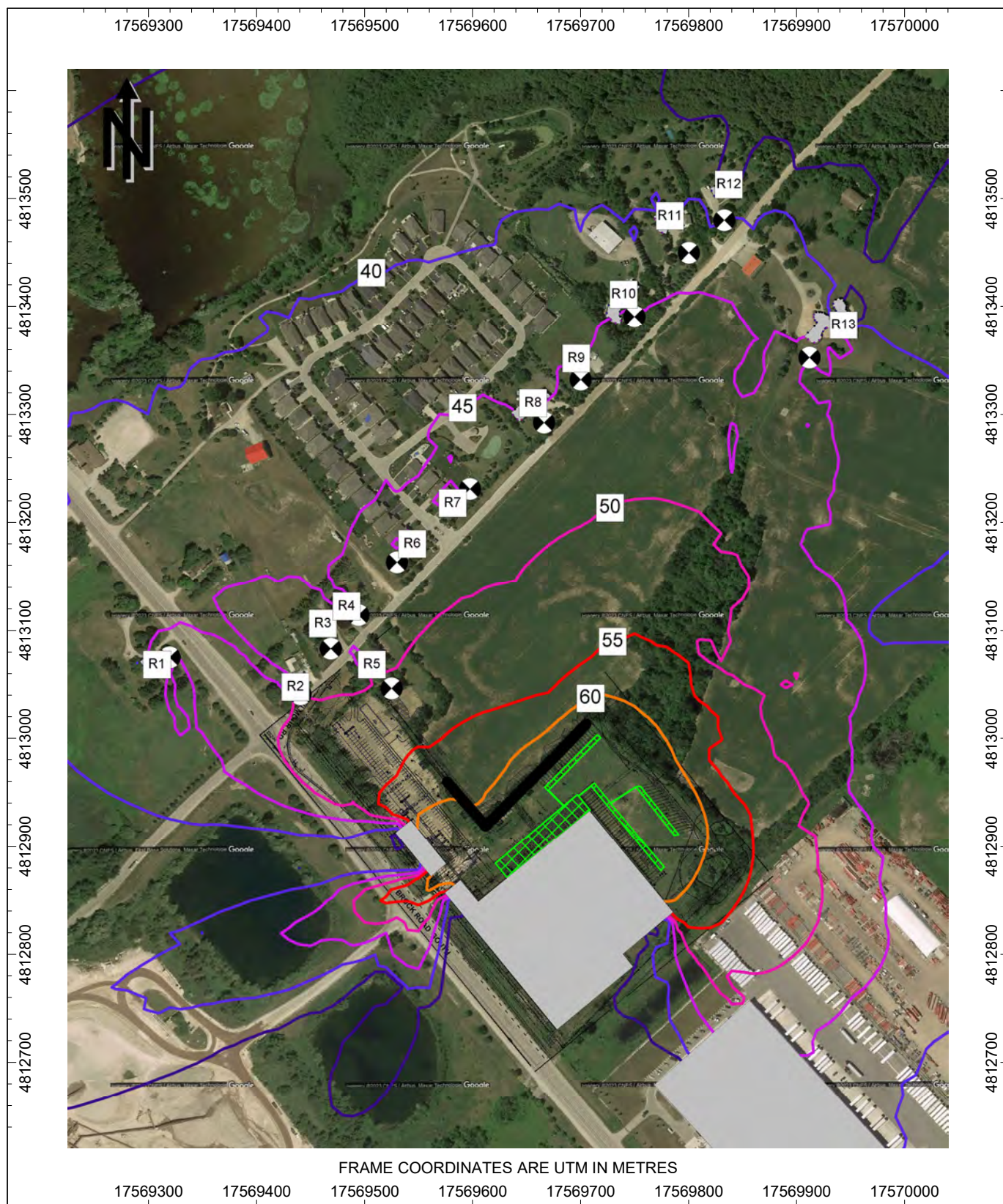


Figure 8: Predicted Impulsive Sources Sound Level Contours with Mitigation (at a height of 4.5 m)

APPENDIX A

Acoustical Assessment Methods



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The predictive model used for this Assessment (*Cadna-A version 2023 Build 195.5312*) is based on methods from ISO Standard 9613-2.2 “Acoustics - Attenuation of Sound During Propagation Outdoors”, which accounts for reduction in sound level with distance due to geometrical spreading, air absorption, ground attenuation and acoustical shielding by intervening structures such as buildings. This modeling technique is acceptable to the MECP.

The subject site and surrounding area were modelled based on observations during the site visit. Foliage was not included in the modelling. Ground attenuation was assumed to be spectral for all sources, with a ground factor (G) of 0.25 in paved areas (site area) and 0.9 for soft-ground areas (surrounding lands). The temperature and relative humidity were assumed to be 10° C and 70%, respectively.

The predictive modelling considered one order of reflection, the sufficiency of which was verified through an iterative convergence analysis, using successively increasing orders of reflection.

All mechanical sources, with the exception of on-site truck/employee vehicle movements, were modeled as point sources of sound, shown as crosses in Figures 3, 4, 7, A1, and A2. On-site truck and employee vehicle movements were modeled as line sources that are shown as green lines in Figures 3, 4, 7, A1, and A2. The impulsive noise sources, including loading/unloading of trailers by forklifts and coupling/decoupling of trucks to/from trailers, were modeled as an area source that is shown as a green hatched area in Figures 5 and 8.



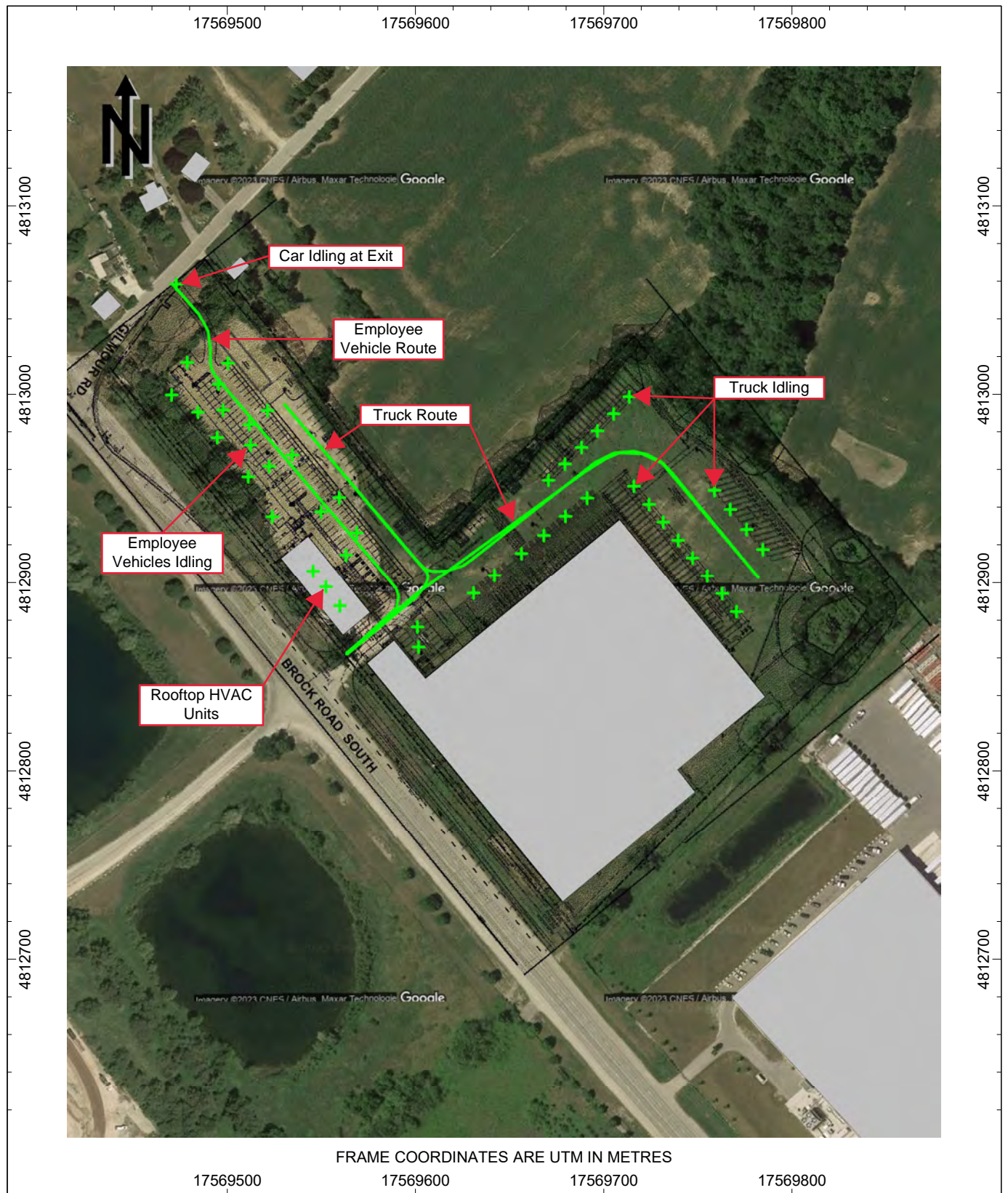


Figure A1: Daytime Non-Impulsive Noise Source Locations

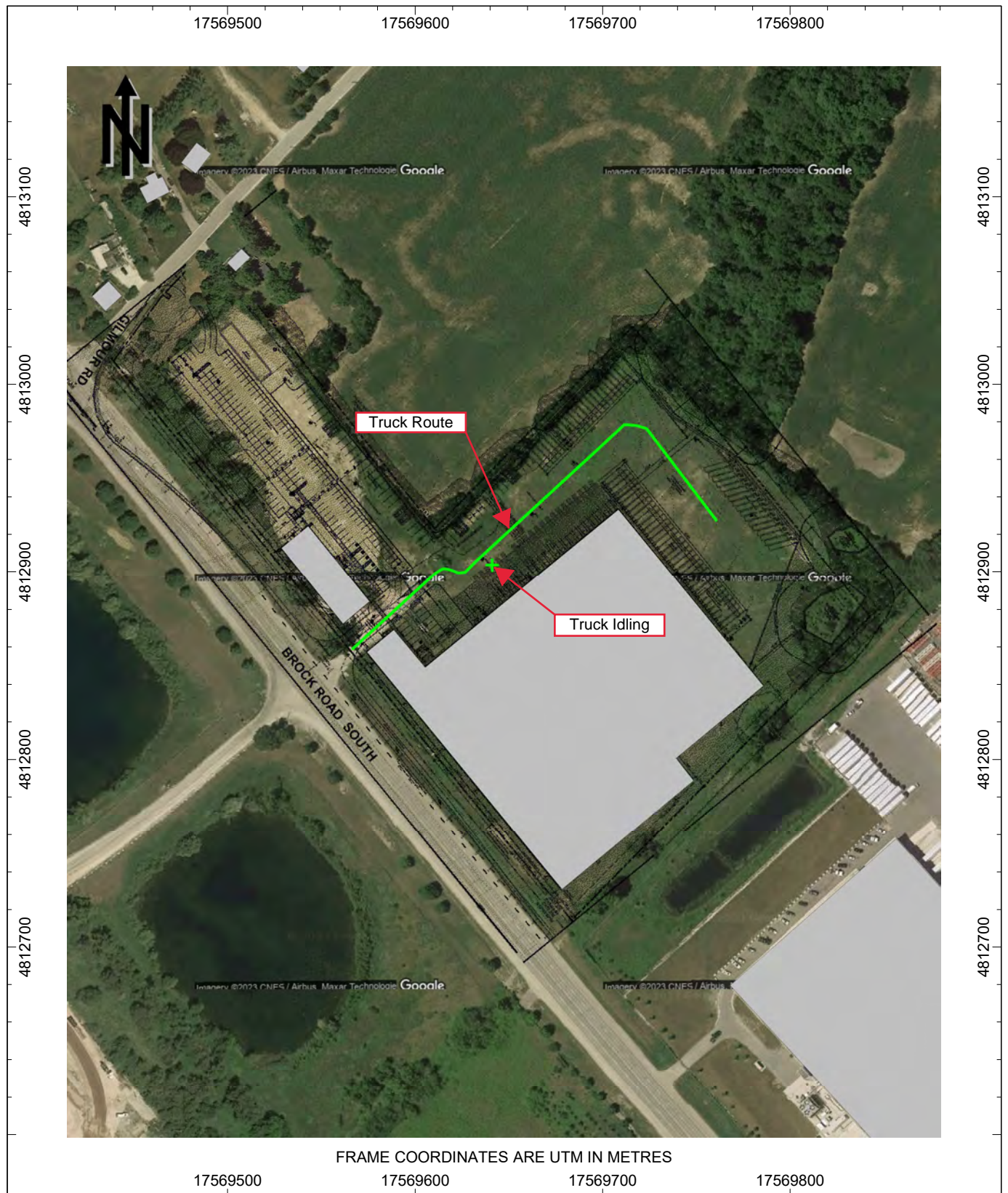


Figure A2: Evening/Nighttime Non-Impulsive Noise Source Locations

APPENDIX B

Employee Vehicle Traffic Data



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VIBRATION

3.2 Development Trip Generation

The Institute of Transportation Engineers (ITE) Trip Generation⁴ methods are used to estimate the site trip generation. The following Land Use Codes (LUC) were used to estimate the site generated trips:

- ▶ LUC 150 (Warehouse); and
- ▶ LUC 710 General Office Building.

Regression equation rates were used to calculate the trips generated by the warehouse use. **Table 3.1** summarizes the estimated trip generation and is estimated to be approximately 108 AM peak hour trips and 112 PM peak hour trips. No reductions for alternative modes of transportation were used in the calculation. **Appendix D** contains the ITE trip generation data sheets.

Table 3.1 summarizes the forecast number of net new trips generated by the proposed development.

TABLE 3.1: TRIP GENERATION

ITE Land Use	Units	Vehicle Type	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
LUC 150 - Warehouse (GFA/1,000ft ²)	207.6	Vehicles	36	9	45	11	34	45
		Trucks	2	2	4	3	3	6
LUC 710 - General Office Building (GFA/1,000ft ²)	30.0	Vehicles	52	7	59	10	51	61
Total Trip Generation			90	18	108	24	88	112

LUC 150: AM $T = 0.12(X) + 23.62$ | PM $T = 0.12(X) + 26.48$

LUC 710: AM $\ln(T) = 0.87 \ln(X) + 3.05$ | PM $\ln(T) = 0.83 \ln(X) + 1.29$

3.3 Development Trip Distribution and Assignment

The trip distribution used for this study was based on the existing trip distribution for Brock Road (Wellington Road 46) as the site traffic would likely use this route for trips to/from Guelph and/or Highway 401. The trip distribution is shown in **Table 3.2**.

⁴ *Trip Generation Tenth Edition*, Institute of Transportation Engineers, Washington D.C., 2017



APPENDIX C

Calibration Stamson Output & Cadna/A Calculation Summary



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STAMSON 5.0 NORMAL REPORT Date: 09-03-2023 10:28:57
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: vehcal.te Time Period: 1 hours
 Description: **Employee vehicle movement calibration.**

Road data, segment # 1:

 Car traffic volume : 106 veh/TimePeriod
 Medium truck volume : 0 veh/TimePeriod
 Heavy truck volume : 0 veh/TimePeriod
 Posted speed limit : 40 km/h
 Road gradient : 0 %
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1:

 Angle1 Angle2 : -90.00 deg 90.00 deg
 Wood depth : 0 (No woods.)
 No of house rows : 0
 Surface : 2 (Reflective ground surface)
 Receiver source distance : 30.00 m
 Receiver height : 1.50 m
 Topography : 1 (Flat/gentle slope; no barrier)
 Reference angle : 0.00

Results segment # 1:

 Source height = 0.50 m

ROAD (0.00 + 46.62 + 0.00) = 46.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	49.63	0.00	-3.01	0.00	0.00	0.00	0.00	46.62

Segment Leq : 46.62 dBA

Total Leq All Segments: 46.62 dBA

TOTAL Leq FROM ALL SOURCES: 49.62 (+ 3 dB to account for slower speeds)



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VIBRATION

R1	17569320	4813075	316.5												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	60.3	0	0.0	2.3	2.4	1.5	0.0	0.0	0.0	1.7	23
Idling TT	17569666	4812954	322.8	87	62.4	0	0.0	0.2	2.6	1.9	0.0	0.0	0.0	1.6	22
Idling TT	17569674	4812962	322.9	87	62.5	0	0.0	0.4	2.6	1.9	0.0	0.0	0.0	1.7	21
Idling TT	17569694	4812974	322.9	87	62.7	0	0.0	0.8	3.1	2.2	0.0	0.0	0.0	2.1	21
Idling TT	17569696	4812982	323.0	87	62.8	0	0.0	0.9	3.2	2.3	0.0	0.0	0.0	2.2	20
Idling TT	17569704	4812991	323.5	87	62.9	0	0.0	0.8	3.0	2.4	0.0	0.0	0.0	0.0	18
Idling TT	17569720	4813000	324.3	87	63.1	0	0.0	0.6	2.3	2.4	0.0	0.0	0.0	0.0	19
Idling TT	17569758	4812950	326.4	87	64.2	0	0.0	-0.3	2.6	2.3	0.0	0.0	0.0	0.0	18
Idling TT	17569762	4812938	326.5	87	64.4	0	0.0	-0.5	1.7	2.5	0.0	0.0	0.0	0.0	19
Idling TT	17569782	4812929	325.7	87	64.6	0	0.0	-0.8	1.4	2.8	0.0	0.0	0.0	0.0	19
Idling TT	17569790	4812919	325.7	87	64.8	0	0.0	-0.9	1.4	2.8	0.0	0.0	0.0	0.0	19
Idling TT	17569630	4812896	323.5	87	62.1	0	0.0	-1.2	2.3	2.1	0.0	0.0	0.0	1.6	23
Idling TT	17569640	4812904	323.5	87	62.2	0	0.0	-1.2	2.3	2.1	0.0	0.0	0.0	1.6	23
Idling TT	17569662	4812914	323.5	87	62.4	0	0.0	-0.7	2.4	2.1	0.0	0.0	0.0	1.8	23
Idling TT	17569666	4812926	323.5	87	62.6	0	0.0	-0.7	1.3	2.3	0.0	0.0	0.0	1.5	23
Idling TT	17569674	4812936	323.5	87	62.7	0	0.0	-0.6	1.3	2.3	0.0	0.0	0.0	1.5	23
Idling TT	17569694	4812945	323.4	87	62.9	0	0.0	-0.2	2.5	2.1	0.0	0.0	0.0	2.0	22
Idling TT	17569720	4812952	324.6	87	63.4	0	0.0	-0.4	1.3	2.4	0.0	0.0	0.0	0.0	21
Idling TT	17569726	4812943	324.9	87	63.6	0	0.0	-0.7	1.3	2.5	0.0	0.0	0.0	0.0	21
Idling TT	17569730	4812934	324.7	87	63.8	0	0.0	-0.8	1.4	2.6	0.0	0.0	0.0	0.0	20
Idling TT	17569736	4812922	324.6	87	64.0	0	0.0	-1.0	1.4	2.6	0.0	0.0	0.0	0.0	20
Idling TT	17569752	4812913	324.6	87	64.2	0	0.0	-0.3	12.7	2.1	0.0	0.0	0.0	0.0	9
Idling TT	17569758	4812904	324.6	87	64.4	0	0.0	-0.3	16.4	2.0	0.0	0.0	0.0	0.0	5
Idling TT	17569762	4812896	324.6	87	64.6	0	0.0	-0.2	17.8	2.0	0.0	0.0	0.0	0.0	3
Idling TT	17569768	4812886	324.6	87	64.8	0	0.0	-0.2	18.6	2.0	0.0	0.0	0.0	0.0	2
CarIdling	17569502	4813017	319.9	66	56.6	0	0.0	1.3	1.0	1.2	0.0	0.0	0.0	0.0	6
CarIdling	17569474	4813017	319.9	66	55.6	0	0.0	1.5	0.8	1.1	0.0	0.0	0.0	0.0	7
CarIdling	17569480	4812992	319.2	66	56.4	0	0.0	1.2	1.5	1.2	0.0	0.0	0.0	0.0	6
CarIdling	17569502	4813006	319.6	66	56.5	0	0.0	1.2	1.0	1.2	0.0	0.0	0.0	0.0	6
CarIdling	17569496	4812977	319.0	66	57.1	0	0.0	1.2	2.2	1.1	0.0	0.0	0.0	0.0	4
CarIdling	17569506	4812958	319.4	66	58.1	0	0.0	1.2	2.4	1.1	0.0	0.0	0.0	0.0	3
CarIdling	17569528	4812936	321.5	66	58.9	0	0.0	1.0	1.5	1.5	0.0	0.0	0.0	1.3	4
CarIdling	17569566	4812945	321.8	66	59.7	0	0.0	0.1	1.3	1.7	0.0	0.0	0.0	0.0	3
CarIdling	17569534	4812968	321.2	66	58.6	0	0.0	0.3	1.1	1.5	0.0	0.0	0.0	0.0	4
CarIdling	17569528	4812992	319.6	66	57.8	0	0.0	0.9	1.9	1.3	0.0	0.0	0.0	0.0	4
CarIdling	17569502	4812992	319.4	66	56.9	0	0.0	1.1	1.5	1.2	0.0	0.0	0.0	0.0	5
CarIdling	17569506	4812984	319.3	66	57.6	0	0.0	0.9	2.1	1.3	0.0	0.0	0.0	0.0	4
CarIdling	17569528	4812961	320.3	66	58.3	0	0.0	0.5	1.9	1.4	0.0	0.0	0.0	0.0	4
CarIdling	17569570	4812928	322.4	66	60.3	0	0.0	0.1	1.3	1.8	0.0	0.0	0.0	0.0	2
CarIdling	17569566	4812914	322.7	66	60.3	0	0.0	0.3	1.5	1.7	0.0	0.0	0.0	0.0	2
RTU 10T	17569544	4812905	330.9	88	60.0	0	0.0	1.9	0.9	2.0	0.0	0.0	0.0	0.0	23
RTU 10T	17569566	4812888	330.9	88	60.7	0	0.0	1.2	1.9	1.5	0.0	0.0	0.0	2.5	25
CarIdling	17569602	4812878	323.7	66	61.7	0	0.0	-0.1	6.3	0.4	0.0	0.0	0.0	0.8	--
CarIdling	17569602	4812865	323.9	66	61.9	0	0.0	-0.3	9.2	0.3	0.0	0.0	0.0	0.8	--
CarIdling	17569470	4813000	319.4	66	55.5	0	0.0	1.3	1.0	1.1	0.0	0.0	0.0	0.0	7
CarIdling	17569506	4812974	319.1	66	57.8	0	0.0	0.8	2.4	1.2	0.0	0.0	0.0	0.0	4
CarIdling	17569544	4812937	322.4	66	59.6	0	0.0	0.2	0.9	1.6	0.0	0.0	0.0	0.0	4
CarIdling	17569474	4813058	319.6	71	54.8	0	0.0	1.6	0.8	1.0	0.0	0.0	0.0	1.8	14
Truck Passby	17569752	4812917	323.5	102	63.3	0	0.0	-2.1	18.4	48.3	0.0	0.0	0.0	0.0	37
EmployeeVeh	17569660	4812967	320.1	--	58.1	0	0.0	2.1	1.7	1.7	0.0	0.0	0.0	0.0	28

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

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VIBRATION

R2	17569442	4813041	318.5												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	56.2	0	0.0	0.7	3.4	1.0	0.0	0.0	0.0	3.0	29
Idling TT	17569666	4812954	322.8	87	58.8	0	0.0	-0.2	0.0	1.6	0.0	0.0	0.0	3.0	30
Idling TT	17569674	4812962	322.9	87	59.0	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	3.1	30
Idling TT	17569694	4812974	322.9	87	59.2	0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	3.1	30
Idling TT	17569696	4812982	323.0	87	59.4	0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	3.1	29
Idling TT	17569704	4812991	323.5	87	59.6	0	0.0	0.1	0.0	1.7	0.0	0.0	0.0	2.4	28
Idling TT	17569720	4813000	324.3	87	59.8	0	0.0	0.1	0.0	1.8	0.0	0.0	0.0	2.5	28
Idling TT	17569758	4812950	326.4	87	61.4	0	0.0	-0.8	0.0	2.1	0.0	0.0	0.0	2.5	27
Idling TT	17569762	4812938	326.5	87	61.7	0	0.0	-0.9	0.0	2.1	0.0	0.0	0.0	2.5	27
Idling TT	17569782	4812929	325.7	87	62.0	0	0.0	-1.0	0.0	2.2	0.0	0.0	0.0	2.5	27
Idling TT	17569790	4812919	325.7	87	62.2	0	0.0	-1.1	0.0	2.2	0.0	0.0	0.0	2.5	26
Idling TT	17569630	4812896	323.5	87	58.6	0	0.0	-2.0	1.4	1.7	0.0	0.0	0.0	3.2	31
Idling TT	17569640	4812904	323.5	87	58.7	0	0.0	-1.8	1.4	1.7	0.0	0.0	0.0	3.8	31
Idling TT	17569662	4812914	323.5	87	58.9	0	0.0	-1.2	0.0	1.6	0.0	0.0	0.0	3.1	31
Idling TT	17569666	4812926	323.5	87	59.1	0	0.0	-1.0	0.0	1.6	0.0	0.0	0.0	3.2	31
Idling TT	17569674	4812936	323.5	87	59.3	0	0.0	-0.7	0.0	1.7	0.0	0.0	0.0	3.4	30
Idling TT	17569694	4812945	323.4	87	59.6	0	0.0	-0.5	0.0	1.7	0.0	0.0	0.0	3.9	30
Idling TT	17569720	4812952	324.6	87	60.2	0	0.0	-0.6	0.0	1.8	0.0	0.0	0.0	2.4	28
Idling TT	17569726	4812943	324.9	87	60.5	0	0.0	-0.8	0.0	1.9	0.0	0.0	0.0	2.4	28
Idling TT	17569730	4812934	324.7	87	60.8	0	0.0	-0.9	0.0	1.9	0.0	0.0	0.0	2.4	28
Idling TT	17569736	4812922	324.6	87	61.1	0	0.0	-1.1	0.0	2.0	0.0	0.0	0.0	2.4	28
Idling TT	17569752	4812913	324.6	87	61.4	0	0.0	-0.6	11.0	1.7	0.0	0.0	0.0	0.0	14
Idling TT	17569758	4812904	324.6	87	61.7	0	0.0	-0.6	15.6	1.6	0.0	0.0	0.0	0.7	10
Idling TT	17569762	4812896	324.6	87	62.0	0	0.0	-0.6	17.5	1.6	0.0	0.0	0.0	1.0	8
Idling TT	17569768	4812886	324.6	87	62.2	0	0.0	-0.7	18.6	1.6	0.0	0.0	0.0	1.3	7
CarIdling	17569502	4813017	319.9	66	47.2	0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	2.2	20
CarIdling	17569474	4813017	319.9	66	44.1	0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	2.2	24
CarIdling	17569480	4812992	319.2	66	47.5	0	0.0	0.2	0.7	0.5	0.0	0.0	0.0	2.1	19
CarIdling	17569502	4813006	319.6	66	47.3	0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	2.1	20
CarIdling	17569496	4812977	319.0	66	49.5	0	0.0	0.1	0.7	0.6	0.0	0.0	0.0	2.2	17
CarIdling	17569506	4812958	319.4	66	51.8	0	0.0	-0.2	0.7	0.7	0.0	0.0	0.0	2.3	15
CarIdling	17569528	4812936	321.5	66	53.6	0	0.0	-0.6	0.0	0.6	0.0	0.0	0.0	3.1	15
CarIdling	17569566	4812945	321.8	66	54.7	0	0.0	-0.5	0.6	0.9	0.0	0.0	0.0	2.3	13
CarIdling	17569534	4812968	321.2	66	52.5	0	0.0	-0.3	0.0	0.5	0.0	0.0	0.0	2.3	15
CarIdling	17569528	4812992	319.6	66	50.5	0	0.0	0.2	0.7	0.6	0.0	0.0	0.0	2.2	16
CarIdling	17569502	4812992	319.4	66	48.6	0	0.0	0.2	0.7	0.5	0.0	0.0	0.0	2.6	19
CarIdling	17569506	4812984	319.3	66	50.2	0	0.0	0.1	0.7	0.6	0.0	0.0	0.0	2.2	17
CarIdling	17569528	4812961	320.3	66	52.1	0	0.0	-0.4	0.0	0.5	0.0	0.0	0.0	2.3	16
CarIdling	17569570	4812928	322.4	66	55.7	0	0.0	-0.9	0.0	0.7	0.0	0.0	0.0	2.3	13
CarIdling	17569566	4812914	322.7	66	55.9	0	0.0	-1.0	0.0	0.7	0.0	0.0	0.0	2.5	13
RTU 10T	17569544	4812905	330.9	88	55.7	0	0.0	0.6	2.9	1.1	0.0	0.0	0.0	2.9	30
RTU 10T	17569566	4812888	330.9	88	56.8	0	0.0	0.7	3.4	1.1	0.0	0.0	0.0	3.2	29
CarIdling	17569602	4812878	323.7	66	58.2	0	0.0	-1.2	0.0	0.9	0.0	0.0	0.0	2.8	11
CarIdling	17569602	4812865	323.9	66	58.5	0	0.0	-1.3	0.0	0.9	0.0	0.0	0.0	3.0	11
CarIdling	17569470	4813000	319.4	66	45.2	0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	2.1	23
CarIdling	17569506	4812974	319.1	66	50.9	0	0.0	-0.1	0.8	0.7	0.0	0.0	0.0	2.3	16
CarIdling	17569544	4812937	322.4	66	54.5	0	0.0	-0.7	0.0	0.6	0.0	0.0	0.0	2.3	14
CarIdling	17569474	4813058	319.6	71	42.3	0	0.0	0.5	0.0	0.2	0.0	0.0	0.0	0.0	28
Truck Passby	17569752	4812919	323.4	102	60.5	0	0.0	-2.8	2.3	34.7	0.0	0.0	0.0	2.6	46
EmployeeVeh	17569656	4812974	320.2	--	48.4	0	0.0	1.2	0.3	0.6	0.0	0.0	0.0	2.2	44

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R3	17569468	4813083	318.5												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	57.2	0	0.0	1.6	2.7	1.1	0.0	0.0	0.0	1.7	27
Idling TT	17569666	4812954	322.8	87	58.6	0	0.0	0.6	3.1	1.6	0.0	0.0	0.0	3.4	27
Idling TT	17569674	4812962	322.9	87	58.7	0	0.0	1.2	6.7	1.3	0.0	0.0	0.0	3.8	23
Idling TT	17569694	4812974	322.9	87	58.8	0	0.0	1.6	8.3	1.1	0.0	0.0	0.0	4.7	22
Idling TT	17569696	4812982	323.0	87	59.0	0	0.0	1.8	8.7	1.1	0.0	0.0	0.0	0.0	17
Idling TT	17569704	4812991	323.5	87	59.1	0	0.0	1.6	8.2	1.2	0.0	0.0	0.0	0.0	17
Idling TT	17569720	4813000	324.3	87	59.3	0	0.0	1.1	5.7	1.4	0.0	0.0	0.0	0.0	20
Idling TT	17569758	4812950	326.4	87	61.1	0	0.0	0.4	6.6	1.6	0.0	0.0	0.0	0.0	18
Idling TT	17569762	4812938	326.5	87	61.4	0	0.0	0.3	6.5	1.7	0.0	0.0	0.0	0.0	17
Idling TT	17569782	4812929	325.7	87	61.7	0	0.0	0.2	6.4	1.7	0.0	0.0	0.0	0.0	17
Idling TT	17569790	4812919	325.7	87	62.0	0	0.0	0.1	6.1	1.8	0.0	0.0	0.0	0.0	17
Idling TT	17569630	4812896	323.5	87	58.9	0	0.0	-1.1	0.0	1.6	0.0	0.0	0.0	2.7	31
Idling TT	17569640	4812904	323.5	87	58.9	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	2.8	30
Idling TT	17569662	4812914	323.5	87	59.0	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	2.2	29
Idling TT	17569666	4812926	323.5	87	59.1	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	2.2	29
Idling TT	17569674	4812936	323.5	87	59.2	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	2.2	29
Idling TT	17569694	4812945	323.4	87	59.4	0	0.0	0.3	3.9	1.6	0.0	0.0	0.0	3.2	25
Idling TT	17569720	4812952	324.6	87	59.9	0	0.0	0.7	6.4	1.4	0.0	0.0	0.0	0.0	19
Idling TT	17569726	4812943	324.9	87	60.3	0	0.0	0.4	6.0	1.5	0.0	0.0	0.0	0.0	19
Idling TT	17569730	4812934	324.7	87	60.6	0	0.0	0.1	5.4	1.6	0.0	0.0	0.0	0.0	19
Idling TT	17569736	4812922	324.6	87	61.0	0	0.0	-0.1	4.6	1.8	0.0	0.0	0.0	0.0	20
Idling TT	17569752	4812913	324.6	87	61.3	0	0.0	-0.3	3.8	1.9	0.0	0.0	0.0	0.0	21
Idling TT	17569758	4812904	324.6	87	61.6	0	0.0	0.1	17.9	1.5	0.0	0.0	0.0	0.0	6
Idling TT	17569762	4812896	324.6	87	61.9	0	0.0	0.3	20.0	1.6	0.0	0.0	0.0	0.0	4
Idling TT	17569768	4812886	324.6	87	62.2	0	0.0	0.4	18.7	1.4	0.0	0.0	0.0	0.0	5
CarIdling	17569502	4813017	319.9	66	48.4	0	0.0	0.7	0.0	0.4	0.0	0.0	0.0	0.0	16
CarIdling	17569474	4813017	319.9	66	47.6	0	0.0	0.7	0.0	0.4	0.0	0.0	0.0	0.0	17
CarIdling	17569480	4812992	319.2	66	50.5	0	0.0	0.7	0.6	0.6	0.0	0.0	0.0	0.0	13
CarIdling	17569502	4813006	319.6	66	49.3	0	0.0	0.5	0.0	0.4	0.0	0.0	0.0	0.0	16
CarIdling	17569496	4812977	319.0	66	51.8	0	0.0	0.7	1.2	0.8	0.0	0.0	0.0	0.6	12
CarIdling	17569506	4812958	319.4	66	53.5	0	0.0	0.3	1.3	0.9	0.0	0.0	0.0	0.6	10
CarIdling	17569528	4812936	321.5	66	55.0	0	0.0	-0.4	0.0	0.6	0.0	0.0	0.0	1.5	12
CarIdling	17569566	4812945	321.8	66	55.4	0	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.0	10
CarIdling	17569534	4812968	321.2	66	53.5	0	0.0	0.3	0.0	0.6	0.0	0.0	0.0	0.0	12
CarIdling	17569528	4812992	319.6	66	51.5	0	0.0	1.0	0.7	0.7	0.0	0.0	0.0	0.5	13
CarIdling	17569502	4812992	319.4	66	50.7	0	0.0	0.7	0.6	0.6	0.0	0.0	0.0	0.0	13
CarIdling	17569506	4812984	319.3	66	51.7	0	0.0	0.7	1.0	0.8	0.0	0.0	0.0	0.6	12
CarIdling	17569528	4812961	320.3	66	53.5	0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	12
CarIdling	17569570	4812928	322.4	66	56.4	0	0.0	-0.2	0.0	0.7	0.0	0.0	0.0	0.0	9
CarIdling	17569566	4812914	322.7	66	56.7	0	0.0	-0.4	0.0	0.8	0.0	0.0	0.0	0.6	9
RTU 10T	17569544	4812905	330.9	88	56.7	0	0.0	1.4	2.1	1.4	0.0	0.0	0.0	0.7	27
RTU 10T	17569566	4812888	330.9	88	57.7	0	0.0	1.6	2.4	1.1	0.0	0.0	0.0	3.0	28
CarIdling	17569602	4812878	323.7	66	58.8	0	0.0	-0.6	0.0	0.9	0.0	0.0	0.0	2.5	9
CarIdling	17569602	4812865	323.9	66	59.1	0	0.0	-0.7	0.0	0.9	0.0	0.0	0.0	2.7	9
CarIdling	17569470	4813000	319.4	66	49.4	0	0.0	0.6	0.0	0.5	0.0	0.0	0.0	0.0	15
CarIdling	17569506	4812974	319.1	66	52.5	0	0.0	0.6	1.4	0.9	0.0	0.0	0.0	0.6	11
CarIdling	17569544	4812937	322.4	66	55.4	0	0.0	-0.2	0.0	0.7	0.0	0.0	0.0	0.0	10
CarIdling	17569474	4813058	319.6	71	39.0	0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	31
Truck Passby	17569752	4812935	323.3	102	60.8	0	0.0	-2.3	0.0	36.2	0.0	0.0	0.0	1.3	44
EmployeeVeh	17569658	4812974	320.2	--	48.1	0	0.0	1.9	0.3	0.5	0.0	0.0	0.0	0.7	42

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R4	17569494	4813114	319.1												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	58.0	0	0.0	2.0	2.8	1.0	0.0	0.0	0.0	2.8	27
Idling TT	17569666	4812954	322.8	87	58.5	0	0.0	0.1	0.0	1.5	0.0	0.0	0.0	2.9	30
Idling TT	17569674	4812962	322.9	87	58.6	0	0.0	0.1	0.0	1.5	0.0	0.0	0.0	2.9	30
Idling TT	17569694	4812974	322.9	87	58.6	0	0.0	0.1	0.1	1.5	0.0	0.0	0.0	2.3	29
Idling TT	17569696	4812982	323.0	87	58.7	0	0.0	0.1	0.1	1.5	0.0	0.0	0.0	2.3	29
Idling TT	17569704	4812991	323.5	87	58.8	0	0.0	0.1	0.1	1.6	0.0	0.0	0.0	2.3	29
Idling TT	17569720	4813000	324.3	87	58.9	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	2.3	29
Idling TT	17569758	4812950	326.4	87	60.9	0	0.0	-0.7	0.0	1.9	0.0	0.0	0.0	2.3	27
Idling TT	17569762	4812938	326.5	87	61.2	0	0.0	-0.8	0.0	2.0	0.0	0.0	0.0	2.3	27
Idling TT	17569782	4812929	325.7	87	61.6	0	0.0	-0.8	0.1	2.1	0.0	0.0	0.0	2.3	27
Idling TT	17569790	4812919	325.7	87	61.9	0	0.0	-0.9	0.1	2.1	0.0	0.0	0.0	2.3	26
Idling TT	17569630	4812896	323.5	87	59.3	0	0.0	-0.1	0.0	1.7	0.0	0.0	0.0	3.7	30
Idling TT	17569640	4812904	323.5	87	59.2	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	3.7	30
Idling TT	17569662	4812914	323.5	87	59.2	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	3.7	30
Idling TT	17569666	4812926	323.5	87	59.2	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	3.7	30
Idling TT	17569674	4812936	323.5	87	59.2	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	3.7	30
Idling TT	17569694	4812945	323.4	87	59.3	0	0.0	-0.1	0.0	1.6	0.0	0.0	0.0	3.7	30
Idling TT	17569720	4812952	324.6	87	59.8	0	0.0	-0.3	0.0	1.7	0.0	0.0	0.0	2.3	28
Idling TT	17569726	4812943	324.9	87	60.2	0	0.0	-0.5	0.0	1.8	0.0	0.0	0.0	2.3	28
Idling TT	17569730	4812934	324.7	87	60.5	0	0.0	-0.6	0.1	1.9	0.0	0.0	0.0	2.3	28
Idling TT	17569736	4812922	324.6	87	60.9	0	0.0	-0.7	0.1	1.9	0.0	0.0	0.0	2.3	27
Idling TT	17569752	4812913	324.6	87	61.2	0	0.0	-0.8	0.1	2.0	0.0	0.0	0.0	2.3	27
Idling TT	17569758	4812904	324.6	87	61.5	0	0.0	-0.8	0.1	2.1	0.0	0.0	0.0	2.3	27
Idling TT	17569762	4812896	324.6	87	61.8	0	0.0	-0.9	0.1	2.1	0.0	0.0	0.0	2.3	26
Idling TT	17569768	4812886	324.6	87	62.1	0	0.0	-0.9	0.1	2.2	0.0	0.0	0.0	2.3	26
CarIdling	17569502	4813017	319.9	66	50.8	0	0.0	0.9	0.0	0.5	0.0	0.0	0.0	1.4	15
CarIdling	17569474	4813017	319.9	66	50.9	0	0.0	0.8	0.0	0.5	0.0	0.0	0.0	0.0	14
CarIdling	17569480	4812992	319.2	66	52.9	0	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	12
CarIdling	17569502	4813006	319.6	66	51.7	0	0.0	0.7	0.0	0.6	0.0	0.0	0.0	1.5	14
CarIdling	17569496	4812977	319.0	66	53.7	0	0.0	0.8	1.0	0.9	0.0	0.0	0.0	0.0	9
CarIdling	17569506	4812958	319.4	66	55.0	0	0.0	0.6	1.0	1.0	0.0	0.0	0.0	1.8	10
CarIdling	17569528	4812936	321.5	66	56.2	0	0.0	0.5	3.8	0.3	0.0	0.0	0.0	3.0	8
CarIdling	17569566	4812945	321.8	66	56.2	0	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.0	9
CarIdling	17569534	4812968	321.2	66	54.6	0	0.0	1.4	4.5	0.2	0.0	0.0	0.0	0.0	5
CarIdling	17569528	4812992	319.6	66	53.0	0	0.0	1.9	4.9	0.1	0.0	0.0	0.0	3.8	10
CarIdling	17569502	4812992	319.4	66	52.8	0	0.0	0.6	0.0	0.5	0.0	0.0	0.0	1.5	13
CarIdling	17569506	4812984	319.3	66	53.4	0	0.0	1.3	3.2	0.3	0.0	0.0	0.0	2.6	10
CarIdling	17569528	4812961	320.3	66	54.8	0	0.0	1.1	4.4	0.2	0.0	0.0	0.0	3.4	9
CarIdling	17569570	4812928	322.4	66	57.1	0	0.0	-0.2	0.0	0.8	0.0	0.0	0.0	0.0	8
CarIdling	17569566	4812914	322.7	66	57.5	0	0.0	0.3	3.1	0.5	0.0	0.0	0.0	1.1	6
RTU 10T	17569544	4812905	330.9	88	57.6	0	0.0	2.0	2.7	0.9	0.0	0.0	0.0	3.1	27
RTU 10T	17569566	4812888	330.9	88	58.5	0	0.0	1.9	2.7	1.0	0.0	0.0	0.0	2.0	25
CarIdling	17569602	4812878	323.7	66	59.3	0	0.0	-0.5	0.0	1.0	0.0	0.0	0.0	2.0	8
CarIdling	17569602	4812865	323.9	66	59.6	0	0.0	-0.5	0.0	1.0	0.0	0.0	0.0	2.5	8
CarIdling	17569470	4813000	319.4	66	52.4	0	0.0	0.7	0.0	0.6	0.0	0.0	0.0	0.0	12
CarIdling	17569506	4812974	319.1	66	54.1	0	0.0	1.0	2.9	0.4	0.0	0.0	0.0	2.3	10
CarIdling	17569544	4812937	322.4	66	56.3	0	0.0	0.6	3.9	0.3	0.0	0.0	0.0	0.9	6
CarIdling	17569474	4813058	319.6	71	46.5	0	0.0	0.7	0.0	0.3	0.0	0.0	0.0	0.0	23
Truck Passby	17569750	4812927	323.2	102	61.1	0	0.0	-1.6	0.0	37.4	0.0	0.0	0.0	1.9	44
EmployeeVeh	17569668	4812956	320.2	--	51.9	0	0.0	2.0	1.2	0.9	0.0	0.0	0.0	0.7	37

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R5	17569526	4813047	319.5												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	54.6	0	0.0	1.5	2.9	0.9	0.0	0.0	0.0	0.8	29
Idling TT	17569666	4812954	322.8	87	55.7	0	0.0	0.1	0.4	1.1	0.0	0.0	0.0	2.5	32
Idling TT	17569674	4812962	322.9	87	55.9	0	0.0	0.2	0.9	1.1	0.0	0.0	0.0	1.1	30
Idling TT	17569694	4812974	322.9	87	56.1	0	0.0	0.2	1.0	1.1	0.0	0.0	0.0	1.0	30
Idling TT	17569696	4812982	323.0	87	56.3	0	0.0	0.1	1.0	1.2	0.0	0.0	0.0	0.0	29
Idling TT	17569704	4812991	323.5	87	56.5	0	0.0	0.1	0.8	1.2	0.0	0.0	0.0	0.0	29
Idling TT	17569720	4813000	324.3	87	56.8	0	0.0	0.1	0.3	1.3	0.0	0.0	0.0	0.0	29
Idling TT	17569758	4812950	326.4	87	59.1	0	0.0	-0.7	0.3	1.6	0.0	0.0	0.0	0.0	27
Idling TT	17569762	4812938	326.5	87	59.5	0	0.0	-0.8	0.5	1.7	0.0	0.0	0.0	0.0	26
Idling TT	17569782	4812929	325.7	87	59.9	0	0.0	-0.9	0.9	1.8	0.0	0.0	0.0	0.0	26
Idling TT	17569790	4812919	325.7	87	60.2	0	0.0	-1.0	1.0	1.8	0.0	0.0	0.0	0.0	25
Idling TT	17569630	4812896	323.5	87	56.4	0	0.0	-0.1	0.0	1.2	0.0	0.0	0.0	3.2	33
Idling TT	17569640	4812904	323.5	87	56.3	0	0.0	-0.1	0.0	1.2	0.0	0.0	0.0	3.1	33
Idling TT	17569662	4812914	323.5	87	56.4	0	0.0	-0.1	0.0	1.2	0.0	0.0	0.0	3.1	33
Idling TT	17569666	4812926	323.5	87	56.5	0	0.0	-0.1	0.1	1.2	0.0	0.0	0.0	3.1	33
Idling TT	17569674	4812936	323.5	87	56.6	0	0.0	-0.1	0.1	1.3	0.0	0.0	0.0	3.1	33
Idling TT	17569694	4812945	323.4	87	56.8	0	0.0	-0.2	0.5	1.3	0.0	0.0	0.0	3.3	32
Idling TT	17569720	4812952	324.6	87	57.6	0	0.0	-0.3	0.7	1.4	0.0	0.0	0.0	0.0	28
Idling TT	17569726	4812943	324.9	87	58.0	0	0.0	-0.5	0.6	1.4	0.0	0.0	0.0	0.0	28
Idling TT	17569730	4812934	324.7	87	58.5	0	0.0	-0.7	0.7	1.5	0.0	0.0	0.0	0.0	27
Idling TT	17569736	4812922	324.6	87	58.9	0	0.0	-0.8	0.7	1.6	0.0	0.0	0.0	0.0	27
Idling TT	17569752	4812913	324.6	87	59.3	0	0.0	-0.8	0.7	1.6	0.0	0.0	0.0	2.1	28
Idling TT	17569758	4812904	324.6	87	59.6	0	0.0	-0.8	5.0	1.8	0.0	0.0	0.0	4.4	26
Idling TT	17569762	4812896	324.6	87	60.0	0	0.0	-0.4	9.9	1.5	0.0	0.0	0.0	0.0	16
Idling TT	17569768	4812886	324.6	87	60.4	0	0.0	-0.3	13.0	1.4	0.0	0.0	0.0	0.0	13
CarIdling	17569502	4813017	319.9	66	42.8	0	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0	23
CarIdling	17569474	4813017	319.9	66	45.8	0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	20
CarIdling	17569480	4812992	319.2	66	47.8	0	0.0	0.2	0.6	0.5	0.0	0.0	0.0	0.0	17
CarIdling	17569502	4813006	319.6	66	45.1	0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	20
CarIdling	17569496	4812977	319.0	66	48.6	0	0.0	0.3	0.6	0.5	0.0	0.0	0.0	0.0	16
CarIdling	17569506	4812958	319.4	66	50.2	0	0.0	0.5	0.6	0.6	0.0	0.0	0.0	0.0	14
CarIdling	17569528	4812936	321.5	66	52.0	0	0.0	0.1	0.0	0.5	0.0	0.0	0.0	0.0	13
CarIdling	17569566	4812945	321.8	66	51.6	0	0.0	0.2	0.0	0.5	0.0	0.0	0.0	0.0	14
CarIdling	17569534	4812968	321.2	66	49.0	0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	16
CarIdling	17569528	4812992	319.6	66	45.9	0	0.0	0.5	0.0	0.3	0.0	0.0	0.0	0.0	19
CarIdling	17569502	4812992	319.4	66	46.8	0	0.0	0.3	0.6	0.4	0.0	0.0	0.0	0.0	18
CarIdling	17569506	4812984	319.3	66	47.1	0	0.0	0.6	0.6	0.4	0.0	0.0	0.0	0.0	17
CarIdling	17569528	4812961	320.3	66	49.6	0	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.0	15
CarIdling	17569570	4812928	322.4	66	53.1	0	0.0	-0.1	0.0	0.5	0.0	0.0	0.0	0.0	12
CarIdling	17569566	4812914	322.7	66	53.8	0	0.0	-0.3	0.0	0.6	0.0	0.0	0.0	1.7	14
RTU 10T	17569544	4812905	330.9	88	54.1	0	0.0	1.5	2.9	0.8	0.0	0.0	0.0	0.6	29
RTU 10T	17569566	4812888	330.9	88	55.3	0	0.0	1.1	1.1	1.0	0.0	0.0	0.0	0.0	29
CarIdling	17569602	4812878	323.7	66	56.4	0	0.0	-0.7	0.0	0.7	0.0	0.0	0.0	2.5	12
CarIdling	17569602	4812865	323.9	66	56.9	0	0.0	-0.7	0.0	0.8	0.0	0.0	0.0	2.1	11
CarIdling	17569470	4813000	319.4	66	48.1	0	0.0	0.2	0.6	0.5	0.0	0.0	0.0	0.0	16
CarIdling	17569506	4812974	319.1	66	48.5	0	0.0	0.6	0.6	0.5	0.0	0.0	0.0	0.0	16
CarIdling	17569544	4812937	322.4	66	52.0	0	0.0	0.1	0.0	0.5	0.0	0.0	0.0	0.0	13
CarIdling	17569474	4813058	319.6	71	45.6	0	0.0	0.7	0.0	0.3	0.0	0.0	0.0	0.0	24
Truck Passby	17569748	4812931	323.2	102	58.8	0	0.0	-1.9	0.0	28.8	0.0	0.0	0.0	0.8	48
EmployeeVeh	17569656	4812974	320.2	--	47.4	0	0.0	1.0	0.2	0.5	0.0	0.0	0.0	0.0	43

Where: $L_r = L_x + A_{div} + K_0 + D_c - A_{gnd} - A_{bar} - A_{atm} - A_{fol} - A_{hous} + C_{met} + Refl$



ACOUSTICS



NOISE



VIBRATION

R6	17569530	4813164	320.8												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	59.5	0	0.0	1.4	1.2	1.0	0.0	0.0	0.0	1.1	26
Idling TT	17569666	4812954	322.8	87	59.0	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	1.4	28
Idling TT	17569674	4812962	322.9	87	59.0	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	1.3	28
Idling TT	17569694	4812974	322.9	87	58.9	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	0.0	27
Idling TT	17569696	4812982	323.0	87	58.9	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	0.0	27
Idling TT	17569704	4812991	323.5	87	58.8	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	0.0	27
Idling TT	17569720	4813000	324.3	87	58.8	0	0.0	0.1	0.0	1.6	0.0	0.0	0.0	0.0	27
Idling TT	17569758	4812950	326.4	87	60.9	0	0.0	-0.7	0.0	2.0	0.0	0.0	0.0	0.0	25
Idling TT	17569762	4812938	326.5	87	61.3	0	0.0	-0.7	0.0	2.0	0.0	0.0	0.0	0.0	25
Idling TT	17569782	4812929	325.7	87	61.6	0	0.0	-0.8	0.6	2.1	0.0	0.0	0.0	0.0	24
Idling TT	17569790	4812919	325.7	87	62.0	0	0.0	-0.9	1.3	2.2	0.0	0.0	0.0	0.0	23
Idling TT	17569630	4812896	323.5	87	60.2	0	0.0	-0.1	0.0	1.8	0.0	0.0	0.0	3.7	29
Idling TT	17569640	4812904	323.5	87	60.0	0	0.0	-0.1	0.0	1.8	0.0	0.0	0.0	2.2	28
Idling TT	17569662	4812914	323.5	87	59.9	0	0.0	-0.1	0.0	1.8	0.0	0.0	0.0	2.2	28
Idling TT	17569666	4812926	323.5	87	59.8	0	0.0	-0.1	0.0	1.7	0.0	0.0	0.0	2.2	28
Idling TT	17569674	4812936	323.5	87	59.7	0	0.0	-0.2	0.0	1.7	0.0	0.0	0.0	2.2	28
Idling TT	17569694	4812945	323.4	87	59.7	0	0.0	-0.2	0.0	1.7	0.0	0.0	0.0	2.2	28
Idling TT	17569720	4812952	324.6	87	60.0	0	0.0	-0.3	0.0	1.8	0.0	0.0	0.0	0.0	26
Idling TT	17569726	4812943	324.9	87	60.4	0	0.0	-0.5	0.0	1.9	0.0	0.0	0.0	0.0	26
Idling TT	17569730	4812934	324.7	87	60.7	0	0.0	-0.6	0.0	1.9	0.0	0.0	0.0	0.0	25
Idling TT	17569736	4812922	324.6	87	61.1	0	0.0	-0.7	0.0	2.0	0.0	0.0	0.0	0.0	25
Idling TT	17569752	4812913	324.6	87	61.4	0	0.0	-0.8	0.0	2.1	0.0	0.0	0.0	0.0	25
Idling TT	17569758	4812904	324.6	87	61.7	0	0.0	-0.8	0.0	2.1	0.0	0.0	0.0	0.0	24
Idling TT	17569762	4812896	324.6	87	62.0	0	0.0	-0.9	0.0	2.2	0.0	0.0	0.0	0.0	24
Idling TT	17569768	4812886	324.6	87	62.3	0	0.0	-0.9	0.0	2.3	0.0	0.0	0.0	0.0	24
CarIdling	17569502	4813017	319.9	66	54.5	0	0.0	1.7	2.5	0.4	0.0	0.0	0.0	2.4	9
CarIdling	17569474	4813017	319.9	66	54.8	0	0.0	0.8	0.0	0.8	0.0	0.0	0.0	1.4	11
CarIdling	17569480	4812992	319.2	66	56.1	0	0.0	1.1	3.6	0.3	0.0	0.0	0.0	0.5	5
CarIdling	17569502	4813006	319.6	66	55.2	0	0.0	1.5	3.3	0.3	0.0	0.0	0.0	2.8	8
CarIdling	17569496	4812977	319.0	66	56.6	0	0.0	0.8	1.5	0.7	0.0	0.0	0.0	2.1	8
CarIdling	17569506	4812958	319.4	66	57.4	0	0.0	0.3	0.0	0.8	0.0	0.0	0.0	0.0	7
CarIdling	17569528	4812936	321.5	66	58.2	0	0.0	0.1	0.0	0.9	0.0	0.0	0.0	0.0	7
CarIdling	17569566	4812945	321.8	66	57.9	0	0.0	0.3	0.0	0.8	0.0	0.0	0.0	0.0	7
CarIdling	17569534	4812968	321.2	66	56.8	0	0.0	0.5	0.0	0.8	0.0	0.0	0.0	0.0	8
CarIdling	17569528	4812992	319.6	66	55.7	0	0.0	0.8	0.0	0.8	0.0	0.0	0.0	0.0	9
CarIdling	17569502	4812992	319.4	66	55.9	0	0.0	0.6	0.0	0.7	0.0	0.0	0.0	1.4	10
CarIdling	17569506	4812984	319.3	66	56.1	0	0.0	0.7	0.0	0.7	0.0	0.0	0.0	0.0	8
CarIdling	17569528	4812961	320.3	66	57.1	0	0.0	0.5	0.0	0.8	0.0	0.0	0.0	0.0	8
CarIdling	17569570	4812928	322.4	66	58.6	0	0.0	0.1	0.0	0.9	0.0	0.0	0.0	0.0	6
CarIdling	17569566	4812914	322.7	66	59.0	0	0.0	-0.1	0.0	0.9	0.0	0.0	0.0	1.8	8
RTU 10T	17569544	4812905	330.9	88	59.2	0	0.0	1.4	1.1	1.0	0.0	0.0	0.0	0.9	26
RTU 10T	17569566	4812888	330.9	88	59.9	0	0.0	1.5	1.5	0.9	0.0	0.0	0.0	1.8	26
CarIdling	17569602	4812878	323.7	66	60.4	0	0.0	-0.1	0.0	1.1	0.0	0.0	0.0	2.8	7
CarIdling	17569602	4812865	323.9	66	60.7	0	0.0	-0.2	0.0	1.1	0.0	0.0	0.0	2.2	6
CarIdling	17569470	4813000	319.4	66	55.8	0	0.0	0.6	0.0	0.7	0.0	0.0	0.0	1.4	10
CarIdling	17569506	4812974	319.1	66	56.6	0	0.0	0.5	0.0	0.8	0.0	0.0	0.0	0.0	8
CarIdling	17569544	4812937	322.4	66	58.1	0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	7
CarIdling	17569474	4813058	319.6	71	52.5	0	0.0	1.0	0.0	0.6	0.0	0.0	0.0	2.4	19
Truck Passby	17569752	4812927	323.4	102	61.8	0	0.0	-1.6	0.0	40.8	0.0	0.0	0.0	1.1	42
EmployeeVeh	17569660	4812967	320.1	--	56.7	0	0.0	0.6	1.0	1.5	0.0	0.0	0.0	1.3	33

Where: $L_r = L_x + A_{div} + K_0 + D_c - A_{gnd} - A_{bar} - A_{atm} - A_{fol} - A_{hous} + C_{met} + Refl$



ACOUSTICS



NOISE



VIBRATION

R7	17569598	4813231	323.3												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	61.5	0	0.0	1.3	0.1	1.5	0.0	0.0	0.0	1.5	25
Idling TT	17569666	4812954	322.8	87	60.1	0	0.0	0.1	0.1	1.8	0.0	0.0	0.0	1.6	27
Idling TT	17569674	4812962	322.9	87	60.0	0	0.0	0.1	0.1	1.8	0.0	0.0	0.0	0.0	25
Idling TT	17569694	4812974	322.9	87	59.8	0	0.0	0.1	0.1	1.7	0.0	0.0	0.0	0.0	26
Idling TT	17569696	4812982	323.0	87	59.6	0	0.0	0.1	0.1	1.7	0.0	0.0	0.0	0.0	26
Idling TT	17569704	4812991	323.5	87	59.4	0	0.0	0.1	0.1	1.7	0.0	0.0	0.0	0.0	26
Idling TT	17569720	4813000	324.3	87	59.3	0	0.0	0.1	0.1	1.6	0.0	0.0	0.0	0.0	26
Idling TT	17569758	4812950	326.4	87	61.2	0	0.0	-0.7	0.1	2.0	0.0	0.0	0.0	0.0	25
Idling TT	17569762	4812938	326.5	87	61.6	0	0.0	-0.7	0.1	2.1	0.0	0.0	0.0	0.0	24
Idling TT	17569782	4812929	325.7	87	61.9	0	0.0	-0.7	2.2	2.0	0.0	0.0	0.0	0.0	22
Idling TT	17569790	4812919	325.7	87	62.2	0	0.0	-0.6	2.2	2.8	0.0	0.0	0.0	0.0	21
Idling TT	17569630	4812896	323.5	87	61.6	0	0.0	-0.2	0.1	2.1	0.0	0.0	0.0	3.7	27
Idling TT	17569640	4812904	323.5	87	61.4	0	0.0	-0.2	0.1	2.0	0.0	0.0	0.0	3.5	27
Idling TT	17569662	4812914	323.5	87	61.1	0	0.0	-0.2	0.1	2.0	0.0	0.0	0.0	3.3	28
Idling TT	17569666	4812926	323.5	87	60.9	0	0.0	-0.2	0.1	1.9	0.0	0.0	0.0	2.3	27
Idling TT	17569674	4812936	323.5	87	60.7	0	0.0	-0.2	0.1	1.9	0.0	0.0	0.0	2.2	27
Idling TT	17569694	4812945	323.4	87	60.6	0	0.0	-0.2	0.1	1.9	0.0	0.0	0.0	0.0	25
Idling TT	17569720	4812952	324.6	87	60.7	0	0.0	-0.4	0.1	1.9	0.0	0.0	0.0	0.0	25
Idling TT	17569726	4812943	324.9	87	61.0	0	0.0	-0.6	0.1	2.0	0.0	0.0	0.0	0.0	25
Idling TT	17569730	4812934	324.7	87	61.3	0	0.0	-0.6	0.1	2.0	0.0	0.0	0.0	0.0	24
Idling TT	17569736	4812922	324.6	87	61.6	0	0.0	-0.7	0.1	2.1	0.0	0.0	0.0	0.0	24
Idling TT	17569752	4812913	324.6	87	61.9	0	0.0	-0.8	0.1	2.2	0.0	0.0	0.0	0.0	24
Idling TT	17569758	4812904	324.6	87	62.2	0	0.0	-0.8	0.9	2.2	0.0	0.0	0.0	2.8	26
Idling TT	17569762	4812896	324.6	87	62.5	0	0.0	-0.8	2.2	2.2	0.0	0.0	0.0	3.5	25
Idling TT	17569768	4812886	324.6	87	62.8	0	0.0	-0.7	3.0	2.1	0.0	0.0	0.0	3.9	24
CarIdling	17569502	4813017	319.9	66	58.4	0	0.0	0.6	0.9	1.3	0.0	0.0	0.0	0.0	5
CarIdling	17569474	4813017	319.9	66	58.8	0	0.0	1.5	7.9	0.2	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	59.5	0	0.0	1.0	2.5	0.9	0.0	0.0	0.0	0.0	2
CarIdling	17569502	4813006	319.6	66	58.9	0	0.0	1.2	1.0	0.5	0.0	0.0	0.0	0.0	4
CarIdling	17569496	4812977	319.0	66	59.8	0	0.0	0.9	1.1	0.6	0.0	0.0	0.0	0.0	4
CarIdling	17569506	4812958	319.4	66	60.2	0	0.0	0.8	1.1	0.6	0.0	0.0	0.0	0.0	3
CarIdling	17569528	4812936	321.5	66	60.7	0	0.0	0.4	1.2	0.7	0.0	0.0	0.0	0.0	3
CarIdling	17569566	4812945	321.8	66	60.2	0	0.0	1.0	1.1	0.6	0.0	0.0	0.0	0.6	4
CarIdling	17569534	4812968	321.2	66	59.7	0	0.0	0.9	1.1	0.6	0.0	0.0	0.0	0.0	4
CarIdling	17569528	4812992	319.6	66	59.0	0	0.0	0.5	1.0	1.3	0.0	0.0	0.0	0.0	4
CarIdling	17569502	4812992	319.4	66	59.3	0	0.0	1.1	1.0	0.5	0.0	0.0	0.0	0.0	4
CarIdling	17569506	4812984	319.3	66	59.4	0	0.0	1.2	1.0	0.5	0.0	0.0	0.0	0.0	4
CarIdling	17569528	4812961	320.3	66	59.9	0	0.0	0.9	1.1	0.6	0.0	0.0	0.0	0.0	3
CarIdling	17569570	4812928	322.4	66	60.7	0	0.0	0.9	1.1	0.6	0.0	0.0	0.0	1.1	4
CarIdling	17569566	4812914	322.7	66	61.1	0	0.0	0.6	1.1	0.7	0.0	0.0	0.0	3.0	5
RTU 10T	17569544	4812905	330.9	88	61.3	0	0.0	1.3	0.1	1.5	0.0	0.0	0.0	1.4	25
RTU 10T	17569566	4812888	330.9	88	61.8	0	0.0	1.3	0.1	1.5	0.0	0.0	0.0	1.7	24
CarIdling	17569602	4812878	323.7	66	62.0	0	0.0	0.7	1.2	0.8	0.0	0.0	0.0	2.0	3
CarIdling	17569602	4812865	323.9	66	62.3	0	0.0	0.5	1.2	0.8	0.0	0.0	0.0	3.9	5
CarIdling	17569470	4813000	319.4	66	59.4	0	0.0	0.9	7.5	0.3	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	59.7	0	0.0	1.1	1.0	0.5	0.0	0.0	0.0	0.0	4
CarIdling	17569544	4812937	322.4	66	60.5	0	0.0	0.7	1.1	0.6	0.0	0.0	0.0	0.9	4
CarIdling	17569474	4813058	319.6	71	57.6	0	0.0	1.9	5.6	0.2	0.0	0.0	0.0	0.0	5
Truck Passby	17569752	4812929	323.4	102	63.0	0	0.0	-1.7	0.0	46.3	0.0	0.0	0.0	1.4	41
EmployeeVeh	17569664	4812971	320.1	--	60.3	0	0.0	1.6	1.7	0.8	0.0	0.0	0.0	1.1	29

Where: $L_r = L_x + A_{div} + K_0 + D_c - A_{gnd} - A_{bar} - A_{atm} - A_{fol} - A_{hous} + C_{met} + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R8	17569666	4813293	326.9												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	63.3	0	0.0	1.7	1.2	1.5	0.0	0.0	0.0	1.7	22
Idling TT	17569666	4812954	322.8	87	61.6	0	0.0	0.7	3.0	2.3	0.0	0.0	0.0	1.8	21
Idling TT	17569674	4812962	322.9	87	61.4	0	0.0	0.7	3.0	2.3	0.0	0.0	0.0	1.8	22
Idling TT	17569694	4812974	322.9	87	61.1	0	0.0	0.7	3.1	2.2	0.0	0.0	0.0	1.8	22
Idling TT	17569696	4812982	323.0	87	60.9	0	0.0	0.7	3.1	2.2	0.0	0.0	0.0	1.8	22
Idling TT	17569704	4812991	323.5	87	60.7	0	0.0	0.7	3.0	2.2	0.0	0.0	0.0	1.7	22
Idling TT	17569720	4813000	324.3	87	60.5	0	0.0	0.6	2.7	2.2	0.0	0.0	0.0	1.7	23
Idling TT	17569758	4812950	326.4	87	62.0	0	0.0	0.1	2.6	1.9	0.0	0.0	0.0	2.0	23
Idling TT	17569762	4812938	326.5	87	62.3	0	0.0	0.1	2.5	1.9	0.0	0.0	0.0	2.0	22
Idling TT	17569782	4812929	325.7	87	62.6	0	0.0	0.2	2.4	2.8	0.0	0.0	0.0	2.2	21
Idling TT	17569790	4812919	325.7	87	62.9	0	0.0	0.4	3.6	2.5	0.0	0.0	0.0	2.4	20
Idling TT	17569630	4812896	323.5	87	63.0	0	0.0	0.3	2.8	2.8	0.0	0.0	0.0	4.5	23
Idling TT	17569640	4812904	323.5	87	62.8	0	0.0	0.2	2.8	2.7	0.0	0.0	0.0	4.3	23
Idling TT	17569662	4812914	323.5	87	62.5	0	0.0	0.2	2.9	2.7	0.0	0.0	0.0	4.2	23
Idling TT	17569666	4812926	323.5	87	62.3	0	0.0	0.2	2.9	2.6	0.0	0.0	0.0	3.5	23
Idling TT	17569674	4812936	323.5	87	62.1	0	0.0	0.2	2.9	2.5	0.0	0.0	0.0	3.5	23
Idling TT	17569694	4812945	323.4	87	61.8	0	0.0	0.2	3.0	2.5	0.0	0.0	0.0	1.8	22
Idling TT	17569720	4812952	324.6	87	61.8	0	0.0	-0.1	2.6	2.6	0.0	0.0	0.0	1.7	22
Idling TT	17569726	4812943	324.9	87	62.0	0	0.0	-0.3	2.5	2.7	0.0	0.0	0.0	1.7	22
Idling TT	17569730	4812934	324.7	87	62.3	0	0.0	-0.3	2.5	2.8	0.0	0.0	0.0	1.7	22
Idling TT	17569736	4812922	324.6	87	62.5	0	0.0	-0.4	2.5	2.8	0.0	0.0	0.0	3.4	23
Idling TT	17569752	4812913	324.6	87	62.8	0	0.0	-0.4	2.5	2.9	0.0	0.0	0.0	3.5	23
Idling TT	17569758	4812904	324.6	87	63.0	0	0.0	-0.4	2.5	3.0	0.0	0.0	0.0	3.5	23
Idling TT	17569762	4812896	324.6	87	63.3	0	0.0	-0.4	2.4	3.1	0.0	0.0	0.0	2.8	22
Idling TT	17569768	4812886	324.6	87	63.5	0	0.0	-0.2	3.6	2.7	0.0	0.0	0.0	4.5	22
CarIdling	17569502	4813017	319.9	66	61.2	0	0.0	2.4	2.1	1.1	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813017	319.9	66	61.5	0	0.0	2.2	2.2	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	61.9	0	0.0	1.9	2.4	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4813006	319.6	66	61.5	0	0.0	2.2	2.2	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569496	4812977	319.0	66	62.1	0	0.0	1.8	2.4	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812958	319.4	66	62.4	0	0.0	1.6	2.5	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812936	321.5	66	62.7	0	0.0	1.2	2.6	1.4	0.0	0.0	0.0	0.8	--
CarIdling	17569566	4812945	321.8	66	62.2	0	0.0	1.9	2.2	1.3	0.0	0.0	0.0	0.9	--
CarIdling	17569534	4812968	321.2	66	61.9	0	0.0	1.8	2.3	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812992	319.6	66	61.5	0	0.0	2.4	2.1	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4812992	319.4	66	61.8	0	0.0	2.1	2.3	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812984	319.3	66	61.8	0	0.0	2.2	2.2	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812961	320.3	66	62.1	0	0.0	1.6	2.4	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569570	4812928	322.4	66	62.6	0	0.0	1.8	2.1	1.4	0.0	0.0	0.0	2.3	0
CarIdling	17569566	4812914	322.7	66	62.9	0	0.0	1.5	2.2	1.5	0.0	0.0	0.0	2.9	1
RTU 10T	17569544	4812905	330.9	88	63.1	0	0.0	1.7	1.2	1.4	0.0	0.0	0.0	1.5	22
RTU 10T	17569566	4812888	330.9	88	63.4	0	0.0	1.7	1.2	1.5	0.0	0.0	0.0	1.8	22
CarIdling	17569602	4812878	323.7	66	63.5	0	0.0	1.6	1.9	1.7	0.0	0.0	0.0	2.0	--
CarIdling	17569602	4812865	323.9	66	63.7	0	0.0	1.4	2.0	1.8	0.0	0.0	0.0	4.0	1
CarIdling	17569470	4813000	319.4	66	61.9	0	0.0	1.8	2.4	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	62.0	0	0.0	2.0	2.3	1.2	0.0	0.0	0.0	0.0	--
CarIdling	17569544	4812937	322.4	66	62.4	0	0.0	1.6	2.2	1.4	0.0	0.0	0.0	0.9	--
CarIdling	17569474	4813058	319.6	71	60.6	0	0.0	2.5	2.1	1.1	0.0	0.0	0.0	0.0	4
Truck Passby	17569752	4812929	323.4	102	64.1	0	0.0	-1.8	0.0	53.0	0.0	0.0	0.0	2.5	36
EmployeeVeh	17569664	4812967	320.1	--	62.1	0	0.0	3.2	1.5	2.2	0.0	0.0	0.0	1.4	24

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R9	17569700	4813332	328.5												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	64.2	0	0.0	1.4	0.1	1.9	0.0	0.0	0.0	1.9	22
Idling TT	17569666	4812954	322.8	87	62.6	0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	22
Idling TT	17569674	4812962	322.9	87	62.4	0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	23
Idling TT	17569694	4812974	322.9	87	62.1	0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	23
Idling TT	17569696	4812982	323.0	87	61.9	0	0.0	0.1	0.0	2.1	0.0	0.0	0.0	0.0	23
Idling TT	17569704	4812991	323.5	87	61.7	0	0.0	0.1	0.0	2.1	0.0	0.0	0.0	0.0	23
Idling TT	17569720	4813000	324.3	87	61.5	0	0.0	0.1	0.0	2.0	0.0	0.0	0.0	0.0	24
Idling TT	17569758	4812950	326.4	87	62.8	0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	22
Idling TT	17569762	4812938	326.5	87	63.0	0	0.0	0.1	1.1	2.3	0.0	0.0	0.0	0.0	21
Idling TT	17569782	4812929	325.7	87	63.3	0	0.0	0.7	3.5	2.6	0.0	0.0	0.0	0.0	17
Idling TT	17569790	4812919	325.7	87	63.5	0	0.0	0.6	3.5	2.7	0.0	0.0	0.0	0.0	17
Idling TT	17569630	4812896	323.5	87	63.9	0	0.0	-0.3	0.0	2.6	0.0	0.0	0.0	3.6	25
Idling TT	17569640	4812904	323.5	87	63.7	0	0.0	-0.3	0.0	2.6	0.0	0.0	0.0	3.4	25
Idling TT	17569662	4812914	323.5	87	63.4	0	0.0	-0.3	0.0	2.5	0.0	0.0	0.0	3.3	25
Idling TT	17569666	4812926	323.5	87	63.2	0	0.0	-0.3	0.0	2.4	0.0	0.0	0.0	2.4	24
Idling TT	17569674	4812936	323.5	87	63.0	0	0.0	-0.4	0.0	2.4	0.0	0.0	0.0	2.3	25
Idling TT	17569694	4812945	323.4	87	62.8	0	0.0	-0.4	0.0	2.3	0.0	0.0	0.0	0.0	22
Idling TT	17569720	4812952	324.6	87	62.6	0	0.0	-0.6	0.0	2.3	0.0	0.0	0.0	0.0	23
Idling TT	17569726	4812943	324.9	87	62.8	0	0.0	-0.6	0.0	2.4	0.0	0.0	0.0	0.0	23
Idling TT	17569730	4812934	324.7	87	63.1	0	0.0	-0.6	0.0	2.4	0.0	0.0	0.0	0.0	22
Idling TT	17569736	4812922	324.6	87	63.3	0	0.0	-0.6	0.0	2.5	0.0	0.0	0.0	2.4	24
Idling TT	17569752	4812913	324.6	87	63.5	0	0.0	-0.3	3.0	2.2	0.0	0.0	0.0	3.9	23
Idling TT	17569758	4812904	324.6	87	63.7	0	0.0	-0.1	3.3	2.8	0.0	0.0	0.0	4.6	22
Idling TT	17569762	4812896	324.6	87	63.9	0	0.0	-0.3	2.9	2.3	0.0	0.0	0.0	3.9	22
Idling TT	17569768	4812886	324.6	87	64.1	0	0.0	-0.2	2.7	3.2	0.0	0.0	0.0	4.3	22
CarIdling	17569502	4813017	319.9	66	62.4	0	0.0	2.6	1.8	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813017	319.9	66	62.7	0	0.0	2.3	1.9	1.4	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	63.1	0	0.0	2.0	2.1	1.4	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4813006	319.6	66	62.7	0	0.0	2.3	1.9	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569496	4812977	319.0	66	63.3	0	0.0	1.9	2.2	1.4	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812958	319.4	66	63.5	0	0.0	1.6	2.2	1.5	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812936	321.5	66	63.8	0	0.0	1.1	1.6	2.1	0.0	0.0	0.0	1.7	--
CarIdling	17569566	4812945	321.8	66	63.3	0	0.0	1.9	1.1	2.0	0.0	0.0	0.0	1.7	--
CarIdling	17569534	4812968	321.2	66	63.0	0	0.0	1.8	1.6	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812992	319.6	66	62.7	0	0.0	2.5	1.9	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4812992	319.4	66	63.0	0	0.0	2.2	2.0	1.4	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812984	319.3	66	62.9	0	0.0	2.3	2.0	1.3	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812961	320.3	66	63.3	0	0.0	1.7	2.0	1.6	0.0	0.0	0.0	0.0	--
CarIdling	17569570	4812928	322.4	66	63.6	0	0.0	1.6	0.7	2.1	0.0	0.0	0.0	3.0	1
CarIdling	17569566	4812914	322.7	66	63.9	0	0.0	1.3	0.6	2.3	0.0	0.0	0.0	3.3	1
RTU 10T	17569544	4812905	330.9	88	64.1	0	0.0	1.4	0.1	1.9	0.0	0.0	0.0	1.7	22
RTU 10T	17569566	4812888	330.9	88	64.4	0	0.0	1.4	0.1	1.9	0.0	0.0	0.0	2.0	22
CarIdling	17569602	4812878	323.7	66	64.4	0	0.0	1.0	0.6	1.0	0.0	0.0	0.0	2.2	1
CarIdling	17569602	4812865	323.9	66	64.6	0	0.0	0.7	0.6	1.1	0.0	0.0	0.0	3.9	3
CarIdling	17569470	4813000	319.4	66	63.1	0	0.0	1.9	2.2	1.4	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	63.2	0	0.0	2.1	2.1	1.4	0.0	0.0	0.0	0.0	--
CarIdling	17569544	4812937	322.4	66	63.5	0	0.0	1.5	1.0	2.1	0.0	0.0	0.0	1.6	--
CarIdling	17569474	4813058	319.6	71	62.0	0	0.0	2.6	1.9	1.2	0.0	0.0	0.0	0.0	3
Truck Passby	17569752	4812929	323.4	102	64.9	0	0.0	-1.8	0.0	57.8	0.0	0.0	0.0	2.0	38
EmployeeVeh	17569664	4812967	320.1	--	63.5	0	0.0	2.7	2.5	0.7	0.0	0.0	0.0	2.0	25

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R10	17569750	4813391	331.9												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	65.5	0	0.0	1.5	0.1	2.1	0.0	0.0	0.0	1.9	20
Idling TT	17569666	4812954	322.8	87	63.9	0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	21
Idling TT	17569674	4812962	322.9	87	63.7	0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	21
Idling TT	17569694	4812974	322.9	87	63.5	0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	21
Idling TT	17569696	4812982	323.0	87	63.3	0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	21
Idling TT	17569704	4812991	323.5	87	63.1	0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	22
Idling TT	17569720	4813000	324.3	87	62.9	0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	22
Idling TT	17569758	4812950	326.4	87	63.9	0	0.0	0.1	0.0	2.6	0.0	0.0	0.0	0.0	21
Idling TT	17569762	4812938	326.5	87	64.1	0	0.0	0.8	3.1	2.9	0.0	0.0	0.0	0.0	16
Idling TT	17569782	4812929	325.7	87	64.3	0	0.0	0.8	3.4	2.9	0.0	0.0	0.0	0.0	16
Idling TT	17569790	4812919	325.7	87	64.5	0	0.0	0.7	2.8	3.1	0.0	0.0	0.0	4.3	20
Idling TT	17569630	4812896	323.5	87	65.2	0	0.0	-0.4	0.0	3.0	0.0	0.0	0.0	3.6	23
Idling TT	17569640	4812904	323.5	87	65.0	0	0.0	-0.4	0.0	2.9	0.0	0.0	0.0	3.4	23
Idling TT	17569662	4812914	323.5	87	64.7	0	0.0	-0.4	0.0	2.8	0.0	0.0	0.0	3.3	23
Idling TT	17569666	4812926	323.5	87	64.5	0	0.0	-0.5	0.0	2.8	0.0	0.0	0.0	2.4	23
Idling TT	17569674	4812936	323.5	87	64.3	0	0.0	-0.5	0.0	2.7	0.0	0.0	0.0	2.4	23
Idling TT	17569694	4812945	323.4	87	64.1	0	0.0	-0.5	0.0	2.7	0.0	0.0	0.0	0.0	21
Idling TT	17569720	4812952	324.6	87	63.9	0	0.0	-0.5	0.0	2.6	0.0	0.0	0.0	0.0	21
Idling TT	17569726	4812943	324.9	87	64.1	0	0.0	-0.5	0.0	2.7	0.0	0.0	0.0	0.0	21
Idling TT	17569730	4812934	324.7	87	64.2	0	0.0	-0.5	0.0	2.7	0.0	0.0	0.0	0.0	21
Idling TT	17569736	4812922	324.6	87	64.4	0	0.0	-0.1	2.7	3.2	0.0	0.0	0.0	4.3	21
Idling TT	17569752	4812913	324.6	87	64.6	0	0.0	-0.5	0.0	2.8	0.0	0.0	0.0	2.4	23
Idling TT	17569758	4812904	324.6	87	64.8	0	0.0	-0.3	2.2	2.7	0.0	0.0	0.0	3.5	21
Idling TT	17569762	4812896	324.6	87	64.9	0	0.0	0.1	3.6	3.1	0.0	0.0	0.0	4.8	20
Idling TT	17569768	4812886	324.6	87	65.1	0	0.0	0.1	3.6	3.1	0.0	0.0	0.0	4.8	20
CarIdling	17569502	4813017	319.9	66	64.1	0	0.0	2.6	0.7	2.0	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813017	319.9	66	64.3	0	0.0	1.7	1.0	0.7	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	64.6	0	0.0	2.0	1.0	2.1	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4813006	319.6	66	64.3	0	0.0	2.4	0.8	2.0	0.0	0.0	0.0	0.0	--
CarIdling	17569496	4812977	319.0	66	64.7	0	0.0	1.4	1.0	0.8	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812958	319.4	66	64.9	0	0.0	1.1	1.0	0.9	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812936	321.5	66	65.1	0	0.0	0.8	1.0	1.0	0.0	0.0	0.0	1.2	--
CarIdling	17569566	4812945	321.8	66	64.7	0	0.0	1.5	1.0	0.8	0.0	0.0	0.0	1.2	--
CarIdling	17569534	4812968	321.2	66	64.5	0	0.0	1.4	0.9	0.8	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812992	319.6	66	64.3	0	0.0	1.9	1.0	0.7	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4812992	319.4	66	64.5	0	0.0	1.6	1.0	0.7	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812984	319.3	66	64.5	0	0.0	1.7	1.0	0.7	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812961	320.3	66	64.7	0	0.0	1.2	1.0	0.9	0.0	0.0	0.0	0.0	--
CarIdling	17569570	4812928	322.4	66	64.9	0	0.0	1.5	1.0	0.8	0.0	0.0	0.0	2.8	0
CarIdling	17569566	4812914	322.7	66	65.2	0	0.0	0.6	0.0	1.6	0.0	0.0	0.0	2.7	1
RTU 10T	17569544	4812905	330.9	88	65.4	0	0.0	1.5	0.1	2.1	0.0	0.0	0.0	1.9	20
RTU 10T	17569566	4812888	330.9	88	65.6	0	0.0	1.5	0.1	2.2	0.0	0.0	0.0	2.1	20
CarIdling	17569602	4812878	323.7	66	65.6	0	0.0	0.5	0.0	1.6	0.0	0.0	0.0	1.9	0
CarIdling	17569602	4812865	323.9	66	65.7	0	0.0	0.3	0.0	1.6	0.0	0.0	0.0	3.6	2
CarIdling	17569470	4813000	319.4	66	64.6	0	0.0	1.4	1.0	0.8	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	64.6	0	0.0	1.5	1.0	0.8	0.0	0.0	0.0	0.0	--
CarIdling	17569544	4812937	322.4	66	64.9	0	0.0	1.3	0.9	0.8	0.0	0.0	0.0	1.2	--
CarIdling	17569474	4813058	319.6	71	63.7	0	0.0	2.8	1.5	1.4	0.0	0.0	0.0	0.0	1
Truck Passby	17569752	4812929	323.4	102	65.9	0	0.0	-1.8	0.0	65.3	0.0	0.0	0.0	2.0	36
EmployeeVeh	17569664	4812967	320.1	--	64.8	0	0.0	2.1	1.0	1.8	0.0	0.0	0.0	1.8	24

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R11	17569800	4813450	334.4												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	66.6	0	0.0	2.0	1.6	1.9	0.0	0.0	0.0	1.5	17
Idling TT	17569666	4812954	322.8	87	65.2	0	0.0	0.7	3.2	3.2	0.0	0.0	0.0	0.0	15
Idling TT	17569674	4812962	322.9	87	65.0	0	0.0	0.7	3.3	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569694	4812974	322.9	87	64.8	0	0.0	0.7	3.4	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569696	4812982	323.0	87	64.6	0	0.0	0.7	3.4	3.0	0.0	0.0	0.0	0.0	15
Idling TT	17569704	4812991	323.5	87	64.4	0	0.0	0.7	3.4	2.9	0.0	0.0	0.0	0.0	16
Idling TT	17569720	4813000	324.3	87	64.3	0	0.0	0.9	3.4	2.9	0.0	0.0	0.0	0.0	16
Idling TT	17569758	4812950	326.4	87	65.0	0	0.0	1.0	3.3	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569762	4812938	326.5	87	65.2	0	0.0	1.0	3.3	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569782	4812929	325.7	87	65.4	0	0.0	1.0	3.3	3.2	0.0	0.0	0.0	2.2	17
Idling TT	17569790	4812919	325.7	87	65.5	0	0.0	1.0	3.2	3.3	0.0	0.0	0.0	2.2	16
Idling TT	17569630	4812896	323.5	87	66.3	0	0.0	0.1	2.9	3.7	0.0	0.0	0.0	3.6	18
Idling TT	17569640	4812904	323.5	87	66.1	0	0.0	0.1	2.9	3.7	0.0	0.0	0.0	3.4	18
Idling TT	17569662	4812914	323.5	87	65.9	0	0.0	0.1	3.0	3.6	0.0	0.0	0.0	3.2	18
Idling TT	17569666	4812926	323.5	87	65.7	0	0.0	0.1	3.2	3.4	0.0	0.0	0.0	2.3	17
Idling TT	17569674	4812936	323.5	87	65.5	0	0.0	0.1	3.4	3.3	0.0	0.0	0.0	0.0	15
Idling TT	17569694	4812945	323.4	87	65.3	0	0.0	0.1	3.5	3.2	0.0	0.0	0.0	0.0	15
Idling TT	17569720	4812952	324.6	87	65.1	0	0.0	0.3	3.5	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569726	4812943	324.9	87	65.2	0	0.0	0.2	3.5	3.2	0.0	0.0	0.0	0.0	15
Idling TT	17569730	4812934	324.7	87	65.4	0	0.0	0.2	3.5	3.2	0.0	0.0	0.0	2.4	17
Idling TT	17569736	4812922	324.6	87	65.5	0	0.0	0.2	3.5	3.3	0.0	0.0	0.0	2.4	17
Idling TT	17569752	4812913	324.6	87	65.6	0	0.0	0.2	3.5	3.3	0.0	0.0	0.0	2.4	17
Idling TT	17569758	4812904	324.6	87	65.8	0	0.0	0.2	3.5	3.4	0.0	0.0	0.0	2.4	17
Idling TT	17569762	4812896	324.6	87	65.9	0	0.0	0.2	3.5	3.4	0.0	0.0	0.0	2.4	17
Idling TT	17569768	4812886	324.6	87	66.1	0	0.0	0.2	3.5	3.4	0.0	0.0	0.0	2.4	16
CarIdling	17569502	4813017	319.9	66	65.4	0	0.0	2.5	2.0	0.3	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813017	319.9	66	65.6	0	0.0	2.2	1.9	0.5	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	65.9	0	0.0	1.9	2.0	0.6	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4813006	319.6	66	65.6	0	0.0	2.3	2.0	0.4	0.0	0.0	0.0	0.0	--
CarIdling	17569496	4812977	319.0	66	66.0	0	0.0	1.9	2.0	0.6	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812958	319.4	66	66.2	0	0.0	1.8	0.9	2.4	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812936	321.5	66	66.3	0	0.0	1.6	1.7	2.1	0.0	0.0	0.0	0.9	--
CarIdling	17569566	4812945	321.8	66	66.0	0	0.0	2.5	1.2	1.9	0.0	0.0	0.0	0.0	--
CarIdling	17569534	4812968	321.2	66	65.8	0	0.0	2.3	1.2	2.0	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812992	319.6	66	65.6	0	0.0	0.4	2.4	2.4	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4812992	319.4	66	65.8	0	0.0	2.2	2.0	0.5	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812984	319.3	66	65.8	0	0.0	2.3	2.2	0.3	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812961	320.3	66	66.0	0	0.0	1.9	1.1	2.3	0.0	0.0	0.0	0.0	--
CarIdling	17569570	4812928	322.4	66	66.2	0	0.0	2.4	1.2	2.0	0.0	0.0	0.0	2.3	--
CarIdling	17569566	4812914	322.7	66	66.3	0	0.0	2.1	1.4	2.1	0.0	0.0	0.0	2.7	--
RTU 10T	17569544	4812905	330.9	88	66.6	0	0.0	2.0	1.5	1.9	0.0	0.0	0.0	1.4	17
RTU 10T	17569566	4812888	330.9	88	66.7	0	0.0	2.0	1.6	1.9	0.0	0.0	0.0	1.7	17
CarIdling	17569602	4812878	323.7	66	66.7	0	0.0	1.8	1.6	2.2	0.0	0.0	0.0	2.0	--
CarIdling	17569602	4812865	323.9	66	66.8	0	0.0	1.4	1.7	2.2	0.0	0.0	0.0	3.7	--
CarIdling	17569470	4813000	319.4	66	65.9	0	0.0	1.8	1.9	0.6	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	65.9	0	0.0	2.2	0.4	2.4	0.0	0.0	0.0	0.0	--
CarIdling	17569544	4812937	322.4	66	66.1	0	0.0	2.2	1.3	2.0	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813058	319.6	71	65.2	0	0.0	3.1	1.2	1.6	0.0	0.0	0.0	0.0	--
Truck Passby	17569752	4812928	323.4	102	66.9	0	0.0	-1.8	2.6	73.2	0.0	0.0	0.0	1.8	31
EmployeeVeh	17569664	4812967	320.1	--	66.0	0	0.0	3.2	2.7	1.3	0.0	0.0	0.0	1.4	20

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R12	17569834	4813480	333.9												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	67.2	0	0.0	2.6	2.1	2.7	0.0	0.0	0.0	1.8	15
Idling TT	17569666	4812954	322.8	87	65.8	0	0.0	0.7	3.3	3.3	0.0	0.0	0.0	0.0	14
Idling TT	17569674	4812962	322.9	87	65.6	0	0.0	0.7	3.4	3.3	0.0	0.0	0.0	0.0	14
Idling TT	17569694	4812974	322.9	87	65.5	0	0.0	0.7	3.4	3.2	0.0	0.0	0.0	0.0	14
Idling TT	17569696	4812982	323.0	87	65.3	0	0.0	0.7	3.4	3.2	0.0	0.0	0.0	0.0	15
Idling TT	17569704	4812991	323.5	87	65.1	0	0.0	0.7	3.4	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569720	4813000	324.3	87	64.9	0	0.0	1.0	3.3	3.1	0.0	0.0	0.0	0.0	15
Idling TT	17569758	4812950	326.4	87	65.6	0	0.0	1.1	3.2	3.3	0.0	0.0	0.0	0.0	14
Idling TT	17569762	4812938	326.5	87	65.7	0	0.0	1.1	3.2	3.3	0.0	0.0	0.0	0.0	14
Idling TT	17569782	4812929	325.7	87	65.9	0	0.0	1.1	3.2	3.4	0.0	0.0	0.0	2.2	16
Idling TT	17569790	4812919	325.7	87	66.0	0	0.0	1.2	3.9	3.2	0.0	0.0	0.0	2.5	15
Idling TT	17569630	4812896	323.5	87	66.8	0	0.0	0.2	3.4	3.7	0.0	0.0	0.0	2.4	15
Idling TT	17569640	4812904	323.5	87	66.7	0	0.0	0.2	3.4	3.6	0.0	0.0	0.0	3.3	17
Idling TT	17569662	4812914	323.5	87	66.4	0	0.0	0.2	3.5	3.6	0.0	0.0	0.0	3.2	17
Idling TT	17569666	4812926	323.5	87	66.3	0	0.0	0.2	3.5	3.5	0.0	0.0	0.0	2.4	16
Idling TT	17569674	4812936	323.5	87	66.1	0	0.0	0.2	3.5	3.4	0.0	0.0	0.0	0.0	14
Idling TT	17569694	4812945	323.4	87	65.9	0	0.0	0.1	3.5	3.4	0.0	0.0	0.0	0.0	14
Idling TT	17569720	4812952	324.6	87	65.7	0	0.0	0.3	3.5	3.3	0.0	0.0	0.0	0.0	14
Idling TT	17569726	4812943	324.9	87	65.8	0	0.0	0.3	3.5	3.4	0.0	0.0	0.0	0.0	14
Idling TT	17569730	4812934	324.7	87	65.9	0	0.0	0.3	3.4	3.4	0.0	0.0	0.0	2.4	17
Idling TT	17569736	4812922	324.6	87	66.0	0	0.0	0.3	3.4	3.4	0.0	0.0	0.0	2.4	16
Idling TT	17569752	4812913	324.6	87	66.2	0	0.0	0.3	3.4	3.5	0.0	0.0	0.0	2.4	16
Idling TT	17569758	4812904	324.6	87	66.3	0	0.0	0.3	3.5	3.5	0.0	0.0	0.0	2.4	16
Idling TT	17569762	4812896	324.6	87	66.4	0	0.0	0.3	3.4	3.6	0.0	0.0	0.0	2.4	16
Idling TT	17569768	4812886	324.6	87	66.5	0	0.0	0.3	3.5	3.6	0.0	0.0	0.0	2.4	16
CarIdling	17569502	4813017	319.9	66	66.1	0	0.0	3.2	1.3	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813017	319.9	66	66.3	0	0.0	2.9	1.4	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	66.6	0	0.0	2.6	1.6	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4813006	319.6	66	66.3	0	0.0	3.0	1.4	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569496	4812977	319.0	66	66.7	0	0.0	2.5	1.6	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812958	319.4	66	66.8	0	0.0	2.0	2.0	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812936	321.5	66	66.9	0	0.0	1.8	2.1	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569566	4812945	321.8	66	66.6	0	0.0	2.7	1.5	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569534	4812968	321.2	66	66.5	0	0.0	2.6	1.6	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812992	319.6	66	66.3	0	0.0	3.1	1.4	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4812992	319.4	66	66.5	0	0.0	2.8	1.4	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812984	319.3	66	66.4	0	0.0	2.9	1.4	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812961	320.3	66	66.6	0	0.0	2.2	1.9	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569570	4812928	322.4	66	66.8	0	0.0	2.6	1.6	1.8	0.0	0.0	0.0	2.2	--
CarIdling	17569566	4812914	322.7	66	66.9	0	0.0	2.3	1.8	1.8	0.0	0.0	0.0	2.7	--
RTU 10T	17569544	4812905	330.9	88	67.1	0	0.0	2.6	2.1	2.7	0.0	0.0	0.0	1.8	15
RTU 10T	17569566	4812888	330.9	88	67.3	0	0.0	2.6	2.1	2.7	0.0	0.0	0.0	1.9	15
CarIdling	17569602	4812878	323.7	66	67.2	0	0.0	1.8	2.1	1.9	0.0	0.0	0.0	2.0	--
CarIdling	17569602	4812865	323.9	66	67.3	0	0.0	1.5	2.2	1.9	0.0	0.0	0.0	3.7	--
CarIdling	17569470	4813000	319.4	66	66.6	0	0.0	2.5	1.7	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	66.6	0	0.0	2.6	1.6	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569544	4812937	322.4	66	66.7	0	0.0	2.4	1.7	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813058	319.6	71	65.9	0	0.0	3.2	1.3	1.7	0.0	0.0	0.0	0.0	--
Truck Passby	17569752	4812928	323.4	102	67.4	0	0.0	-1.9	4.8	77.6	0.0	0.0	0.0	1.7	30
EmployeeVeh	17569664	4812971	320.1	--	66.6	0	0.0	1.4	3.4	3.3	0.0	0.0	0.0	1.5	19

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

R13	17569912	4813353	335.3												
Src Name	X	Y	Z	LxD	Adiv	K0	Dc	Agnd	Abar	Aatm	Afol	Ahous	CmetD	RefID	LrD
RTU 10T	17569546	4812897	330.9	88	66.3	0	0.0	1.8	1.0	2.0	0.0	0.0	0.0	0.0	16
Idling TT	17569666	4812954	322.8	87	64.4	0	0.0	0.0	3.4	3.0	0.0	0.0	0.0	0.0	16
Idling TT	17569674	4812962	322.9	87	64.1	0	0.0	0.0	3.5	2.9	0.0	0.0	0.0	0.0	17
Idling TT	17569694	4812974	322.9	87	63.9	0	0.0	0.2	3.5	2.8	0.0	0.0	0.0	0.0	17
Idling TT	17569696	4812982	323.0	87	63.7	0	0.0	0.5	3.5	2.7	0.0	0.0	0.0	0.0	17
Idling TT	17569704	4812991	323.5	87	63.4	0	0.0	0.7	3.4	2.7	0.0	0.0	0.0	0.0	17
Idling TT	17569720	4813000	324.3	87	63.2	0	0.0	0.9	3.3	2.6	0.0	0.0	0.0	0.0	17
Idling TT	17569758	4812950	326.4	87	63.7	0	0.0	1.0	3.3	2.7	0.0	0.0	0.0	0.0	17
Idling TT	17569762	4812938	326.5	87	63.8	0	0.0	1.0	3.3	2.8	0.0	0.0	0.0	3.3	20
Idling TT	17569782	4812929	325.7	87	64.0	0	0.0	1.0	3.3	2.8	0.0	0.0	0.0	2.7	19
Idling TT	17569790	4812919	325.7	87	64.1	0	0.0	0.8	3.3	2.1	0.0	0.0	0.0	2.2	19
Idling TT	17569630	4812896	323.5	87	65.6	0	0.0	-0.3	2.9	3.6	0.0	0.0	0.0	2.5	18
Idling TT	17569640	4812904	323.5	87	65.4	0	0.0	-0.3	2.9	3.5	0.0	0.0	0.0	2.4	18
Idling TT	17569662	4812914	323.5	87	65.1	0	0.0	-0.2	3.0	3.3	0.0	0.0	0.0	2.4	18
Idling TT	17569666	4812926	323.5	87	64.8	0	0.0	-0.1	3.2	3.2	0.0	0.0	0.0	0.0	16
Idling TT	17569674	4812936	323.5	87	64.6	0	0.0	-0.1	3.2	3.1	0.0	0.0	0.0	0.0	16
Idling TT	17569694	4812945	323.4	87	64.3	0	0.0	0.0	3.3	3.0	0.0	0.0	0.0	0.0	17
Idling TT	17569720	4812952	324.6	87	64.0	0	0.0	0.3	3.0	3.0	0.0	0.0	0.0	0.0	17
Idling TT	17569726	4812943	324.9	87	64.1	0	0.0	0.3	2.9	3.0	0.0	0.0	0.0	0.0	17
Idling TT	17569730	4812934	324.7	87	64.2	0	0.0	0.4	3.4	2.9	0.0	0.0	0.0	2.6	19
Idling TT	17569736	4812922	324.6	87	64.3	0	0.0	0.4	3.5	2.9	0.0	0.0	0.0	2.7	19
Idling TT	17569752	4812913	324.6	87	64.4	0	0.0	0.4	3.5	2.9	0.0	0.0	0.0	2.4	18
Idling TT	17569758	4812904	324.6	87	64.5	0	0.0	0.4	3.5	3.0	0.0	0.0	0.0	2.4	18
Idling TT	17569762	4812896	324.6	87	64.7	0	0.0	0.4	3.5	3.0	0.0	0.0	0.0	2.4	18
Idling TT	17569768	4812886	324.6	87	64.8	0	0.0	0.3	3.1	3.2	0.0	0.0	0.0	2.2	18
CarIdling	17569502	4813017	319.9	66	65.5	0	0.0	3.1	1.4	1.6	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813017	319.9	66	65.8	0	0.0	2.8	1.5	1.6	0.0	0.0	0.0	0.0	--
CarIdling	17569480	4812992	319.2	66	66.0	0	0.0	2.4	1.7	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4813006	319.6	66	65.7	0	0.0	2.9	1.4	1.6	0.0	0.0	0.0	0.0	--
CarIdling	17569496	4812977	319.0	66	66.0	0	0.0	2.4	1.7	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812958	319.4	66	66.0	0	0.0	1.8	2.0	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812936	321.5	66	66.1	0	0.0	1.7	1.8	2.0	0.0	0.0	0.0	0.0	--
CarIdling	17569566	4812945	321.8	66	65.6	0	0.0	2.5	1.3	1.9	0.0	0.0	0.0	0.0	--
CarIdling	17569534	4812968	321.2	66	65.6	0	0.0	2.4	1.6	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812992	319.6	66	65.5	0	0.0	2.9	1.4	1.6	0.0	0.0	0.0	0.0	--
CarIdling	17569502	4812992	319.4	66	65.8	0	0.0	2.7	1.5	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812984	319.3	66	65.7	0	0.0	2.6	1.6	1.6	0.0	0.0	0.0	0.0	--
CarIdling	17569528	4812961	320.3	66	65.8	0	0.0	2.1	1.8	1.8	0.0	0.0	0.0	0.0	--
CarIdling	17569570	4812928	322.4	66	65.8	0	0.0	2.4	1.5	1.8	0.0	0.0	0.0	1.6	--
CarIdling	17569566	4812914	322.7	66	66.0	0	0.0	2.1	1.7	1.8	0.0	0.0	0.0	2.1	--
RTU 10T	17569544	4812905	330.9	88	66.2	0	0.0	1.8	1.2	2.0	0.0	0.0	0.0	0.0	16
RTU 10T	17569566	4812888	330.9	88	66.3	0	0.0	1.7	0.9	2.1	0.0	0.0	0.0	2.7	19
CarIdling	17569602	4812878	323.7	66	66.1	0	0.0	1.1	1.9	2.2	0.0	0.0	0.0	1.7	--
CarIdling	17569602	4812865	323.9	66	66.2	0	0.0	1.0	1.8	2.3	0.0	0.0	0.0	3.8	--
CarIdling	17569470	4813000	319.4	66	66.0	0	0.0	2.4	1.7	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569506	4812974	319.1	66	65.8	0	0.0	2.1	1.9	1.7	0.0	0.0	0.0	0.0	--
CarIdling	17569544	4812937	322.4	66	65.8	0	0.0	2.2	1.3	2.0	0.0	0.0	0.0	0.0	--
CarIdling	17569474	4813058	319.6	71	65.5	0	0.0	3.1	1.3	1.6	0.0	0.0	0.0	0.0	--
Truck Passby	17569748	4812934	323.5	102	66.1	0	0.0	-1.9	0.0	66.9	0.0	0.0	0.0	1.5	32
EmployeeVeh	17569652	4812978	320.1	--	65.8	0	0.0	1.3	3.2	3.2	0.0	0.0	0.0	1.4	20

Where: $L_r = L_x + Adiv + K0 + Dc - Agnd - Abar - Aatm - Afol - Ahous + Cmet + Refl$ 

ACOUSTICS



NOISE



VIBRATION

APPENDIX D

Response to Peer Review Comments



ACOUSTICS



NOISE



VIBRATION

Peer review comments were received from Valcoustics Canada Ltd. on behalf of the Town of Puslinch concerning our Report entitled “Noise Feasibility Study, Proposed Industrial Development, 128 Brock Street South, Puslinch, Ontario”, dated March 9, 2023. Our responses are provided below which include the comments.

Valcoustics Comments

- a) The noise assessment has applied the Ministry of Environment, Conservation and Parks (MECP) noise guideline requirements of NPC-300. This is considered appropriate.

Noted.

- b) Section 2.1 of the HGC report indicates the facility will only operate during the daytime hours (i.e., between 0700 and 1900 hours). There should be a restriction to prevent the existing and any future operations at the facility from occurring during the evening and at night since the analysis results indicate the evening and nighttime noise guideline limits would be exceeded. If there is the potential for the facility to operate during the evening and/or nighttime hours, the assessment should be updated to include these time periods.

Upon further discussions with the client, they have advised that there may be limited evening and/or nighttime trucking activities. On occasions, trucks may arrive before the facility opens or after the facility has closed. No shunting of trailers will take place during evening and nighttime hours. The study has been updated to reflect trucks arriving and parking in the loading bays or trailer parking areas for the night.

- c) Table 1 provides the MECP noise guideline limits that are applicable at the exterior plane of window of a noise sensitive receptor location. The guideline limits at an outdoor point of reception (anywhere within 30 m of a dwelling) are somewhat different than the limits presented in Table 1. In particular, the evening limit at an outdoor point of reception is 5 dBA lower than the plane of window criteria in a Class 2 area such as this.

It should be noted that page 6 and Table 3 in the report indicate evening operations. The results in Table 3 indicate the evening outdoor point of reception criteria are exceeded at R2, R5 and R6. Clarification is needed.

Table 1 has been revised to include the outdoor criteria. The results have been revised to include evening/nighttime considerations.

- d) We have these question/comments about the analysis scenarios and operating assumptions:
- a. Will there be any shunting movements between the loading bay and trailer parking areas? If so, how were these included in the assessment?

Shunting movements were included in the model as the 23 truck movements throughout the site.

- b. A Stamson output is provided as Appendix C and is indicated as being a calibration output. It is not clear what this result is being used to calibrate since there are no sample calculations provided within the report.
- 1) The report should include sample calculations. Alternatively, the CadnaA model could be provided for our review.

The calibration output is for the employee vehicle movements through the site. Sample calculations and the CadnaA output summary have been appended to the report.



- 2) The Stamson output indicates a 40 km/hr speed has been used for employee vehicles travelling on the site. Presumably this is for automobiles travelling on the site. It is unlikely that vehicles would be travelling at this high a speed on the site. Vehicles travelling at a lower speed will take longer to get to their destination resulting in higher noise generation.

40 km/hr is the lowest speed input possible in Stamson. To factor in the higher noise for the slower vehicles, a correction factor of +3 dB was included in the spectrum data for the employee vehicle movements.

- 3) The report indicates an average impulse reference sound level of 110 dBAI has been used in the assessment. What sound level was used for the impulses generated in the trailer parking areas where there would be no loading/unloading impulses. Our experience is that coupling/uncoupling impacts generate sound levels higher than the loading/unloading impacts.

For the impulsive sources we have considered the aggregate average between coupling/decoupling (117 dBAI) and loading/unloading (103 dBAI). The resulting decibel average of the various events is 110 dBAI. This impulsive source sound level has been included in all areas where impulsive noise is expected to occur.

- 4) The results presented in Table 3 appear to not include employee vehicle movements (see paragraph above the table). As per comments from the Town, the assessment is to include all vehicle movements on the site.

Noted. The paragraph above Table 3 has been updated to include reference to the employee vehicle movements. The results provided in the table include contributions from employee vehicle movements.

- 5) Appendix A indicates all sources, except vehicle movements, have been modelled as point sources of sound. Review of Figure 6 seems to indicate that the impulses were modelled as a line source(s). An explanation of how the impulses were modelled and why this represents a predictable worst-case scenario is needed.

The impulsive sources were modelled as one area source in the CadnaA model, as outlined in Section 4 of the report and in Appendix A. Figure 6 has been revised to make the hatched area more clearly visible.





128 Brock Road South, Puslinch

Scoped Environmental Impact Study

Prepared for:

Wellington Motor Freight
7419 McLean Rd W
Puslinch, ON N0B2J0

Project No. 2984 | March 2023



NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

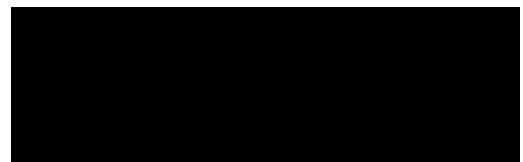
128 Brock Road South, Puslinch
Scoped Environmental Impact Study

Project Team

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Report submitted on January 5, 2023

Revised and re-submitted on March 30, 2023



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Table of Contents

1.0	Introduction	1
1.1	Study Area	2
2.0	Project Scoping.....	4
2.1	Proposed Undertaking	4
2.2	Collection and Review of Background Information.....	4
2.2.1	Significant Species Screening.....	5
2.2.2	Significant Wildlife Habitat Screening.....	7
3.0	Relevant Policies, Legislation and Planning Studies	8
4.0	Field Methods	13
4.1.1	Ecological Land Classification.....	13
4.1.2	Vegetation Inventories.....	13
4.1.3	Wetland Boundary Delineation.....	14
4.1.4	Woodland Dripline Delineation.....	14
4.1.5	Additional Wildlife	14
5.0	Existing Conditions	15
5.1	Soils, Terrain and Drainage	15
5.2	Vegetation.....	17
5.2.1	Vegetation Communities	17
5.2.2	Vascular Flora	18
5.3	Wildlife	19
5.3.1	Birds	19
5.3.2	Amphibians and Reptiles.....	19
5.3.3	Mammals.....	20
5.3.4	Butterflies	21
5.3.5	Insects.....	21
6.0	Significance and Sensitivity.....	22
7.0	Impact Analysis and Enhancement Recommendations.....	25
7.1	Proposed Development.....	25
7.2	Approach to Impact Analysis	25
7.3	Direct Impacts and Recommended Mitigation	26
7.3.1	Tree and Vegetation Removal.....	26
7.3.2	Birds and Their Nests.....	27
7.3.3	SAR Bats.....	27

7.4	Indirect Impacts	28
7.4.1	Alterations to Drainage and Flow Patterns, Water Quality, Groundwater	28
7.4.2	Wildlife Disturbance.....	29
7.4.3	Erosion & Sedimentation	30
7.5	Induced Impacts.....	31
7.6	Enhancements	31
8.0	Summary	33
9.0	References	35

List of Appendices

Appendix I Terms of Reference, SAR and SWH Screening Tables

Appendix II Plant Species List and Vegetation Community FOD5 Data Forms

Appendix III Bird Species List

Appendix IV Amphibians and Reptiles Species List

Appendix V Mammals Species List

Appendix VI Butterfly Species List

Maps

Map 1. Study Area

Map 2. Existing Conditions

Map 3. Proposed Development

1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Wellington Motor Freight in September 2022 to complete a Scoped Environmental Impact Study (EIS) in support of a proposed industrial development at 128 Brock Road South in the Township of Puslinch, Ontario, herein referred to as 'the subject property'.

The subject property is approximately 6 hectares (ha), and is located south-east of Brock Road South at the intersection with Gilmour Road. The subject property is bounded by Brock Road to the west and Gilmour Road to the north. The surrounding adjacent lands (within 120m) are comprised of agricultural lands, aggregate operations and existing developments as shown on Map 1. A Significant Woodland is located to the northeast and two Unevaluated Wetlands are along the eastern boundary. These natural features within the subject property are designated as Significant Woodlands (5.5.4) and Core Greenlands (5.6.1), as per the County of Wellington Official Plan (OP, 2022). The subject property is located within the Mill Creek watershed and is within Ecoregion 6E.

Wellington Motor Freight has proposed the construction of a warehouse, truck facility and office on the subject property, as well as a stormwater management and a septic system on the property. An EIS is thus required for this development to ensure there are no negative impacts on the natural features on the site and adjacent lands.

This report contains the findings of the Scoped EIS, including the characterization of existing natural features based on the results of a background review and original field surveys. This detailed characterization was used to inform an analysis of the significance and sensitivity of natural features, the identification of any natural feature constraints in association with land use policy designations, and the assessment of potential impacts and mitigation measures associated with details of the proposed development.

The proponent has retained the following team to facilitate the preparation of the Site Plan Application (SPA) and rezoning in support of the proposed industrial development:

- MHBC – Planning
- CVD – Geotechnical and Hydrogeology
- Meritech Engineering – Stormwater Management, Grading and Servicing
- Tacoma Engineering – Site Plan

- Natural Resource Solutions Inc. – Natural Environment

Pre-consultation agency review comments were received from the County of Wellington, Township of Puslinch, GM BluePlan [Township engineering and stormwater management peer reviewer], Dougan & Associates Ecological Consulting & Design [Township natural heritage peer reviewer], and Grand River Conservation Authority (GRCA) (September 20, 2022). The subject property was formerly evaluated through an EIS prepared for the previous owner (Milan Lesics Holdings), who applied for a Site Alteration Permit to allow the levelling of the site for the purposes of future development. A Scoped EIS was prepared by Aboud and Associates in 2014 to document the existing conditions and address the impact of development on the wetlands, vegetation and wildlife on the subject property. That study was approved and the site alteration has since taken place (2016), which included the grading and filling of the entire property except for the natural features and their recommended buffers. Based on the alteration of the property and the previous work completed, this EIS has been prepared as an update to the 2014 EIS to ensure that the proposed developments do not have negative impacts on the retained natural features within the subject property and the surrounding lands.

Based on September 15, 2022 comments from the GRCA, the subject property contains unevaluated wetland features that are regulated by the GRCA, and is within the vicinity of the Mill Creek Puslinch Provincially Significant Wetland (PSW). As such, a permit will be required under the GRCA Regulation 150/06 for any proposed developments within or adjacent to these regulated features.

This Scoped EIS has been prepared in accordance with the approved Terms of Reference dated November 8, 2022 (included in Appendix I) following the guidance of the County of Wellington OP (2022) and the EIS guidelines of the GRCA (2005). Correspondence from GRCA is also included in Appendix I. This report assesses the potential impacts of the proposed redevelopment on the natural heritage features and their ecological functions. Mitigation measures, where appropriate, have been recommended to ensure that the proposed works do not cause negative impacts on the natural areas and their ecological functions.

1.1 Study Area

The term “study area” refers to the subject property and lands surrounding the subject property, including adjacent lands (approximately 120m) and any contiguous natural features extending beyond (Map 1). The 120m radius that is included in the study area has been selected based

on the definition of 'adjacent lands' provided in the Natural Heritage Reference Manual [NHRM] (OMNR 2010), which requires the assessment of potential impacts on all relevant ecological receivers and wildlife habitat for any development within 120m.

Additionally, the study area review includes data from the Natural Heritage Information Centre [NHIC] (MNRF 2022) (1x1km squares) natural heritage background data and the areas covered by wildlife atlases (10x10km squares).

2.0 Project Scoping

2.1 Proposed Undertaking

The proposed development of the subject property consists of a warehouse and trucking facility (20,690 m²), a 3-storey office building (930m²), stormwater management and septic system infrastructure (Tacoma Engineers, 2022).

2.2 Collection and Review of Background Information

Existing natural heritage information was collected and reviewed to identify key natural heritage features, habitats and species that are reported from, or have the potential to occur within the study area. The following background information sources were reviewed to provide an accurate understanding of the physical and biological attributes within the study area:

- Environmental Impact Study (2014) as prepared by Aboud and Associates;
- Mill Creek Subwatershed Study (CH2M Gore and Storrie Ltd. et al 1996);
- Natural Heritage Information Centre (NHIC) database (MNRF 2022);
- County of Wellington Official Plan (OP) (2022);
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019);
- Grand River Conservation Authority (GRCA) Watershed Mapping;
- Puslinch Zoning By-Law (2021);
- Nestle Waters/Blue Triton Brands Aberfoyle Site annual monitoring reports (2018-2021);
- Ministry of Environment, Conservation and Parks (MECP) Species at Risk;
- Government of Canada Species at Risk Act (SARA) (2002);
- Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada (BSC) et al. 2022);
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019);
- Mammal Atlas of Ontario (Dobbyn 1994);
- Ontario Butterfly Atlas Online (MacNaughton et al. 2022); and
- Ontario Odonate Atlas (OOAD 2022).

Species lists were compiled to provide information on species reported from within the vicinity of the study area based on data available from the wildlife atlases listed above. These atlases provide data based on 10x10 km survey squares. Information on species from the survey squares that overlap with the study area (17NJ6912) were compiled. These initial species lists

were used to guide the scope and type of wildlife field surveys required as outlined in the following sections.

2.2.1 Significant Species Screening

A preliminary list of potential SAR was developed to identify those which are reported from the local area and may have suitable habitat within the subject property and study area. An initial list was compiled from background data and a list provided by Dougan and Associates in the pre-consultation notes. The screening was completed by cross-referencing the preferred habitat for potential SAR and Species of Conservation Concern (SCC) (OMNR 2000) against habitats known to occur in the subject property and study area. This was completed to ensure that the potential presence of all SAR and SCC within the study area was adequately assessed. SAR are defined as species listed as Threatened or Endangered provincially or federally. Confirmed habitat for SAR is protected under the *ESA* (2007). SCC are defined as:

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

Based on the original field surveys completed by Aboud and Associates in 2014 and NRSI's review of site conditions in 2022, SAR/SCC with potentially suitable habitat on-site and adjacent are;

- Eastern Wood-peewee (*Contopus virens*). The FOD5 woodland community would provide suitable habitat for this species.
- SAR turtles - may be present in the study area and make use of the stormwater management and manmade ponds off-site, although there is very low likelihood of those species travelling to the subject property due to presence of barriers of fencing and Brock Road.
- SAR bats - The FOD5 woodland community would provide suitable habitat for SAR bats as well as any isolated trees with suitable cavities or habitat features.

The SAR/SCC screening results have been updated since the TOR stage and are provided in Appendix I.

2.2.2 Significant Wildlife Habitat Screening

A Significant Wildlife Habitat (SWH) assessment was completed for the study area and is included in Appendix I. The Significant Wildlife Habitat Technical Guide (SWHTG) is a guideline document that outlines the types of habitats that the MNRF considers significant in Ontario as well as criteria to identify these habitats (OMNR 2000, OMNR 2015). The SWHTG groups SWH into 4 broad categories: 1) seasonal concentration areas, 2) rare vegetation communities and specialized wildlife habitat, 3) habitats of SCC, and 4) animal movement corridors. Based on the comparing the species present, natural features and vegetation communities to the criteria for each type of SWH, the subject property and adjacent lands study area have potential to provide several types of SWH:

- Bat Maternity Colonies and Special Concern and Rare Wildlife Species may be present within the woodland adjacent to the subject property;
- Amphibian Breeding Habitat (Woodland) may be present within the larger on-site wetland. This wetland is >500m² in size and within 120m of the woodland. It may possibly contain some of the listed frog species, although a high abundance of these is unlikely due to lack of permanent water; and
- Amphibian Movement Corridors may exist between the wetlands and the woodland.

3.0 Relevant Policies, Legislation and Planning Studies

Table 1 provides an overview of natural heritage-based policies, regulation and legislation that were considered and which informed the field program and analysis. To help inform suitable land-use concepts, guide the layout of development and identify areas to be protected, inventoried natural features were evaluated against relevant policies, regulations and legislation outlined in the following sections. The specific implications of these policies to the proposed development are discussed further below.

Table 1. Relevant Policies, Legislation and Planning Studies

Policy/Legislation/Planning Study	Description	Project Relevance
Provincial Policy Statement (OMMAH 2020)	<ul style="list-style-type: none">• Issued under the authority of Section 3 of the Planning Act and came into effect on May 1, 2020, replacing the 2014 PPS (OMMAH 2014).• Section 2.1 of the PPS – Natural Heritage, establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as 'significant'.• The Natural Heritage Reference Manual (OMNR 2010), the Significant Wildlife Habitat Technical Guide (OMNR 2000) and the Significant Wildlife Habitat Criteria Schedule for Ecoregion 6E (OMNRF 2015) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS.	<ul style="list-style-type: none">• A Significant Woodland is identified within and adjacent to the subject property

Policy/Legislation/Planning Study	Description	Project Relevance
Endangered Species Act (Government of Ontario 2007)	<ul style="list-style-type: none"> • The original ESA, written in 1971, underwent a year-long review which resulted in a number of changes which came into force in 2007. • The ESA prohibits killing, harming, harassing or capturing Species at Risk (SAR) and protects their habitats from damage and destruction. 	<ul style="list-style-type: none"> • Based on the background review, potential SAR bats may have suitable habitat within the woodland. SAR bats may use isolated trees for roosting.
Species at Risk Act (SARA, Government of Canada 2002)	<ul style="list-style-type: none"> • SARA establishes the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as an independent body of experts responsible for assessing and identifying species at risk. • It creates prohibitions to protect listed threatened and endangered species and their critical habitat. 	<ul style="list-style-type: none"> • Any observed species listed by COSEWIC as endangered or threatened shall be protected, along with their habitat. The EIS shall demonstrate that no impacts to SAR will occur. • No endangered or threatened species listed by COSEWIC, or their habitats, are present within the subject property. Adjacent woodland may provide habitat for SAR.

Policy/Legislation/Planning Study	Description	Project Relevance
<p><i>Migratory Birds Convention Act</i> (Government of Canada 1994)</p>	<ul style="list-style-type: none"> • The MBCA protects migratory game birds, insectivorous birds, and several other migratory non-game birds from persecution in the form of harassment. • The schedule of on-site work must consider MBCA windows, with timing of breeding bird season typically occurring between April 1 and August 31, however, this is a guideline, since the MBCA applies to nesting bird species. • “Incidental take” is considered illegal, with the exception of a permit obtained by the Canadian Wildlife Service (CWS). 	<ul style="list-style-type: none"> • Species protected by the MBCA were observed within the subject property during the 2014 and 2022 field surveys. • The timing of construction activities, especially vegetation clearing and site grading must have consideration for the MBCA timing windows.
<p><i>Fish and Wildlife Conservation Act</i> (Government of Ontario 1997)</p>	<ul style="list-style-type: none"> • The <i>Fish and Wildlife Conservation Act</i> (FWCA) provides protection for certain bird species, not protected under the MBCA (e.g., raptors), as well as furbearing mammals and their dens or habitual dwellings, aside from the Red Fox (<i>Vulpes vulpes</i>) and Striped Skunk (<i>Mephitis mephitis</i>). 	<ul style="list-style-type: none"> • The timing of construction activities, especially vegetation clearing and site grading must have consideration for bird nesting (including nesting season for Raptors, Hawks and Owls) and den sites for furbearing mammals. • Wildlife sweeps by a qualified biologist are recommended in advance of any vegetation clearing and site grubbing during the bird active season to ensure that no active nests/dens are present.

Policy/Legislation/Planning Study	Description	Project Relevance
County of Wellington Official Plan (The Corporation of Wellington, 2022)	<ul style="list-style-type: none"> The County of Wellington's new Official Plan (2022), outlines current policies for the protection of natural features within the County of Wellington which represent a constraint for development. 	<ul style="list-style-type: none"> The Township of Puslinch Greenbelt mapping (Schedule A7) shows the property designated as "secondary agriculture". \ County mapping (Schedule B7) also shows the property within the "Paris Galt Moraine Policy Area". Subject property is currently zoned as a Highway Commercial (HC) area, and designated as Secondary Agriculture. All woodlands, wetlands, and habitat for threatened or endangered species are part of the Greenlands System (Schedule A). According to the County OP, the Greenlands System will be maintained or enhanced. All wetlands and habitat for threatened or endangered species are also designated as Core Greenlands. Wetlands will be protected and development must not impair future ecological functions. Development and site alteration will not be allowed in significant habitat or endangered or threatened species. On lands in the Paris Galt Moraine Policy Area
County of Wellington Forest Conservation Bylaw 5115-09 (2009)	<ul style="list-style-type: none"> Regulates harm or destruction of woodlands within the County of Wellington. Defines "woodlands" (Section 1. ai, i-iv). 	<ul style="list-style-type: none"> The significant woodland is protected by the Forest Conservation Bylaw (5115-09).

Policy/Legislation/Planning Study	Description	Project Relevance
Puslinch Zoning By-Law (2021)	<ul style="list-style-type: none"> Protects significant woodlands within the Township 	<ul style="list-style-type: none"> Section 13.2 of the by-law states that development will not be allowed in significant woodlands unless it has been demonstrated to the satisfaction of the Township that there will be no negative impact on the woodland or its ecological functions The significant woodland is considered Natural Environment Zone.
<p>GRCA Regulation 150/06 under the Conservation Authorities Act</p> <p>And</p> <p>Policies for the Administration for the Development, Interference with Wetlands and Alterations of Shorelines and Watercourses (GRCA 2015)</p>	<ul style="list-style-type: none"> Regulation issued under the <i>Conservation Authorities Act</i>, R.S.O. 1990. Through this regulation, the GRCA has the responsibility to regulate activities in natural and hazardous areas (i.e., areas in and near rivers, streams, floodplains, wetlands and slopes). GRCA requires that an EIS be undertaken in accordance with their <i>EIS Guidelines and Submission Standards for Wetlands</i> where development is proposed within 120m of PSW or 30m from non-PSW 	<ul style="list-style-type: none"> GRCA noted in a letter September 15 2022 that the subject property includes an unevaluated wetland and its regulated allowance, as well as the regulated allowance to a separate off-site wetland. These features and their associated allowances are regulated by GRCA. A scoped EIS is required
Mill Creek Subwatershed Study (CH2M Gore and Storrie Ltd. et al 1996)	<ul style="list-style-type: none"> Investigates and provides recommendations on wetland setbacks and stormwater management details within the Mill Creek Subwatershed 	<ul style="list-style-type: none"> The subject property is within the Mill Creek Subwatershed

4.0 Field Methods

Field surveys were undertaken within the subject property to characterize natural features and identify any significant and sensitive natural heritage features and species that have potential to be adversely affected by the proposed development. Field visits were completed on October 14, 21 and November 22, 2022 and are described in detail below and summarized in Table 2. Surveys were undertaken in accordance with provincial and local guidance documents as indicated below.

Table 2. Field Survey Summary.

Survey	Protocol	Dates (2022)
Ecological Land Classification	Ecological Land Classification for Southern Ontario (Lee et al. 1998)	October 14 and 21
Vegetation Inventories	Systematic search by ELC polygon	October 14 and 21
Wetland Boundary Delineation	Onsite wetland survey with sub-metre GPS boundary mapping	October 21
Woodland Dripline Delineation	Onsite woodland survey with sub-metre GPS boundary mapping	October 21
Wildlife Assessment	Recorded observations of wildlife within or adjacent to subject property	October 14 and 21, November 22

4.1.1 Ecological Land Classification

The vegetation community delineation and description from the 2014 EIS was reviewed and updated using aerial photography and through investigations in the field. The standard Ecological Land Classification (ELC) System for southern Ontario was applied (Lee et al. 1998). Details of vegetation communities were recorded including species composition, dominance, uncommon species or features and evidence of anthropogenic disturbance.

4.1.2 Vegetation Inventories

A fall season inventory of all vegetation communities within the subject property was completed on October 21, 2022, to update the existing conditions from the original 2014 Aboud and Associates vegetation inventories. All species of vascular flora identifiable at the time of the field survey were documented.

4.1.3 Wetland Boundary Delineation

The boundaries of the on-site and adjacent wetlands were delineated according to the Ontario Wetland Evaluation System (OWES) for southern Ontario on October 21, 2022, and surveyed using a sub-metre accuracy Trimble GPS unit. The wetlands are shown on Map 2 and incorporated into all other maps and plans prepared by the team. Although the boundary was determined outside of the growing season, it was found to be near identical to the wetland boundary delineated in 2014 by Aboud and Associates. The GRCA confirmed that no on-site verification with their ecologist was required (email from J. Simons, GRCA November 16, 2022) (Appendix I).

A GRCA mapped wetland is shown within the woodland to the east of the subject property. This area was investigated during the fall 2022 field work and the wetland was found not to exist. The area in question is a hilly wooded landform feature and has no wetland present as shown on Map 2 and documented in the field notes for the forest community FOD5 (Appendix II). These findings are consistent with the findings of Aboud and Associates in their 2014 EIS where they also investigated the woodland for the presence of wetland and found none to be present.

4.1.4 Woodland Dripline Delineation

The dripline of the woodland was delineated at the outer edge of the tree canopy by a trained biologist, and surveyed using a sub-metre accuracy Trimble GPS unit. The dripline is shown on Map 2 and incorporated into all other maps and plans prepared by the team.

4.1.5 Additional Wildlife

All observations of birds, herpetofauna, mammals and insects were documented on all field visits. This included direct observations of individuals, as well as signs of wildlife presence (i.e., tracks, scats, dens, nests etc.). The house on-site was inspected for any evidence of use by nesting birds and/or bats and individual trees were assessed for the presence of cavities suitable for SAR bats following guidance from the *Survey Protocol for Species at Risk Bats within Treed Habitats* (MNRF 2017), *Survey Protocol for Maternity Roost Surveys (Forests/Woodlands)* (MECP 2022) and *Bat Survey Standards Note* (MECP 2022).

5.0 Existing Conditions

5.1 Soils, Terrain and Drainage

The subject property occurs at the northwest boundary of the physiographic region known as the Galt Moraines (Chapman and Putnam 1984) and the flatter low-lying outwash valley orientated from southwest to northeast through the Aberfoyle area. The Galt Moraines typically consist of Wentworth Till, a hard stony sand silt till, but can vary into a sandy till in many areas (Karrow 1987). The southeastern section of the subject property is underlain with the Wentworth Till, while the northwestern section is underlain with outwash gravel. While regional-scale mapping indicates a distinct boundary between these two deposit types, it is not uncommon rather for transitional zones of variable interlayered materials of sand and gravel with varying silt content (CVD 2022a).

The subject property is located within the Mill Creek Subwatershed, with Mill Creek and its associated wetlands found to the northeast and northwest of the subject property. The subject property ranges in elevation from approximately 325mASL in the southeast corner grading downwards to the north and west to a low point near Brock Road of 314mASL. Groundwater in the subject property flows from a shallow water table within granular deposits beneath the northwestern section, and extends westward into the outwash valley and eventually discharging into Mill Creek.

The water table at this property is “laterally-discontinuous” due to the variable and layered geological conditions and topography, ranging from primarily low-permeability sand-silt till in the southeast and transitioning to an interlayered granular and sand-silt till in the north and west, which are frequently overlain by fill.

There is a seasonally variable “perched” water table on top of the till deposit in the southeast corner, near the small wetland pocket. In the spring of 2014, MBN measured the water table elevation there to be above 214 mASL (+/-) and was ~ 0.5 to 1.0 m lower during the winter of 2014. The wetland pockets were observed to be dry in the fall of this 2022 drought year.

A transition from the perched water table area in the southeast to a much lower water across the remainder of the property to the north and west (i.e., <312 mASL) was observed. Based on these data and the elevation of the ponds located west of Brock Road (see note in Figure 1), groundwater flow is interpreted to be directed in a westerly directly across the site and toward

these off-site ponds. The Hydrogeological Report indicates that the small wetlands on-site and adjacent are not considered to be groundwater 'receptors', as they are not expected to be sustained by groundwater discharge. These features are expected to be sustained by overland runoff and are often only seasonally wet.

The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from catchment lands that are higher topographically and east of the subject property. The proposed development and the associated grading are not expected to have any impact on this wetland feature, since it is sustained by overland runoff (and possibly some shallow interflow) originating from higher topographic areas located further east from the property (CVD 2022b).

5.2 Vegetation

5.2.1 Vegetation Communities

The subject property has been almost entirely cleared, graded and filled under the previous Site Alteration Permit, resulting in a very disturbed site. A summary of the ELC communities identified within and adjacent to the subject property is provided in Table 3 and shown on Map 2.

Table 3. Ecological Land Classification Community Descriptions.

ELC Code	Community Type	Community Description
CUM1	Mineral Cultural Meadow Ecosite	The cultural meadow ecosite occupies the majority of the subject property. Due to the past grading, the site is disturbed with new pioneer field species emerging. Fill piles are located along the northwest boundary. Common field species such as Smooth Brome (<i>Bromus inermis</i>), Common Vetch (<i>Vicia Sativa</i>), and Wild Carrot (<i>Daucus carota</i>) occur throughout the cultural meadow, with occasional seedlings of White Pine (<i>Pinus strobus</i>) and Manitoba Maple (<i>Acer negundo</i>) interspersed.
CUT1	Mineral Cultural Thicket Ecosite	The cultural thicket is located along the edges of the property. The understory and groundcover layer is dominated by Orchard Grass (<i>Dactylis glomerata</i>), Kentucky Bluegrass (<i>Poa pratensis</i>), New England Aster (<i>Symphyotrichum novae-angliae</i>) and Red Raspberry (<i>Rubus idaeus</i>). Canopy is composed of Common Buckthorn (<i>Rhamnus cathartica</i>), with occasional White Elm (<i>Ulmus americana</i>) and Sandbar Willow (<i>Salix exigua</i>).
CUW1	Mineral Cultural Woodland Ecosite	The cultural woodland is located in a depression area in the northwest corner of the subject property and is bounded by Brock Rd South and adjacent residential areas. The woodland was been partially disturbed by filling and tree removal and contains open meadow areas with stands of trees or single trees. The understory and groundcover layers are composed of both native and non-native species including Garlic Mustard (<i>Alliaria petiolata</i>), Tartarian HoneySuckle (<i>Lonicera tatarica</i>) and Common Buckthorn. Canopy is dominated by remnant Sugar Maple, Manitoba Maple, with occasional Trembling Aspen (<i>Populus tremuloides</i>) and Hawthorn (<i>Crataegus sp</i>).
FOD5	Dry- Fresh Sugar Maple Deciduous Forest Ecosite	The fresh Sugar Maple deciduous forest ecosite is located in the northeast corner adjacent to the subject property, and extending northwards between agricultural land. A silt fence marks the previous woodland dripline and marks the boundary of the industrial grading in the adjacent CUM1 ecosite. Canopy is composed of Bitternut Hickory (<i>Carya cordiformis</i>), Sugar maple (<i>Acer saccharum</i>), and White Ash (<i>Fraxinus americana</i>),

ELC Code	Community Type	Community Description
		although many of the latter are deceased. Common Buckthorn and Staghorn Sumac (<i>Rhus typhina</i>) compose most of the woodland understory.
H1	Deciduous Hedgerow	The deciduous hedgerows are located along the north/northwest boundary of the subject property, dividing the cultural meadow from the adjacent agricultural land. The hedgerow is composed of medium to large trees including Manitoba maple, Black Cherry (<i>Prunus serotina</i>), Bitternut Hickory, Sugar Maple and White Ash, with Common Buckthorn dominating the understory.
H2	Young Poplar Deciduous Hedgerow	The young poplar deciduous hedgerow is located along the north/northeast boundary of the subject property, dividing the adjacent residential and agricultural land from the CUM1 and CUT1 ecosites. This area consists of saplings and small poplar re-growth.
Res	Residential	Residential areas contain lawn and ornamental plantings.
SWT2-5	Red-Osier Mineral Thicket Swamp Ecosite	The two unevaluated wetlands are located within and adjacent to the southeast corner of the subject property, and were determined to be Red-osier Dogwood Mineral Thicket Swamp ecosites. The understory is dominated by Red-Osier Dogwood (<i>Cornus sercea</i>), with a fringe of Common Buckthorn. Canopy is comprised largely of Trembling Aspen (<i>Populus tremuloides</i>), White Elm and Sandbar Willow.

5.2.2 Vascular Flora

A total of 62 plant species were observed by NRSI biologists within the subject property during fall vegetation inventories and the tree inventory. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix II.

Based on available background information, one SAR plant, Fern-leaved Yellow False Foxglove (*Aureolaria pedicularia*) is reported from the vicinity of the study area (MNRF 2022). This species is found in dry open woods and savanna habitats (MECP 2022), of which there are none on-site or in the study area. NRSI did not observe any provincially or federally significant species within the subject property during the 2022 field visits and none were recorded by Aboud and Associates in 2014.

Two locally significant plant species were found on the site by Aboud and Associates (2014) based on the Dougan and Associates 2009 list; rough avens (*Geum laciniatum*) and meadow

horsetail (*Equisetum pratense*). These species were documented in the forest and wet meadow communities in the north-west part of the property. Those communities have since been removed during the site grading.

5.3 Wildlife

5.3.1 Birds

A total of 114 bird species are reported from the study area or vicinity based on the OBBA and NHIC data bases (BSC et al. 2022; MNRF 2022). NRSI biologist observed 12 species during the 2022 fall field investigations. Aboud and Associates documented 29 species during their 2014 EIS. Their study included surveys during the breeding season and documented 26 species with breeding evidence. Much of the habitat used by those species has since been removed. A complete list of species reported from and observed by NRSI is provided in Appendix III.

Based on available background information, 4 bird SCC and 6 bird SAR are reported from the vicinity of the study area (BSC et al. 2022; MNRF 2022) as summarized in the screening table in Appendix I. Biological monitoring conducted at the Blue Triton Brands' Aberfoyle property (185m to the northwest of the subject property) has not documented any SAR birds during their surveys from 2018-2021 (Beacon Environmental Ltd. 2022). One SCC (eastern wood-pewee) has been documented in the breeding season in the forested habitats on that property. Two SAR birds (barn swallow and bank swallow) and 1 SCC (eastern wood-pewee) were observed overhead on the subject property by Aboud and Associates in 2014, but were determined not to be breeding on-site. The eastern wood-pewee has suitable habitat present within the woodland on and adjacent to the subject property. No significant species of birds are expected to use the remainder of the subject property for breeding based on the alteration that has occurred and lack of habitat on-site.

5.3.2 Amphibians and Reptiles

According to the Ontario Reptile and Amphibian Atlas (ORAA, Ontario Nature 2019), 27 species of herpetofauna, including 3 SCC and 2 SAR are known from within the 10x10km grid overlapping the subject property. Biological monitoring conducted at the Blue Triton Brands' Aberfoyle property did not document any at-risk anuran species during 2018-2021 (Beacon Environmental Ltd. 2022). Turtle surveys at the Blue Triton property found two species of turtles, Midland painted turtle and snapping turtle using the on-site ponds, and turtle nesting was

also observed in the gravel areas surrounding the ponds on that property. Both are listed as Special Concern under SARA and COSEWIC.

NRSI biologists did not observe any herpetofauna species during any of the field investigations although these site visits were outside of the active season for herpetofauna. Aboud and Associates were on-site during the appropriate season, but did not carry out any dedicated amphibian surveys. They did not observe any amphibian or reptile species incidentally during their 2014 EIS.

At the time of the 2014 EIS, the subject property contained a gravel extraction site and a small pond in the northwest part of the site. Turtle nesting surveys were requested as part of the 2014 EIS due to this potential suitable habitat being present. Their study included 3 turtle nesting surveys on May 29, June 19 and July 6, 2013, during the nesting season with no evidence of turtles recorded. Their report states that significant wildlife habitat for turtles is not present on-site. The previously existing wetlands and pond have since been removed from the site during the grading. Given the changes that have occurred on-site and the removal of vegetation and wet areas, no additional surveys for turtles are recommended.

The wetlands in the east part of the site likely provide habitat for a small population of common amphibian species such as spring peeper and gray treefrog as well as reptiles such as eastern gartersnake. The on-site wetlands do not have permanent standing water and are not suitable for turtles or salamander species.

The off-site manmade pond features were not surveyed. These ponds may contain amphibian and reptile species but these are not natural features and do not warrant protection. The SWM pond to the south is entirely contained by chain link fencing, and the ponds across Brock Road are separated from the site by a busy 4 lane road and over 70m of distance. The ponds on the Blue Triton property are over 500m from the subject property. There is very little likelihood of turtles travelling from these ponds onto the subject property.

All species of herpetofauna reported from background sources for the study area are listed in Appendix IV.

5.3.3 Mammals

A total of 48 mammal species are documented from the study area or vicinity based on the Mammal Atlas of Ontario and NHIC database (Dobbyn 1994; MNRF 2022). A single common

mammal species, the Eastern Grey Squirrel (*Sciurus carolinensis*), was observed during the field investigations by NRSI. Aboud and Associates did not document any mammals using the subject property. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix V.

Based on available background information, 1 mammal SCC and 5 mammal SAR are reported from the vicinity of the study area (Dobbyn 1994; MNRF 2022). The woodland potentially provides habitat for SAR bats including little brown myotis (*Myotis lucifungus*), northern myotis (*Myotis septentrionalis*) and tri-coloured bat (*Perimyotis subflavus*). The buildings and isolated trees on-site were assessed for suitability as habitat for SAR bats with one suitable tree being found. As this is one isolated tree, it is not considered to meet the habitat requirements of SAR bat populations. The results will be reported in the Tree Preservation Plan and any removals will be in compliance with the Endangered Species Act and in consultation with MECP.

5.3.4 Butterflies

A total of 58 butterfly species are reported from the study area or vicinity based on the Ontario Butterfly Atlas and NHIC database (MacNaughton et al. 2022; MNRF 2022). NRSI biologists did not conduct any dedicated surveys during the butterfly active season. Aboud and Associates did not observe any butterfly species incidentally during any of the field investigations. A complete list of all observed species and species reported from the vicinity of the study area is provided in Appendix VI.

Based on available background information, 1 SCC, Monarch (*Danaus plexippus*) is reported from the vicinity of the study area (MacNaughton et al. 2022; MNRF 2022). Although the subject property does contain meadow vegetation, it is not considered preferred habitat for butterflies due to its small size and overall poor quality. No regionally, provincially or federally significant species were observed within the subject property during field surveys and none are expected to be present.

5.3.5 Insects

Based on available background information, 2 SAR/SCC insects have been reported from the vicinity of the study area (MNRF 2022) including Double-striped Bluet (*Enallagma basidens*) and Yellow-banded bumblebee (*Bombus terricola*). No regionally, provincially or federally significant species were observed incidentally within the subject property during field surveys and none are expected to be present due to the lack of preferred habitat.

6.0 Significance and Sensitivity

The subject property is within the eastern headwaters of Mill creek. Mill Creek is a significant creek with important coldwater aquatic habitats which support sensitive coldwater fish species including brook trout. The coldwater thermal regime is created due to the progressive and significant inputs of cold groundwater, discharging to the creek throughout the upper and middle parts of the subwatershed. In order to preserve and maintain this significant habitat, upland recharge and lowland discharge must continue (CH2M Gore and Storrie 1996). The Mill Creek Subwatershed Study provides guidance on maintaining the balance of water to Mill Creek such as impervious cover limits, infiltration practices and erosion and sediment control.

The subject property has been altered through the grading and filling of almost the entire property, as per an approved permit in 2014. The results of the field surveys and background review show that the subject property is mainly occupied by regenerating cultural meadow and disturbed lands which are of low quality and not significant. The minimal natural features on-site include a small wetland and the edge of a significant woodland. These features extend off-site to the north and east; however, they have potential to be affected by development of the subject property.

The on-site wetland and a second smaller off-site wetland are unevaluated but have been mapped and are regulated by GRCA. The previous EIS (Aboud 2014) and supporting Hydrogeological Investigation by MBN Environmental Engineering Inc. (2014) determined that the 2 small wetlands are not connected to the Mill Creek Puslinch Provincially Significant Wetland Complex either by surface water or by groundwater, based on their isolated nature and the direction of groundwater flow being westerly, away from the PSW. This conclusion is supported by the current hydrogeological study (CVD 2022b) which also determined that the wetlands are not connected to the Mill Creek PSW either by surface water or groundwater. Therefore, these two small unevaluated wetlands should not be included in the PSW complex and are not provincially significant. As a result of recent changes to the OWES system, if a wetland evaluation were required, these wetlands would be considered as individual units.

The topography of the site slopes from east to west and away from the wetland. This indicates that the wetland is not influenced by surface water runoff originating on the subject property, rather the wetland is expected to receive water only from the topographically-higher off-site lands to the east from a very localized catchment, and precipitation that falls directly on the wetland itself. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the

subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands. A 15m on-site buffer to the wetland is considered sufficient to maintain its limited water balance and to protect it from any direct impacts of the development. This buffer is also considered sufficient to protect the habitat and the breeding amphibian populations that it may support. Fifteen metres is often used as a buffer for wetlands as it provides sufficient space to retain the wetland vegetation as well as existing adjacent upland habitat and/or suitable adjacent area for enhancements. Fifteen metres is sufficient for foraging and travel by the wildlife species expected to inhabit these wetlands, including as an amphibian movement corridor between the wetlands and the woodland.

Groundwater recharge at the property is expected to move to the west and will ultimately discharge to Mill Creek located about 400m to the west/northwest. Pre-development groundwater recharge quantity at the property (prior to the filling) was heavily influenced by the presence of a large depression in the north end of the property. The previous depression created a considerably higher than normal groundwater recharge and a lower runoff from the property. These influences are to be factored into the pre-post water balance assessment and in the stormwater management plan to maintain and enhance the groundwater discharge function to Mill Creek.

The dripline of the significant woodland was delineated in 2022 as an update to the 2014 study. This woodland was previously given a 5m buffer for protection during the grading activities. During the intervening years, the trees along the edge of the woodland have continued to grow, and presumably their roots to recolonize the graded area. As such, a 5m buffer from the new dripline to any grading has been recommended, and an additional 5m buffer is to be provided to any structures or impervious surfaces. A 5m no-touch buffer on the current dripline is considered sufficient to protect the woodland form, as the majority of the root zone of the edge trees will be within the dripline and the adjacent 5m, especially in this case, as the site was graded in 2017 up to the previous dripline + 5m, thus removing any surface roots beyond that limit at that time. The 5m no-touch buffer was shown to be suitable to protect the woodland feature during the past grading work and it is continued to be recommended.

The woodland on-site and adjacent is habitat for SCC Eastern Wood-Pewee. The woodland is considered candidate SWH for bat maternity roosts and the wetlands on-site and adjacent have potential to provide SWH amphibian breeding habitat (woodland). The woodland and wetland

are recommended to be retained and buffered as described above and an ecological connection maintained and enhanced between these features. These measures are expected to be sufficient to maintain and protect these features, the habitat they provide and their potential significant wildlife habitat functions. Additional wildlife impact mitigation measures are discussed and recommended below in the impact section of this report.

Hedgerows along the shared property lines have been identified as requiring protection to avoid impacts to non-owned off-site trees. These hedgerows (H1) were previously protected during the grading operations by fencing located at the dripline which is still semi in place. It is recommended that these trees be protected by detailed 3D surveying of the tree locations and their dripline and a 1m buffer provided where possible. Trees should be protected using standard tree protection fencing within which no site alteration or disturbance may occur. Individual and isolated trees will be inventoried and assessed for retention and protection measures through a Tree Preservation Plan at the Site Plan stage.

7.0 Impact Analysis and Enhancement Recommendations

7.1 Proposed Development

The proposed development consists of a one storey 20,667 square foot new warehouse facility with approximately 21 loading dock spaces, 75 trailer parking spots, 48 tractor parking spots, office employee parking, a 3-storey office building, septic tank and bed and an infiltration gallery for stormwater management. The parking areas will be asphalt paved. A Conceptual Site Plan has been prepared by Tacoma Engineers (2023) and is superimposed onto the natural feature mapping and shown on Map 3.

A Preliminary Servicing and Stormwater Management Report has been prepared by Meritech (2022) to show how the development will be serviced including water supply, wastewater treatment and stormwater management. Water will be provided by a proposed on-site well, and wastewater will be managed by an on-site treatment system which will discharge treated effluent to the subsurface in accordance with the requirements of the Ontario Building Code. The stormwater management approach will provide parking lot storage and an oil-grit separator to satisfy the criteria for water quantity and quality control. A large underground infiltration gallery for roof runoff will ensure that infiltration targets for this area of the Mill Creek watershed are met.

7.2 Approach to Impact Analysis

This impact analysis has been prepared by comparing the details of the proposed development plan to the natural heritage features within and adjacent to the subject property. NRSI has reviewed the reports and plans provided by other team members including servicing and stormwater management, Conceptual Site Plan, geotechnical and hydrogeological to prepare this section.

The following is a description of the types of impacts discussed in the sections below:

- **Direct impacts** to the natural features on the subject property associated with disruption or displacement caused by the actual proposed footprint of the undertaking.
- **Indirect impacts** associated with changes in site conditions such as drainage and water quantity/quality.

- **Induced impacts** associated with impacts after the development is constructed such as subsequent demand on the resources created by increased use of the area and vicinity.

7.3 Direct Impacts and Recommended Mitigation

7.3.1 Tree and Vegetation Removal

The development of the site has avoided any direct impacts to the significant woodland and the wetlands. These features are retained and buffered and will be protected during construction by fencing and a sediment barrier to be installed at the limit of development. The development has been placed within the disturbed area of cultural meadow which consists of sparse weedy vegetation dominated by non-native species. The development will require the removal of the cultural meadow vegetation and individual trees across the entire site. There are several mature sugar maples and other medium to large trees that will be removed from around the existing house and from the CUW1 at the depression along the frontage on Brock Road South. A tree inventory and preservation plan will provide more detail on species, size, condition and retention vs. removal. Some trees may be able to be retained along Brock Road South and Gilmore Road depending on final grading. Hedgerow trees along the north and east sides of the property will be protected by avoiding and minimizing grading and asphalt within the dripline and providing a 1m buffer where possible. The grading plan includes a low retaining wall along the north limit of the parking lot, in order to match grades within the root zones of off-site trees. The use of a retaining wall in this area is proposed in order to protect the root zones of trees along the shared north property boundary. Detailed elevation surveying along the dripline has been undertaken and will be used to refine the grading plan and identify where retaining walls may be necessary. The retaining wall will only be used where the change in grade is such that it would result in fill being placed over an extensive portion of the root zones of adjacent trees and at too great a depth that would result in impacts to those trees. The details of the retaining wall and tree retention will be determined in the Site Plan stage and reported in the Tree Preservation Plan.

Mitigation

Construction limit fencing and sediment barrier be located and installed at the limit of development to protect the on- and off-site significant woodland, trees and wetlands. A Tree Preservation Plan be prepared to address tree retention and removal within the subject property

and provide recommendations for tree protection measures. Trees should be protected using standard tree protection fencing in which no site alteration or disturbance may occur.

7.3.2 Birds and Their Nests

The removal of trees and meadow vegetation has the potential to harm and disrupt nesting birds. The *Migratory Birds Convention Act* (MBCA, Government of Canada 1994) identifies a list of migratory bird species that are protected. It prohibits the destruction of nests, individuals and activities that would cause an adult bird to abandon a nest. Tree and vegetation removal is to occur outside of the core nesting period for migratory birds as established by the Canadian Wildlife Service (CWS) which extends from approximately April 1 – August 31 (Government of Canada 2018). Every developer, consultant, contractor, etc. is legally obliged to carry out due diligence to protect migratory birds from harm during all construction projects.

Mitigation

Should vegetation/tree removal be required to occur within the core nesting period, a nest search may be conducted by qualified biologists within simple habitat just prior to the removal activity (less than 48 hours prior). Simple habitat means individual trees or small areas of vegetation where the visibility and probability of detecting nests is good. Should any active nest be identified, or signs of an active nest be observed, there shall be no removal or construction activity until sign-off is obtained from the qualified biologist that the nest is no longer active. Vegetated areas and tree(s) identified as having no nesting activity can be removed; however, removal is to occur within 48 hours of the nest search. If removal does not occur within this time frame, additional nest searches are to be conducted.

If a nest search is conducted, a clearance letter is to be prepared by the qualified biologist that undertook the surveys. The letter would be submitted to the client for their files in the event a record of due diligence is requested by the CWS.

7.3.3 SAR Bats

The removal of trees has the potential to harm SAR bats. The primary way to avoid impacts to bats is to retain trees which have suitable habitat for bats such as cavities and loose bark. It is also important to avoid removing any trees during the time when bats are most apt to be using them. Tree and vegetation removal is to occur outside of the core active bat season (April 1 to September 30). Every developer, consultant, contractor, etc. is legally obliged to carry out due diligence to protect migratory birds from harm during all construction projects.

One tree with cavities that are suitable bat roosting habitat was found on-site during the tree inventory and is required to be removed for the proposed development.

Mitigation

Any removal of trees is to be completed outside of the bat active season generally extending from April 1- October 1, with the understanding that SAR are protected during all seasons. Any removals within the bat active season will be in compliance with the Endangered Species Act and in consultation with MECP.

7.4 Indirect Impacts

The following section outlines potential sources of indirect impacts associated with the proposed development.

- Alterations to Drainage and Flow Patterns, Water Quality, Groundwater;
- Wildlife Disturbance; and,
- Erosion and Sedimentation.

7.4.1 Alterations to Drainage and Flow Patterns, Water Quality, Groundwater

A Preliminary Servicing and Stormwater Management Report has been prepared by Meritech (2022) that provides details on the proposed approach to managing and treating stormwater runoff following development. Due to the past alteration of the site, along with the existing soil type and land cover, the water balance of the site is primarily driven by evapotranspiration (Meritech 2022).

The proposed stormwater management plan will control water quantity by providing storage in the parking lots and on the warehouse building rooftop. The parking lots will drain to a storm sewer system which controls the outflow by an appropriately sized orifice, prior to being outlet to an oil/grit separator for quality control. The OGS will provide 'enhanced protection' to meet water quality objectives including long term average removal of 80% of suspended solids in the total runoff volume. Treated water will be released to an existing 750mm culvert under Brock Road South, then flowing north in the roadside ditch and ultimately into Mill Creek.

The Hydrogeological Report prepared by CVD (2022b) indicates that the small wetlands on-site and adjacent are expected to be sustained by overland runoff and are often only seasonally wet.

The majority of the small wetlands' surface water catchment is off-site and to the east and will remain unchanged. On-site the wetlands' catchment is very small and will be largely retained within the buffer. The proposed development is downslope of the wetland and is not expected to have any impact on this wetland feature.

In order to meet the infiltration requirements of the Mill Creek Subwatershed, rooftop water will be directed to underground infiltration galleries sized for 25mm/hr runoff. This infiltration infrastructure has been placed in an area of permeable native soils conducive to infiltration such that post-development will meet and exceed the pre-development infiltration condition, thereby contributing to maintaining and enhancing water balance in the Mill Creek Subwatershed.

The Hydrogeological Assessment report (CVD 2022b) indicates that there will be no impact to groundwater quality or quantity due to the proposed water usage or the wastewater treatment system of the proposed development.

Mitigation

Implement the stormwater management plan as designed and recommended by Meritech.

7.4.2 Wildlife Disturbance

Increased disturbance caused by excessive noise, dust, vibrations, lighting, and proximity of human presence during construction may cause wildlife species on-site and within the adjacent natural features to abandon or avoid the area for travel, nesting or foraging. Additionally, truck noise and parking lot lighting during operation of the facility has potential to disrupt wildlife.

The wildlife species and individuals that are present in the study area are those which have adapted to the current noise, lighting and disturbance conditions which are present due to the existing adjacent trucking facility, heavy equipment business, Brock Road South traffic and neighboring aggregate operations. This includes the common species as well as the significant species which have been noted or have potential to be present within the on-site and adjacent woodland such as Eastern wood-pewee and SAR bats. Any potential significant wildlife habitat functions that are present are expected to be maintained by retaining the natural features in their entirety, maintaining the water balance that supports them, providing a buffer and maintaining connectivity between the woodland and the wetlands.

Construction limit fencing is recommended to ensure that buffers are adhered to prior to and during construction. This fencing should be combined with sediment barrier fencing to also

function as a measure to ensure that wildlife (especially turtles that may inhabit adjacent SWM and aggregate ponds) are not able to enter the work area during construction, where they may be at risk of harm. Daily construction hours are recommended to be between 9:00am and 9:00pm during the spring and summer months (April to August), as a method of mitigating noise and human activity impacts to wildlife. Noise, dust, vibration and lighting disturbance impacts due to construction are anticipated to be localized and temporary.

To avoid and minimize disturbance to wildlife during operation it is recommended that truck movements and noise be limited to the extent possible during the breeding season for birds and wildlife which includes April to August, including nighttime. The proposed hours of operation of the facility are 8:00am to 5:00pm, Monday to Friday, year-round. These hours are not expected to result in noise or other disturbance impacts to breeding birds and other wildlife. Parking lot lighting should be reduced in height, directed away and shielded from shining into natural features.

Mitigation

Combined construction limit fencing/sediment barrier should be installed prior to any works beginning to ensure that buffering of natural features is adhered to and to exclude wildlife from the work area. Construction noise be restricted during spring and summer (April to August) to between 9:00 am and 9:00 pm. Any lighting equipment associated with construction activities should be turned off at the end of daily construction activities. Impacts due to dust should be mitigated for by moistening areas of bare, dry soil with water as needed during construction activities to reduce the amount of dust produced. Permanent parking lot lighting should be shielded and directed away from the adjacent natural features and the height should be reduced as much as possible so as to prevent 'lightwash' of these areas.

7.4.3 Erosion & Sedimentation

During rain or thaw events, erosion of exposed soils has the potential to occur during construction. Sediment laden surface water runoff has potential to flow into receiving catch basins and ditches, potentially impairing downstream water quality. The on-site and adjacent wetlands are located upslope from the development and therefore are not at risk of sedimentation during construction, however, combined construction limit fencing/sediment barrier is recommended along the outer limit of the work area.

Mitigation

ESC measures should be installed along the limit of construction/grading to ensure that sediment laden runoff does not impact the on-site and adjacent natural features, or downstream receiving watercourses or water bodies. An erosion and sediment control plan should be prepared at the Site Plan stage and implemented prior to any construction or site works.

7.5 Induced Impacts

Induced impacts are described as those that are not directly related to the construction or operation of the facilities in question, but rather arise as a result of the use of the natural areas or immediately adjacent lands for the development. The simplest example is an increase in the use of natural areas adjacent to development by residents, feral domestic wildlife, and unauthorized trail/pathway construction and dumping of debris.

Induced impacts are anticipated to be negligible on this subject property. The proposed development has been placed within the disturbed and cultural areas of the property. Human activity is expected to be focused within the development and will not enter natural features.

Mitigation

Fencing of the active portion of the truck facility is recommended to deter human intrusion into the natural features. Debris from the operation of the facility should be contained within the site by a chain link fence as well as routine maintenance and garbage collection, and not allowed to blow into adjacent natural features.

7.6 Enhancements

The buffers and gaps between retained natural features are an opportunity to enhance the natural features and improve ecological connectivity. The lands along the east property boundary, between the woodland and on-site wetlands, as well as the woodland and wetland buffers are good locations for plantings and enhancements. Plantings and naturalization are further recommended to enhance the ecological connectivity between the woodland and the wetlands for wildlife habitat functions such as for an amphibian movement corridor.

Enhancements may include the planting of native larger caliper trees or smaller tree 'whips', shrub plantings and native herbaceous seed mixes, all of which will serve to expand the size of the existing natural features. The selection of species for edge plantings should reflect the native species composition of adjacent natural areas and species that are common and hardy in

the local planting zone. Natural regeneration that is currently present should be considered and retained within the planting plans. Removal of common buckthorn from these areas and the edges of the woodland and wetlands should be considered. Any stumps and root systems of removed native trees can be left in place for habitat and soil stabilization. A landscape plan will be prepared at the Site Plan stage.

8.0 Summary

The proposed undertaking is to construct a warehouse, truck facility and office building with stormwater management and septic system on the subject property. The property has been previously altered by grading and filling, and contains limited on-site and adjacent natural features. The natural features on-site and adjacent are well defined and have been incorporated into the Site Plan along with appropriate buffers and recommended mitigation measures. These measures combined are considered sufficient to protect the common and significant plant and wildlife species, wildlife habitat functions and provide opportunities for ecological enhancement. This EIS has been prepared as an update to a previous study in 2014 and to ensure there are no negative impacts on the remaining natural features.

Below is a summary of mitigation measures provided in this report:

- Implement a no-touch buffer of 15m for the wetlands;
- Implement a 5m no-touch buffer for the woodland followed by an additional 5m buffer where grading is permitted;
- Install combined construction limit fencing/sediment barrier along the outer edge of construction/grading/buffer limit prior to any clearing or construction activity;
- Tree Inventory and Preservation Plan be prepared, including details of protection for off-site hedgerow trees;
- All vegetation/tree clearing should be conducted outside of the core bird nesting season (April 1 to August 31);
- Nest searches should be conducted by a qualified biologist where vegetation/tree clearing cannot be maintained outside of the core bird nesting season;
- All tree clearing should be conducted outside of the active bat season (April 1 to September 30). Any removals of suitable bat habitat trees during the active season are to be conducted in consultation with MECP and in compliance with the ESA;
- Prepare a Landscape Plan with details of buffer plantings, invasive buckthorn control and ecological connectivity enhancement between the woodland and wetlands;
- Implement Stormwater Management Plan and recommendations provided by Meritech;
- Mitigate spring and summer construction noise impacts by restricting activities to between 9:00 am and 9:00 pm during April to August;
- Turn off construction lighting at the end of each day;
- Implement measures to mitigate dust;

- Permanent lighting of the parking lots to be reduced in height, directed away and shielded from shining into the woodland and wetlands;
- Prepare and implement an Erosion and Sediment Control plan.

Providing the protection and mitigation measures recommended within this report, as well as the stormwater management plan and recommendations by other team members are adhered to, no significant negative environmental impacts are anticipated to the natural features on-site and adjacent as a result of the proposed development.

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Appendix I
Terms of Reference

November 8, 2022

Project 2984

Chris Lorenz, Resource Planner
Grand River Conservation Authority
clorenz@grandriver.ca

Jeff Bunn, Deputy Clerk
Township of Puslinch
jbunn@puslinch.ca

Dear Mr. Lorenz and Mr. Bunn,

**Re: 128 Brock Road South, Puslinch, Wellington Motor Freight
Environmental Impact Study - Terms of Reference**

Natural Resource Solutions (NRSI) was retained by Wellington Motor Freight to prepare an Environmental Impact Study (EIS) for the property located at 128 Brock Road South, Puslinch Ontario. Wellington Motor Freight has proposed the construction of a warehouse, truck facility and office on the property. An EIS is required for this development to ensure there are no negative impacts on the natural features on the site and surrounding lands including a Significant Woodland and two Unevaluated Wetlands to the east.

The County of Wellington Official Plan designated the natural features within and adjacent to the subject property as Core Greenlands (5.6.1) and Significant Woodlands (5.5.4). In the eastern corner of the property there is an unevaluated wetland which is regulated by the Grand River Conservation Authority (GRCA). The site itself has been largely disturbed by re-grading and levelling. Adjacent lands include active agricultural fields, aggregate extraction and other trucking facilities.

Upon review of the Growth Plan mapping, the subject property is not overlain by the provincial natural heritage system and no key natural heritage features or key hydrologic features are identified on the subject property or adjacent and therefore it is assumed that the policies of the Growth Plan do not apply to this property.

An EIS was conducted by Aboud and Associates in 2014 for the re-grading which was approved and appears to have occurred in 2016. It is requested that this current EIS be prepared as an update to the 2014 EIS. The attached Terms of Reference identify how the EIS update will be prepared, with specific recommendations to the proposed development.

Sincerely,
Natural Resource Solutions Inc.
Elaine Gosnell, B.Sc., P.Biol.
Senior Wetland and Terrestrial Biologist

Wellington Motor Freight EIS
128 Brock Road South, Puslinch
Terms of Reference
November 8, 2022

Introduction

Wellington Motor Freight has proposed the construction of a 16,766m² warehouse and truck facility as well as a 1,600m² office on the subject property at 128 Brock Road South. A stormwater management pond and septic system is proposed at the north end as shown on the Site Plan Concept appended to this document.

The study team includes (as well as other disciplines):

MHBC – Planning

CVD – Geotechnical and Hydrogeology

Meritech Engineering – Stormwater Management, Grading and Servicing

Natural Resource Solutions Inc. – Natural Environment

The subject property is shown on Map 2 with the study area being identified as those lands within 120m of the property boundary, as identified by Dougan and Associates. 120m is considered sufficient adjacent lands to capture natural environment features which could be affected by the proposed undertaking.

Background Information Collection and Review

The subject property was formerly studied through an EIS prepared for the previous owner who applied for a Site Alteration Permit to allow the levelling of the site for the purposes of future development. A Scoped EIS was prepared by Aboud and Associates in 2014 to document the existing conditions and address the impact of development on the wetlands, vegetation and wildlife on the subject property. That study was approved and the site alteration has since taken place which included the grading and filling of the entire property except for the natural features and their recommended buffers. Based on the alteration of the property and the previous work completed, this EIS TOR has been prepared as an update to the 2014 EIS.

Collection and Review of Background Information

Any newer background information will be collected for the study area to update species lists from the 2014 EIS. Species status will be updated where changes have occurred. Wildlife species lists will include the 10kmx10km atlas square that overlaps the subject property. This area is considered sufficient to characterize the natural features and ensure that SAR and other significant and sensitive species known from the area are considered in the proposed development.

The following background information sources will be reviewed in the preparation of the EIS:

- Environmental Impact Study (2014) as prepared by Aboud and Associates;
- Mill Creek Subwatershed Study (CH2M Gore and Storrie Ltd. et al 1996);
- Natural Heritage Information Centre (NHIC) database (NDMNRF 2022);

- County of Wellington Official Plan (OP) (2022);
- A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2019);
- Grand River Conservation Authority (GRCA) Watershed Mapping;
- Puslinch Zoning By-Law (2021);
- Ministry of Environment, Conservation and Parks (MECP) Species at Risk;
- Government of Canada Species at Risk Act (SARA) (2022);
- Ontario Breeding Bird Atlas (OBBA) (Bird Studies Canada (BSC) et al. 2006);
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019);
- Mammal Atlas of Ontario (Dobbyn 1994);
- Ontario Butterfly Atlas Online (MacNaughton et al. 2022); and,
- Ontario Odonate Atlas (OOAD 2022).

Screening for Species At Risk

The 2014 EIS found 3 SAR birds during their field work, with none showing evidence of breeding on-site. No other species at risk flora or fauna were observed, and due to the site alteration that has taken place, none are expected to be present on-site. A screening for Species at Risk (SAR) and Species of Conservation (SCC) that may be present on-site has been undertaken using the background information collected in addition to a fall field visit. This screening found no SAR with potential to be present on-site or to be affected by the proposed undertaking. The screening table is included in Appendix I.

Significant Wildlife Habitat Screening

A screening of Significant Wildlife Habitat types for Ecoregion 6E was carried out by comparing the habitats present on the subject property and adjacent lands and using the background information available and based on a fall field visit to the habitat criteria as provided by MNRF (2015). No SWH types are expected to be present on the subject property, although potentially may be present in the woodland on adjacent lands including:

- Bat Maternity Colonies, and,
- Special Concern and Rare Wildlife Species.

Field Surveys

The following surveys have been completed to update the characterization of natural heritage features on and adjacent to the subject property and to identify the presence of wildlife using the habitat on the site. Species information from surveys conducted for the 2014 Aboud and Associates report will be compiled with current data to characterize the adjacent habitats.

Vascular Flora Inventory and Vegetation Community Mapping

A fall season floral inventory and vegetation community mapping survey has been completed on October 21, 2022 to update the existing conditions vegetation community mapping for the study area. Vegetation communities within the study area were mapped and described according to the Ecological Land Classification (ELC) system for southern Ontario (Lee et al. 1998) and are shown on Map 1. All species of vascular flora identifiable at the time of the field survey were

documented. No significant species of plants or vegetation communities are present on-site and none are expected due to the site alteration that has taken place.

Wetland Boundary Delineation

Two small unevaluated wetlands were delineated in the 2014 EIS and were reviewed in the field on October 21, 2022. The on-site wetland was investigated and surveyed with a sub-metre accuracy Trimble GPS unit and is shown on appended maps. The 2022 wetland boundary was found to be near identical to that delineated in 2014 and as such, is recommended to be accepted, although it is recognized that this work was done outside of the typical growing season and has not been reviewed with GRCA at this time. A fall 2022 site meeting to review the wetlands can be arranged if desired.

A grading limit of 19m from the wetlands was implemented in 2014 to maintain wetland hydrology.

A GRCA mapped wetland is shown within the woodland to the east of the subject property. This area was investigated during the fall 2022 field work and was found not to exist. The area in question is a hilly wooded landform feature and has no wetland present.

Woodland Dripline Delineation

The boundary of the Significant Woodland to the east of the property was also delineated and surveyed using a Trimble GPS unit with sub-metre accuracy during the October 21, 2022 field visit. The woodland boundary is very similar to that identified in the 2014 EIS. This delineation of the dripline as well as the previous 5m buffer for grading will be used to inform development plans along this border of the property.

Wildlife

Based on the alteration of the subject property as well as the previous work completed, it is proposed that this EIS update be prepared based on the existing information available. The 2014 EIS completed 3 breeding bird surveys between late May and early July. Surveys for turtle nesting also occurred during all spring and summer field surveys, with no evidence of turtles or nesting being found. All wildlife species were recorded during the fall current field survey. This included direct observations, as well as signs such as dens, tracks, scats, etc.

Constraints

Natural feature constraints and buffer recommendations for the current proposed undertaking will be based on the existing altered condition of the subject property and the previous buffer limits which were implemented for the grading and filling work. Information on soils, hydrogeology and hydrology contributed by other team members will be used to identify suitable buffers from the wetland and woodland and to assess pre-development and post-development water balance to these features. The previous EIS and supporting Hydrogeological Investigation by MBN Environmental Engineering Inc. (2014) determined that the 2 small wetlands are not connected to the Mill Creek Puslinch Provincially Significant Wetland Complex either by surface water or by groundwater, based on their isolated nature and the direction of

groundwater flow. Therefore, these two small unevaluated wetlands should not be included in the PSW complex and are not provincially significant.

The two small wetlands are supported by surface water runoff from their catchment, which is primarily from the southeast (i.e. off-site). They are not significant in terms of groundwater recharge or discharge based on hydrogeological information. Buffers and other mitigation measures will be recommended based on the aspects of the development proposed immediately adjacent as well as the stormwater management plan or other measures to be implemented.

Reporting

The EIS report will characterize the existing site conditions and identify all natural heritage features, designations and applicable policy. The report will summarize the available background material including the 2014 EIS and update it with 2022 field survey results and study team findings. The SAR, SCC and SWH screenings will be updated and the results discussed.

Significant biological features and their buffers and setbacks will be described. These constraints will be compiled onto mapping to show a combined development limit to inform the proposed Site Plan.

The details of the proposed undertaking will be reviewed and compared to the existing conditions and habitat in the Study Area. Potential impacts will be discussed where there are any areas of conflict between significant natural features, buffers or ecological functions and the proposed development.

The assessment of potential impacts will be divided into three main categories:

- **Direct impacts** associated with removal of natural features caused by the actual 'footprint' of the proposed development.
- **Indirect impacts** associated with changes in site conditions, such as indirect impacts to wildlife, or modifications to drainage and water quantity/quality as it pertains to the site drainage and the adjacent wetland features.
- **Induced impacts** associated with proposed activities and their impact on natural features or species and their habitats over time in space, including, but not limited to, the spread of invasive species or disturbance to natural features or wildlife habitats caused by human use of the property.

Recommendations to avoid, or otherwise minimize or mitigate impacts to significant natural features and functions will be presented in the EIS report. Opportunities for ecological enhancement and restoration on the Subject Property, will be highlighted.

Appendix I. SAR/SCC Screening

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Background Source	Observed by NRSI (2022) or Aboud (2014)	Habitat Requirements	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
Birds												
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1	OBBA 2006		Well-drained grassland or prairie with low cover of grasses, taller weeds or sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities. Requires perches for singing and tracts of grassland generally >5ha. ^{3,4}	No	No	Subject property is mainly disturbed soils with sparse weedy groundcover which may be suitable habitat but is smaller than general habitat size (<5ha) and is adjacent to a busy road and trucking facility. Not observed during 2014 breeding bird surveys.
<i>Chaetura pelagica</i>	Chimney Swift	S3B	THR	T	T	Schedule 1	OBBA 2006		Commonly found in urban areas near buildings; nests in chimneys, hollow trees, and crevices of rock cliffs. Feeds over open water. ^{3,4}	No	No	Not an urban area, no buildings with chimneys. Observed foraging during 2014, no evidence of breeding.
<i>Chordeiles minor</i>	Common Nighthawk	S4B	SC	SC	T	Schedule 1	OBBA 2006		Open ground; clearings in dense forests (including burns and logged areas); rock barrens; peat bogs; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs. ^{3,4}	No	No	Subject property is mainly disturbed soils with sparse weedy groundcover. However, site is adjacent to busy road and trucking facility, not suitable.
<i>Contopus virens</i>	Eastern Wood-pewee	S4B	SC	SC	SC	Schedule 1	OBBA 2006, Aboud 2014	X	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in intermediate-age mature forest stands with little understory vegetation. ^{3,4}	Yes	Yes	Suitable forest habitat is present within woodland on and adjacent to subject property. Observed singing from hedgerow during 2014, no evidence of breeding on-site.
<i>Dolichonyx oryzivorus</i>	Bobolink	S4B	THR	T	T	Schedule 1	OBBA 2006		Large (>10 ha), open expansive grasslands, pastures, hayfields, meadows or fallow fields with dense ground cover. Occasionally nest in large (>50 ha) fields of winter wheat and rye in southwestern Ontario. ^{3,4}	No	No	No large open grasslands present on-site.
<i>Hirundo rustica</i>	Barn Swallow	S4B	THR	SC	T	Schedule 1	OBBA 2006, About 2014	X	Farmlands, rural areas and other open or semi-open areas near body of water. Nests almost exclusively on human-made structures such as open barns, buildings, bridges and culverts. ^{3,4}	No	No	No nests observed on on-site buildings. Observed foraging during 2014, no evidence of breeding.
<i>Hylocichla mustelina</i>	Wood Thrush	S4B	SC	T	T	Schedule 1	OBBA 2006		Carolinian and Great Lakes-St. Lawrence forest zones. Undisturbed moist mature deciduous or mixed forest with deciduous sapling growth. Near pond or swamp. Must have some trees higher than 12 m. ^{3,4}	No	No	No suitable forest habitat on-site or adjacent.
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3	SC	E	E	Schedule 1	OBBA 2006		Open, deciduous forest with little understory; fields, parks or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees. Requires cavity trees with at least 40 cm dbh. ^{3,4}	No	No	No suitable forest habitat or trees on-site or adjacent.
<i>Riparia riparia</i>	Bank Swallow	S4B	THR	T	T	Schedule 1	OBBA 2006, Aboud 2014	X	Nests in burrows in natural and human-made settings with vertical faces in silt and sand deposits. Usually on banks of river and lakes, but also found in sand and gravel pits. ^{3,4}	No	No	No banks present on-site for nest burrows. Observed foraging in 2014, with no evidence of breeding. Local gravel pits are likely used for nesting.
<i>Sturnella magna</i>	Eastern Meadowlark	S4B, S3N	THR	T	T	Schedule 1	OBBA 2006		Open pastures, hayfields, grasslands or grassy meadows with elevated singing perches (small trees, shrubs or fence posts). Also weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >10 ha, but will sometimes use smaller tracts. ^{3,4}	No	No	No large open grasslands present on-site.
Turtles												

Appendix I. SAR/SCC Screening

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Background Source	Observed by NRSI (2022) or Aboud (2014)	Habitat Requirements	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1	ORAA 2019		Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for basking, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for hibernation. ³	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1	ORAA 2019		quiet, warm, shallow water with abundant aquatic vegetation such as ponds, large pools, streams, ditches, swamps, marshy meadows; eggs are laid in sandy places, usually in a bank or hillside, or in fields; bask in groups; not territorial	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	ORAA 2019		large bodies of water with soft bottoms, and aquatic vegetation; basks on logs or rocks or on beaches and grassy edges, will bask in groups; uses soft soil or clean dry sand for nest sites; may nest at some distance from water; home range size is larger for females (about 70 ha) than males (about 30 ha) and includes hibernation, basking, nesting and feeding areas; aquatic corridors (e.g. stream) are required for movement; not readily observed	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
<i>Emydoidea blandingii</i>	Blanding's Turtle (Great Lakes / St. Lawrence population)	S3	THR	E	T	Schedule 1	ORAA 2019		Eutrophic, shallow wetlands such as marshes, ponds, swamps, bogs, fens, or coastal wetlands, with soft, muddy substrates, abundant aquatic vegetation, and basking structures (logs, stumps, hummocks). Large overland movements occur between aquatic habitats and to open sandy or gravelly areas for nesting. Forest habitat is important for upland movements. Overwintering typically occurs in permanent wetlands. ⁷	No	No	No suitable water bodies currently present on-site and no observations from 2014 nesting surveys. Turtles may inhabit manmade ponds adjacent to the subject property, but there is little likelihood of travel to the subject property due to barriers of fencing and Brock Road.
Snakes												
<i>Lampropeltis triangulum</i>	Eastern Milksnake	S4	SC	SC	SC	Schedule 1			Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites. ⁴	No	No	No suitable meadow or forest habitat on-site or adjacent.
Salamanders												
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	S2	END	E	E	Schedule 1	ORAA 2019		Large deciduous or mixed forest containing, or in close proximity to, suitable breeding ponds which include fishless vernal pools or wetlands with suitable hydroperiod for larval development (was present until Aug/Sept). Habitats must contain shelter features including leaf litter, woody debris, rocks, logs, or stumps. Hibernation sites are underground in mammal burrows, root systems, or crevices or fissures in rocks. ¹⁷	No	No	No suitable breeding ponds or large forests present on-site or adjacent.
Frogs and Toads												
<i>Pseudacris triseriata</i> pop.1	Western Chorus Frog (Great Lakes - St. Lawrence - Canadian Shield population)	S4	NAR	T	T	Schedule 1	ORAA 2019		Moist forest, prairie, meadows, cultural meadows, or marshes. Breeds in shallow, temporary, fishless wetlands, including flooded ditches, marshes, flooded fields, pastures, temporary ponds, pools, and swamps. Hibernates in terrestrial habitats under rocks, logs, leaf litter, loose soil, or in animal burrows. ²¹	No	No	No suitable temporary wetlands present on-site or adjacent.
Mammals												

Appendix I. SAR/SCC Screening

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Background Source	Observed by NRSI (2022) or Aboud (2014)	Habitat Requirements	Suitable Habitats within Subject Property	Carried Forward to EIS?	Rationale
<i>Microtus pinetorum</i>	Woodland Vole	S3?	SC	SC	SC	Schedule 1	Dobbyn 1994		Mature deciduous forest in the Carolinian region where there is a deep litter layer that allows it to burrow. ^{3,4}	No	No	No suitable forest present on-site or adjacent.
<i>Myotis leibii</i>	Eastern Small-footed Myotis	S2S3	END				Dobbyn 1994		Roosts in caves, mine shafts, crevices or buildings that are in or near woodland. Hibernates in cold dry caves or mines. Maternity colonies in caves or buildings. Hunts in forests. ^{3,4}	No	No	No suitable buildings or caves present. Buildings will be assessed during tree inventory.
<i>Myotis lucifungus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1	Dobbyn 1994		Uses caves, quarries, tunnels, hollow trees or buildings for roosting. Winters in humid caves. Maternity sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges. ^{3,4}	No	Yes	No suitable buildings or caves present. Significant woodland and isolated trees may provide habitat. Buildings and isolated trees will be assessed during tree inventory.
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1	Dobbyn 1994		Roosts in houses and man-made structures but prefers hollow trees or under loose bark. Hibernates in mines or caves. Hunts within forest, below the canopy. ^{3,4}	No	Yes	No suitable buildings or caves present. Significant woodland and isolated trees may provide habitat. Building and isolated trees will be assessed during tree inventory.
<i>Perimyotis subflavus</i>	Tri-colored Bat	S3?	END	E	E	Schedule 1	Dobbyn 1994		Roosts and maternity colonies in older forests and occasionally in barns or other sturctures. Forage over water and along streams in the forest. Hibernate in caves. ^{3,4}	No	Yes	No suitable buildings or caves present. Significant woodland and isolated trees may provide habitat. Buildings and isolated trees will be assessed during tree inventory.
<i>Taxidea taxus jacksoni</i>	American Badger (Southwestern Ontario population)	S2	END	E	E	Schedule 1	Dobbyn 1994		Open grasslands, oak savannahs, sand barrens and farmland. ^{3,4}	No	No	No grasslands present on-site or adjacent.
Butterflies												
<i>Danaus plexippus</i>	Monarch	S2N, S4B	SC	END	SC	Schedule 1	MacNaughton et al 2022		Adults found in a diversity of habitats with a variety of wildflowers. Caterpillars are confined to meadows and open areas where milkweeds grow (larval food plants). ³	No	No	Subject property is mainly disturbed soils with sparse weedy groundcover. Very limited number of milkweed plants observed in 2022.
Insects												
<i>Bombus terricola</i>	Yellow-banded Bunblebee	S3, S5	SC	SC	SC	Schedule 1			Found in mixed woodlands, particularly for nesting and overwintering, as well as a variety of open habitat such as native grasslands, farmlands and urban areas. This species is a forage and habitat generalist, able to use a variety of nectaring plants and environmental conditions.	No	No	Subject property is mostly disturbed soil with sparse groundcover for nectaring plants.
Plants												
<i>Aureolaria flava</i>	Smooth Yellow False Foxglove	S2	THR	T	-	No Schedule			Open oak woods. ⁴	No	No	No suitable woodland habitat on-site or adjacent

3: Ministry of the Environment, Conservation, and Parks (MECP). 2020. Species at Risk in Ontario. Published: 12-07-2018. Updated: 09-11-2020. Available: <https://www.ontario.ca/page/species-risk-ontario>

4: Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. Appendix G: Wildlife Habitat Matrices and Habitat Descriptions for Rare Vascular Plants. October 2000.

7: Ministry of the Environment, Conservation and Parks. 2019. Recovery Strategy for the Blanding’s Turtle (Emydoidea blandingii) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. Adoption of the Recovery Strategy for Blanding’s Turtle (Emydoidea blandingii), Great Lakes / St. Lawrence population, in Canada (Environment and Climate Change Canada 2018). <https://www.ontario.ca/page/blandings-turtle-recovery-strategy#section-1>

17: Linton, J, J. McCarter and H. Fotherby 2018. Recovery Strategy for the Jefferson Salamander (Ambystoma jeffersonianum) and Unisexual Ambystoma (Jefferson Salamander dependent population) (Ambystoma laterale - (2) jeffersonianum) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 58 pp. <https://www.ontario.ca/page/jefferson-salamander-and-jefferson-dependent-unisexual-ambystoma-recovery-strategy#section-1>

19: Markle, T.M., A.R. Yagi and D.M. Green. 2013. Recovery Strategy for the Allegheny Mountain Dusky Salamander (Desmognathus ochrophaeus) and the Northern Dusky Salamander (Desmognathus fuscus) in Ontario. Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 30 pp. <https://www.ontario.ca/page/allegheny-mountain-dusky-salamander-and-northern-dusky-salamander-recovery-strategy#section-1>

21: 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. (www.sararegistry.gc.ca/status/status_e.cfm)

Subject: RE: 128 Brock Road South, Puslinch - TOR for EIS (proj2984)
From: Jenn Simons <jsimons@grandriver.ca>
Date: 11/16/2022, 9:36 AM
To: "egosnell@nrsi.on.ca" <egosnell@nrsi.on.ca>

Good morning Elaine,

We are satisfied with the delineation based on the 2014 and 2022 field verification. Thank you for checking with us.
Jenn

From: Elaine Gosnell <egosnell@nrsi.on.ca>
Sent: Tuesday, November 15, 2022 5:10 PM
To: Jenn Simons <jsimons@grandriver.ca>
Subject: Re: 128 Brock Road South, Puslinch - TOR for EIS (proj2984)

Thanks Jenn for the quick turnaround. I will pass these comments on to our team, specifically the hydrogeological and stormwater management engineers.

On the item of the wetland boundary delineation, can you confirm if GRCA is satisfied with the delineation based on the 2014 field verification and our fall 2022 field verification, or is a site visit warranted and if so, can that be done this fall?

Thank you.



Elaine Gosnell B.Sc. P.Biol. (she/her/hers)
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Over 20 years of environmental consulting excellence

On 2022-11-15 4:10 p.m., Jenn Simons wrote:

Good afternoon Elaine,

GRCA staff has had the opportunity to review the Terms of Reference for Environmental Impact Study related to the address above and offer the following comments:

1. We understand that the previous EIS and supporting Hydrogeological Investigation by MBN Environmental Engineering (2014) determined that the 2 small wetlands are not connected to the Mill Creek-Puslinch Provincially Significant Wetland Complex either by surface or by groundwater, based on their isolated nature and direction of groundwater flow. We would ask that the new EIS and supporting studies identify and demonstrate how the wetland water balance for the 2 small wetland features will be maintained and matched to pre-development conditions.
2. The subject site has a high recharge value and ask that the EIS and supporting studies identify and demonstrate how the sites recharge and infiltration rates will be maintained.

As an advisory comment, due to the high recharge value you may wish to explore opportunities to

infiltrate clean roof water at the detailed design stage.

I trust this is of assistance. Please let me know if you have any questions.

Sincerely,

Jenn Simons

Resource Planner

Grand River Conservation Authority

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Cambridge, ON N1R 5W6

Office: 519-621-2763 ext. 2238

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From: Elaine Gosnell egosnell@nrsl.on.ca

Sent: Wednesday, November 9, 2022 2:40 PM

To: Chris Lorenz clorenz@grandriver.ca; jbunn@puslinch.ca

Cc: pchauvin@mhbcpplan.com; jblackler@collaborativestructures.com; steveh@meritech.ca; Sandy Anderson sandy.anderson@cvsengineering.com

Subject: 128 Brock Road South, Puslinch - TOR for EIS (proj2984)

Hello Chris and Jeff,

Natural Resource Solutions has been retained by Wellington Motor Freight as part of a team to prepare an EIS for the development of a truck facility at 128 Brock Road S in Puslinch. I have reviewed the Pre-Consultation notes as well as the previous EIS and hydrogeology reports prepared for the Site Alteration permit for the property. The site has been graded, filled and leveled in 2016, and I have prepared the TOR for the EIS based on it's current condition and the existing background information.

The Terms of Reference are attached for your review and comment. If you have any questions, please contact me.

Elaine

--



Elaine Gosnell B.Sc. P.Biol. (she/her/hers)
Senior Terrestrial and Wetland Biologist

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Significant Wildlife Habitat Type	Presence Within Study Area	Presence Within Subject Property	Assessment Details
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	Not Present	Not Present	No agricultural crops planted on-site, no flooded fields present in study area.
Waterfowl Stopover and Staging Areas (Aquatic)	Not Present	Not Present	No marshes, natural ponds, swamps or open water present on-site or in study area.
Shorebird Migratory Stopover Area	Not Present	Not Present	No shorelines present on-site or in study area.
Raptor Wintering Area	Not Present	Not Present	No large areas of forest and meadow present on-site or in the study area.
Bat Hibernacula	Not Present	Not Present	No caves, mine shafts or karst topography on-site or in the study area.
Bat Maternity Colonies	Candidate	Not Present	FOD community adjacent to the subject property may contain trees with suitable cavities for bat maternity roosts.
Turtle Wintering Area	Not Present	Not Present	There are no natural ponds on-site or in the study area to provide this habitat.
Reptile Hibernaculum	Not Present	Not Present	No burrows, rock crevices, crumbling foundations that go below the frost line are found on-site or in the study area as well as due to the level of disturbance that has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation, commercial development).
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Not Present	Not Present	No natural exposed banks or eroding areas on-site. Manmade berms and embankments may be present on adjacent lands, but are not SWH.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	Not Present	Not Present	No treed swamps present on-site or in study area.
Colonially - Nesting Bird Breeding Habitat (Ground)	Not Present	Not Present	No rocky islands or peninsulas present on-site or in study area.
Migratory Butterfly Stopover Areas	Not Present	Not Present	Study area is not within 5km of Lake Ontario.
Landbird Migratory Stopover Areas	Not Present	Not Present	Study area is not within 5km of Lake Ontario.
Deer Yarding Areas	Not Present	Not Present	No deer yarding areas identified by OMNRF in the study area.
Deer Winter Congregation Areas	Not Present	Not Present	No deer winter congregation areas identified by OMNRF in the study area.
Rare Vegetation Communities			
Cliff and Talus Slopes	Not Present	Not Present	0
Sand Barrens	Not Present	Not Present	0
Alvar	Not Present	Not Present	0
Old Growth Forest	Not Present	Not Present	0
Savannah	Not Present	Not Present	0
Tallgrass Prairie	Not Present	Not Present	0
Other Rare Vegetation Communities	Not Present	Not Present	0
Specialized Wildlife Habitat			
Waterfowl Nesting Area	Not Present	Not Present	No suitable wetlands and upland habitat present on subject property or in study area.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Not Present	Not Present	No forested shorelines present on subject property or in study area.
Woodland Raptor Nesting Habitat	Not Present	Not Present	No large woodland/forest present on subject property or in study area.
Turtle Nesting Areas	Not Present	Not Present	No suitable natural wetlands on subject property or study area.
Seeps and Springs	Not Present	Not Present	No forested areas with seeps/springs on the subject property or within the study area.
Amphibian Breeding Habitat (Woodland)	Not Present	Possible	On-site wetland is >500m ² in size and within 120m of FOD5 and may possibly contain gray treefrog, spring peeper and/or wood frog, although a high abundance is unlikely due to the lack of permanent water. Wetland is retained and a link provided to the FOD5 community.
Amphibian Breeding Habitat (Wetland)	Not Present	Not Present	No isolated wetlands present on the subject property or adjacent study area lands.
Woodland Area-Sensitive Bird Breeding Habitat	Not Present	Not Present	No forests with interior habitat are present on the subject property or within the study area.
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	Not Present	Not Present	No wetlands with emergent aquatic vegetation are on-site or in study area.
Open Country Bird Breeding Habitat	Not Present	Not Present	No large grassland areas present on-site or in the study area.
Shrub/Early Successional Bird Breeding Habitat	Not Present	Not Present	No successional shrub and thicket habitats on-site or in the study area.
Terrestrial Crayfish	Not Present	Not Present	No suitable wetlands present on-site or in study area. Soils on-site are granular and contain stones, cobbles - not suitable for burrows.
Special Concern and Rare Wildlife Species	Candidate	Not Present	Special concern species Eastern Wood Pewee has been documented in the study area (Aboud 2014) and the adjacent FOD provides suitable breeding habitat.
Animal Movement Corridors			
Amphibian Movement Corridors	Not Present	Possible	Amphibian breeding habitat is possibly present in the on-site wetlands. A movement corridor may exist between the wetlands and the woodland on adjacent lands. Wetland, woodland and corridor are retained.
Deer Movement Corridors	Not Present	Not Present	Deer wintering habitat is not present.
Exceptions			
EcoDistrict 6E-14 Mast Producing Areas	Not Present	Not Present	NA
EcoDistrict 6E-17 Lek	Not Present	Not Present	NA

Significant Wildlife Habitat Assessment Tables

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Terrestrial)					Not Present	Not Present
<u>Rationale:</u> Habitat important to migrating waterfowl.	American Black Duck Wood Duck Green-winged Teal Blue-winged Teal Mallard Northern Pintail Northern Shoveler American Wigeon Gadwall	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these Ecosites.	Fields with sheet water during Spring (mid March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available ^{exlviii} . <u>Information Sources</u> • Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. • Reports and other information available from Conservation Authorities (CAs) • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Field Naturalist Clubs • Ducks Unlimited Canada • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • Any mixed species aggregations of 100 or more individuals required. • The area of the flooded field ecosite habitat plus a 100-300m radius buffer dependent on local site conditions and adjacent land use is the significant wildlife habitat ^{cxlviii} . • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • SWHMiST ^{cxlix} Index #7 provides development effects and mitigation measures.	No agricultural crops planted on-site, no flooded fields present in study area.	
Wildlife Habitat: Waterfowl Stopover and Staging Areas (Aquatic)					Not Present	Not Present
<u>Rationale:</u> Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked Duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> • Environment Canada • Naturalist clubs often are aware of staging/stopover areas. • OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. • Sites documented through waterfowl planning processes (eg. EHJV implementation plan) • Ducks Unlimited projects • Element occurrence specification by Nature Serve: http://www.natureserve.org • Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: • Aggregations of 100 ⁱ or more of listed species for 7 days ⁱ , results in > 700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH ^{cxlix} • The combined area of the ELC ecosites and a 100m radius area is the SWH ^{cxlviii} • Wetland area and shorelines associated with sites identified within the SWHTG ^{cxlviii} Appendix K ^{cxlix} are significant wildlife habitat. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • SWHMiST ^{cxlix} Index #7 provides development effects and mitigation measures.	No marshes, natural ponds, swamps or open water present on-site or in study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Shorebird Migratory Stopover Area					Not Present	Not Present
Rationale: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin Whimbrel	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. Sewage treatment ponds and storm water ponds do not qualify as a SWH. <u>Information Sources</u> • Western hemisphere shorebird reserve network. • Canadian Wildlife Service (CWS) Ontario Shorebird Survey. • Bird Studies Canada • Ontario Nature • Local birders and naturalist clubs • Natural Heritage Information Center (NHIC) Shorebird Migratory Concentration Area	Studies confirming: • Presence of 3 or more of listed species and > 1000 shorebird use days during spring or fall migration period. (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) • Whimbrel stop briefly (<24hrs) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area ^{cxlviii} • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMIST ^{cxlix} Index #8 provides development effects and mitigation measures.	No shorelines present on-site or in study area.	
Wildlife Habitat: Raptor Wintering Area					Not Present	Not Present
Rational: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl <u>Special Concern:</u> Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class: Forest: FOD, FOM, FOC Upland: CUM, CUT, CUS, CUW	The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors. Raptor wintering sites need to be > 20 ha ^{cxlviii, cxlix} with a combination of forest and upland. ^{xvi, xvii, xviii, xix, xx, xxi} Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands ^{cxlix} Field area of the habitat is to be wind swept with limited snow depth or accumulation. Eagle sites have open water, large trees and snags available for roosting <u>Information Sources</u> • OMNRF Ecologist or Biologist • Field Natural Clubs • Natural Heritage Information Center (NHIC) Raptor Winter Concentration Area • Data from Bird Studies Canada • Reports and other information available from Conservation Authorities CAs.	Studies confirm the use of these habitats by: • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two listed hawk/owl species • To be significant a site must be used regularly (3 in 5 years) ^{cxlix} for a minimum of 20 days by the above number of birds • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMIST ^{cxlix} Index #10 and #11 provides development effects and mitigation measures.	No large areas of forest and meadow present on-site or in the study area.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Bat Hibernacula					Not Present	Not Present
<u>Rationale</u> Bat hibernacula are rare habitats in Ontario landscapes.	Big Brown Bat Tri-coloured Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	<ul style="list-style-type: none">Hibernacula may be found in caves, mine shafts, underground foundations and Karsts.Active mine sites should not be considered as SWHThe locations of bat hibernacula are relatively poorly known. <u>Information Sources</u> <ul style="list-style-type: none">OMNRF for possible locations and contact for local expertsNatural Heritage Information Center (NHIC) Bat HibernaculumMinistry of Northern Development and Mines for location of mine shafts.Clubs that explore caves (eg. Sierra Club)University Biology Departments with bat experts.	<ul style="list-style-type: none">All sites with confirmed hibernating bats are SWH.The habitat area includes a 200m radius around the entrance of the hibernaculum^{cxlviii, ccvii} for most.Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects"^{ccv}SWHMiST^{cxlix} Index #1 provides development effects and mitigation measures.	No caves, mine shafts or karst topography on-site or in the study area.	
Wildlife Habitat: Bat Maternity Colonies					Candidate	Not Present
<u>Rationale:</u> Known locations of forested bat maternity colonies is extremely rare in all Ontario landscapes.	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD FOM SWD SWM	Maternity colonies can be found in tree cavities, vegetation and often in buildings ^{xxii, xxv, xxvi, xxvii, xxxi} (buildings are not considered to be SWH). <ul style="list-style-type: none">Maternity roosts are not found in caves and mines in Ontario^{xxii}Maternity colonies located in Mature deciduous or mixed forest stands^{ccix, ccx} with >10/ha large diameter (>25cm dbh) wildlife trees^{ccvii}Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3^{ccxiv} or class 1 or 2^{ccxii}Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred^{ccx} <u>Information Sources</u> <ul style="list-style-type: none">OMNRF for possible locations and contact for local expertsUniversity Biology Departments with bat experts.	<ul style="list-style-type: none">Maternity Colonies with confirmed use by:<ul style="list-style-type: none">>10 Big Brown Bats>5 Adult Female Silver-haired BatsThe area of the habitat includes the entire woodland or a forest stand ELC Ecosite or an Ecoelement containing the maternity colonies.Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for wind Power Projects"^{ccv}SWHMiS T^{cxlix} Index #12 provides development effects and mitigation measures.	FOD community adjacent to the subject property may contain trees with suitable cavities for bat maternity roosts.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Turtle Wintering Area					Not Present	Not Present
<u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles - ELC Community Classes: SW, MA, OA and SA; ELC Community Series: FEO and BOO Northern Map Turtle - Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen ^{cix, cx, cxi, cxviii} . • Man-made ponds such as sewage lagoons or storm water ponds should not be considered SWH. <u>Information Sources</u> • EIS studies carried out by Conservation Authorities. • Local field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. • OMNRF ecologist or biologist • Natural Heritage Information Center (NHIC)	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (Sept. – Oct.) or spring (Mar. – May) ^{cvi} • Congregation of turtles is more common where wintering areas are limited and therefore significant ^{cix, cx, cxi, cxii} . • SWHMiST ^{cxlix} Index #28 provides development effects and mitigation measures for turtle wintering habitat.	There are no natural ponds on-site or in the study area to provide this habitat.	
Wildlife Habitat: Snake Hibernaculum					Not Present	Not Present
<u>Rationale:</u> Generally sites are the only known sites in the area. Sites with the highest number of individuals are most significant	<u>Snakes:</u> Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake <u>Special Concern:</u> Milksnake Eastern Ribbonsnake <u>Lizard:</u> <u>Special Concern</u> (Southern Shield population): Five-lined Skink	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice and Cave, and Alvar sites may be directly related to these habitats. Observations of congregations of snakes on sunny warm days in the spring or fall is a good indicator. For Five-lined Skink, ELC Community Series of FOD and FOM and Ecosites: FOC1 FOC3	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural locations. The existence of features that go below the frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line ^{xliv, i, ii, iii, cxii} . • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. • Five-lined skink prefer mixed forests with rock outcrop openings providing cover rock overlaying granite bedrock with fissures cciii. Information Sources • In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). • Reports and other information from CAs. • Local Field naturalists and experts, as well as university herpetologists may also know where to find some of these sites. clubs • Natural Heritage Information Center (NHIC) • OMNRF ecologist or biologist may be aware of locations of wintering skinks	Studies confirming: • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. <u>or</u> ; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. <u>or</u> ; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct). • <u>Note:</u> If there are Special Concern Species present, then site is SWH • <u>Note:</u> Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population [i.e. strong hibernation site fidelity]. Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30m buffer is the SWH ⁱ • SWHMiST ^{cxlix} Index #13 provides development effects and mitigation measures for snake hibernacula. • Presence of any active hibernaculum for skink is significant. • SWHMiST ^{cxlix} Index #37 provides development effects and mitigation measures for five-lined skink wintering habitat.	No burrows, rock crevices, crumbling foundations that go below the frost line are found on-site or in the study area as well as due to the level of disturbance that has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation, commercial development).	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)					Not Present	Not Present
<u>Rationale:</u> Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow populations are declining in Ontario.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	<ul style="list-style-type: none">Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area.Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles.Does not include a licensed/permitted Mineral Aggregate Operation. <u>Information Sources</u> <ul style="list-style-type: none">Reports and other information available from CAsOntario Breeding Bird Atlas^{ccv}Bird Studies Canada; <i>NatureCounts</i> http://www.birdscanada.org/birdmon/Field Naturalist clubs	Studies confirming: <ul style="list-style-type: none">Presence of 1 or more nesting sites with 8^{cxlvix} or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season.A colony identified as SWH will include a 50m radius habitat area from the peripheral nests^{ccvii}Field surveys to observe and count swallow nests are to be completed during the breeding season Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”^{ccxi}SWHMiST^{cxlix} Index #4 provides development effects and mitigation measures	No natural exposed banks or eroding areas on-site. Manmade berms and embankments may be present on adjacent lands, but are not SWH.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)					Not Present	Not Present
<u>Rationale:</u> Large Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night-heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	<ul style="list-style-type: none">Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used.Most nests in trees are 11 to 15m from ground, near the top of the tree. <u>Information Sources</u> <ul style="list-style-type: none">Ontario Breeding Bird Atlas^{ccv}, colonial nest records.Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNR).NHIC Mixed Wader Nesting ColonyAerial photographs can help identify large heronriesReports and other information available from CAsMNRF District OfficesLocal naturalist clubs	Studies confirming: <ul style="list-style-type: none">Presence of 5^l or more active nests of Great Blue Heron or other listed species.The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island <15.0ha with a colony is the SWH^{cc, ccvii}Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshellsSWHMiST^{cxlix} Index #5 provides development effects and mitigation measures.	No treed swamps present on-site or in study area.	
Wildlife Habitat: Colonially - Nesting Bird Breeding Habitat (Ground)					Not Present	Not Present

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
<p><u>Rationale:</u> Colonies are important to local bird populations, typically sites are only known colony in area and are used annually.</p>	<p>Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird</p>	<p>Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map).</p> <p>Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird)</p> <p>MAM1 – 6 MAS1 – 3 CUM CUT CUS</p>	<p>• Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands.</p> <p><u>Information Sources</u></p> <p>• Ontario Breeding Bird Atlas^{ccv}, rare/colonial species records. • Canadian Wildlife Service • Reports and other information available from CAs • Natural Heritage Information Center (NHIC) Colonial Waterbird Nesting Area • MNRF District Offices • Field naturalist clubs</p>	<p>Studies confirming:</p> <ul style="list-style-type: none">• Presence of >25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern^l.• Presence of 5 or more pairs for Brewer's Blackbird.• Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant.• The edge of the colony and a minimum 150m area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0ha with a colony is the SWH^{cc, ccvii}• Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi}• SWHMIST^{cxlix} Index #6 provides development effects and mitigation measures.	<p>No rocky islands or peninsulas present on-site or in study area.</p>	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Migratory Butterfly Stopover Areas					Not Present	Not Present
<p><u>Rationale:</u> Butterfly stopovers areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.</p>	<p>Painted Lady Red Admiral</p> <p><u>Special Concern:</u> Monarch</p>	<p>Combination of ELC Community Series: Need to have present one Community Series from each landclass:</p> <p><u>Field:</u> CUM CUS CUT</p> <p><u>Forest:</u> FOC FOM FOD CUP</p> <p>Anecdotaly, a candidate sight for butterfly stopover will have a history of butterflies being observed.</p>	<p>A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Ontario^{cxlix}.</p> <ul style="list-style-type: none">• The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south^{xxxii, xxxiii, xxxiv, xxxv, xxxvi}.• The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat cxlvi, cxlix.• Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes^{xxxvii, xxxviii, xxxix, xl, xli}. <p><u>Information Sources</u></p> <ul style="list-style-type: none">• OMNRF (NHIC)• Agriculture Canada in Ottawa may have list of butterfly experts.• Field Naturalist Clubs• Toronto Entomologists Association• Conservation Authorities	<p>Studies confirm:</p> <ul style="list-style-type: none">• The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct)^{xliii}. MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day^{xxxvii}, significant variation can occur between years and multiple years of sampling should occur^{xl, xliii}.• Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD• MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.• SWHMiST^{cxlix} Index #16 provides development effects and mitigation measures.	Study area is not within 5km of Lake Ontario.	
Wildlife Habitat: Landbird Migratory Stopover Areas					Not Present	Not Present
<p><u>Rationale:</u> Sites with a high diversity of species as well as high number are most significant</p>	<p>All migratory songbirds.</p> <p>Canadian Wildlife Service Ontario website: http://www.on.ec.gc.ca/wildlife_e.html</p> <p>All migrant raptors species:</p> <p>Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)</p>	<p>All Ecosites associated with these ELC Community Series:</p> <p>FOC FOM FOD SWC SWM SWD</p>	<p>Woodlots need to be >10 ha^{iv, v} in size and within 5km^{vi, vii, viii, ix, x, xi, xii, xiii, xiv, xv} of Lake Ontario.</p> <ul style="list-style-type: none">• If multiple woodlands are located along the shoreline, those woodlands <2km from Lake Ontario are more significant^{cxlix}• Sites have a variety of habitats; forest, grassland and wetland complexes^{cxlix}.• The largest sites are more significant^{cxlix}• Woodlots and forest fragments are important habitats to migrating birds^{ccxviii}, these features located along the shore and located within 5km of Lake Ontario are Candidate SWH^{cxlviii}. <p><u>Information Sources</u></p> <ul style="list-style-type: none">• Bird Studies Canada• Ontario Nature• Local birders and naturalist club• Ontario Important Bird Areas (IBA) Program	<p>Studies confirm:</p> <ul style="list-style-type: none">• Use of the woodlot by >200 birds/day and with >35 spp. with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant.• Studies should be completed during spring (Apr/May) and fall (Aug/Oct) migration using standardized assessment techniques. <p>Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{ccxi}</p> <ul style="list-style-type: none">• SWHMiST^{cxlix} Index #9 provides development effects and mitigation measures.	Study area is not within 5km of Lake Ontario.	

Table 1. Characteristics of Seasonal Concentration Areas for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Deer Yarding Areas					Not Present	Not Present
<p><u>Rationale:</u> Winter habitat for deer is considered to be the main factor for northern deer populations. In winter, deer congregate in "yards" to survive severe winter conditions. Deer yards typically have a long history of annual use by deer, yards typically represent 10-15% of an areas summer range.</p>	White-tailed Deer	<p>Note: OMNRF to determine this habitat.</p> <p>ELC Community Series providing a thermal cover component for a deer yard would include: FOM, FOC, SWM and SWC.</p> <p>Or these ELC Ecosites: CUP2 CUP3 FOD3 CUT</p>	<ul style="list-style-type: none">Deer yarding areas or winter concentration areas (yards) are areas deer move to in response to the onset of winter snow and cold. This is a behavioural response and deer will establish traditional use areas. The yard is composed of two areas referred to as Stratum I and Stratum II. Stratum II covers the entire winter yard area and is usually a mixed or deciduous forest with plenty of browse available for food. Agricultural lands can also be included in this area. Deer move to these areas in early winter and generally, when snow depths reach 20cm, most of the deer will have moved here. If the snow is light and fluffy, deer may continue to use this area until 30cm snow depth. In mild winters, deer may remain in the Stratum II area the entire winter.The Core of a deer yard (Stratum I) is located within the Stratum II area and is critical for deer survival in areas where winters become severe. It is primarily composed of coniferous trees (pine, hemlock, cedar, spruce) with a canopy cover of more than 60%^{cxciiv}.OMNRF determines deer yards following methods outlined in “Selected Wildlife and Habitat Features: Inventory Manual”^{cxcv}Woodlots with high densities of deer due to artificial feeding are not significant.	<p>No Studies Required:</p> <ul style="list-style-type: none">Snow depth and temperature are the greatest influence on deer use of winter yards. Snow depths > 40cm for more than 60 days in a typically winter are minimum criteria for a deer yard to be considered as SWH^{lvi, lvii, lviii, lix, lx, l}.Deer Yards are mapped by OMNRF District offices. Locations of Core or Stratum 1 and Stratum 2 Deer yards considered significant by OMNRF will be available at local MNRF offices or via Land Information Ontario (LIO).Field investigations that record deer tracks in winter are done to confirm use (best done from an aircraft). Preferably, this is done over a series of winters to establish the boundary of the Stratum I and Stratum II yard in an "average" winter. MNRF will complete these field investigations^{cxcv}.If a SWH is determined for Deer Wintering Area or if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.SWHMIST^{cxlix} Index #2 provides development effects and mitigation measures.	No deer yarding areas identified by OMNRF in the study area.	
Wildlife Habitat: Deer Winter Congregation Areas					Not Present	Not Present
<p><u>Rationale:</u> Deer movement during winter in the southern areas of Ecoregion 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions^{cxlviii}</p>	White-tailed Deer	<p>All Forested Ecosites with these ELC Community Series: FOC FOM FOD SWC SWM SWD</p> <p>Conifer plantations much smaller than 50ha may also be used.</p>	<ul style="list-style-type: none">Woodlots will typically be >100 ha in size. Woodlots <100ha may be considered as significant based on MNRF studies or assessment.Deer movement during winter in the southern areas of Eco-region 6E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands^{cxlviii}.If deer are constrained by snow depth refer to the Deer Yarding Area habitat within Table 1.1 of this Schedule.Large woodlots > 100ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha^{ccxxiv}.Woodlots with high densities of deer due to artificial feeding are not significant. <p>Information Sources</p> <ul style="list-style-type: none">MNRF District OfficesLIO/NRVIS	<p>Studies confirm:</p> <ul style="list-style-type: none">Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF^{cxlviii}.Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRⁱ.Studies should be completed during winter (Jan/Feb) when >20cm of snow is on the ground using aerial survey techniques^{ccxxiv}, ground or road surveys, or a pellet count deer density survey^{ccxxv}.If a SWH is determined for Deer Wintering Area of if a proposed development is within Stratum II yarding area then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.SWHMIST^{cxlix} Index #2 provides development effects and mitigation measures.	No deer winter congregation areas identified by OMNRF in the study area.	

Significant Wildlife Habitat Assessment Tables

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Cliff and Talus Slopes					Not Present	Not Present
Rationale: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO CLO TAS CLS TAT CLT	A Cliff is vertical to near vertical bedrock >3m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	Most cliff and talus slopes occur along the Niagara Escarpment. <u>Information Sources</u> • The Niagara Escarpment Commission has detailed information on location of these habitats. • OMNRF District • Natural Heritage Information Center (NHIC) has location information on their website • Local naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes ^{lxxxviii} • SWHMiST ^{cxlix} Index #21 provides development effects and mitigation measures.		
Sand Barrens					Not Present	Not Present
Rationale: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry.	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%.	Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. They have little or no soil and the underlying rock protrudes through the surface. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	Any sand barren area, >0.5ha in size. <u>Information Sources</u> • OMNRF Districts. • Natural Heritage Information Center (NHIC) has location information on their website • Field naturalist clubs • Conservation Authorities	• Confirm any ELC Vegetation Type for Sand Barrens ^{lxxxviii} • Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics) ^l . • SWHMiST ^{cxlix} Index #20 provides development effects and mitigation measures.		

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Alvar					Not Present	Not Present
<p><u>Rationale:</u> Alvars are extremely rare habitats in Ecoregion 6E. Most alvars in Ontario are in Ecoregion 6E and 7E. Alvars in 6E are small and highly localized just north of the Palaeozoic-Precambrian contact.</p>	<p>ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2</p> <p>Five Alvar</p> <p>Indicator Species: 1) Carex crawei 2) Panicum philadelphicum 3) Eleochoirs compressa 4) Scutellaria parvula 5) Trichostema branchiatum</p> <p>These indicator species are very specific to Alvars within Ecoregion 6E</p>	<p>An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plant. Undisturbed alvars can be phyto- and zoo geographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover^{lxxxviii}.</p>	<p>An Alvar site > 0.5 ha in size^{lxxxv}.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none">• Alvars of Ontario (2000), Federation of Ontario Naturalists^{lxxxvi}.• Ontario Nature – Conserving Great Lakes Alvars^{ccviii}.• Natural Heritage Information Center (NHIC) has location information on their website• Field Naturalist clubs• Conservation Authorities	<p>Field studies identify four of the five Alvar indicator species^{lxxxv, cxlix} at a Candidate Alvar site is Significant.</p> <ul style="list-style-type: none">• Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotics sp.).• The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses^{lxxxv}.• SWHMiST^{cxlix} Index #17 provides development effects and mitigation measures.		
Old Growth Forest					Not Present	Not Present
<p><u>Rationale:</u> Due to historic logging practices, extensive old growth forest is rare in the Ecoregion. Interior habitat provided by old growth forests is required by many wildlife species.</p>	<p>Forest Community Series: FOD FOC FOM SWD SWC SWM</p>	<p>Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.</p>	<p>Woodland Stands areas 30ha or greater in size or with at least 10 ha interior habitat assuming 100m buffer at edge of forest I.</p> <p><u>Information Sources</u></p> <ul style="list-style-type: none">• OMNRF Forest Resource Inventory mapping• OMNRF Forester, Ecologist or Biologist• Field Local naturalist clubs• Conservation Authorities• Sustainable Forestry License (SFL) companies will possibly know locations through field operations.• Municipal forestry departments	<p>Field Studies will determine:</p> <ul style="list-style-type: none">• If dominant trees species of the ecosite are >140 years old, then stand is Significant Wildlife Habitat^{cxlviii}• The stand will have experienced no recognizable forestry activities^{cxlviii}• The area of Forest Ecosites combined to make up the stand is the SWH.• Determine ELC Vegetation Type for forest stand^{lxxxviii}• SWHDSS^{cxlix} Index #23 provides development effects and mitigation measures.		
Savannah					Not Present	Not Present
<p><u>Rationale:</u> Savannahs are extremely rare habitats in Ontario.</p>	<p>TPS1 TPS2 TPW1 TPW2 CUS2</p>	<p>A Savannah is a tallgrass prairie habitat that has tree cover between 25 – 60%.</p>	<ul style="list-style-type: none">• No minimum size to siteSite must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. <p><u>Information Sources</u></p> <ul style="list-style-type: none">• Natural Heritage Information Center (NHIC) has location information on their website• OMNRF Ecologists• Field naturalists clubs• Conservation Authorities	<p>Field studies confirm one or more of the Savannah indicator species listed in^{lxxxv} Appendix N should be present. Note: Savannah plant spp. list from Ecoregion 6E should be used^{cxlviii}.</p> <ul style="list-style-type: none">• Area of the ELC Ecosite is the SWH.• Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics sp.).• SWHMiST^{cxlix} Index #18 provides development effects and mitigation measures.		

Table 2. Characteristics of Rare Vegetation Communities for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	ELC Ecosite Codes	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Tallgrass Prairie					Not Present	Not Present
Rationale: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover.	<ul style="list-style-type: none">• No minimum size to site• Site must be restored or a natural site.• Remnant sites such as railway right of ways are not considered to be SWH. <u>Information Sources</u> <ul style="list-style-type: none">• OMNR Districts• Natural Heritage Information Center (NHIC) has location information available on their website• Field naturalists clubs• Conservation Authorities	Field studies confirm one or more of the Prairie indicator species listed in ^{lxv} Appendix N should be present. Note: Prairie plant spp. list from Ecoregion 6E should be used ^{cxlviii} . <ul style="list-style-type: none">• Area of the ELC Ecosite is the SWH• Site must not be dominated by exotic or introduced species (<50% vegetative cover exotics).• SWHMiST^{cxlix} Index #19 provides development effects and mitigation measures.		
Other Rare Vegetation Communities					Not Present	Not Present
Rationale: Plant communities that often contain rare species which depend on the habitat for survival.	Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG ^{cxlviii} . Any ELC Ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in appendix M ^{cxlviii} The OMNR/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> <ul style="list-style-type: none">• Natural Heritage Information Center (NHIC) has location information available on their website• OMNRF Districts• Field naturalists clubs• Conservation Authorities	Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG ^{cxlviii} . <ul style="list-style-type: none">• Area of the ELC Vegetation Type polygon is the SWH.• SWHMiST^{cxlix} Index #37 provides development effects and mitigation measures.		

Significant Wildlife Habitat Assessment Tables

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Waterfowl Nesting Area					Not Present	Not Present
<u>Rationale:</u> Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: <div>MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4</div> Note: includes adjacency to Provincially Significant Wetlands	A waterfowl nesting area extends 120m ^{cxlix} from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120m or a cluster of 3 or more small (<0.5 ha) wetlands within 120m of each individual wetland where waterfowl nesting is known to occur ^{cxlix} . • Upland areas should be at least 120m wide so that predators such as raccoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> • Ducks Unlimited staff may know the locations of particularly productive nesting sites. • OMNRF Wetland Evaluations for indication of significant waterfowl nesting habitat. • Reports and other information available from CAs	Studies confirmed: • Presence of 3 or more nesting pairs for listed species excluding Mallards, or • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120m ^{cxlviii} from the wetland and will provide enough habitat for waterfowl to successfully nest. • SWHMiST ^{cxlix} Index #25 provides development effects and mitigation measures.	No suitable wetlands and upland habitat present on subject property or in study area.	
Wildlife Habitat: Bald Eagle and Osprey Nesting, Foraging and Perching Habitat					Not Present	Not Present
<u>Rationale:</u> Nest sites are fairly uncommon in Eco-region 6E are used annually by these species. Many suitable nesting locations may be lost due to increasing shoreline development pressures and scarcity of habitat.	Osprey <u>Special Concern:</u> Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree’s canopy. • Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms). <u>Information Sources</u> • Natural Heritage Information Center (NHIC) compiles all known nesting sites for Bald Eagles in Ontario. • MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat. • Nature Counts, Ontario Nest Records Scheme data. • OMNRF Districts • Sustainable Forestry License (SFL) companies will identify additional nesting locations through field operations. • Check the Ontario Breeding Bird Atlas ^{ccv} or Rare Breeding Birds in Ontario for species documented • Reports and other information available from CAs. • Field naturalists clubs	Studies confirm the use of these nests by: • One or more active Osprey or Bald Eagle nests in an area ^{cxlviii} . • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300m radius around the nest or the contiguous woodland stand is the SWHccvii, maintaining undisturbed shorelines with large trees within this area is important ^{cxlviii} . • For a Bald Eagle the active nest and a 400-800m radius around the nest is the SWH ^{cv} , ccvii. Area of the habitat from 400-800m is dependent on site lines from the nest to the development and inclusion of perching and foraging habitat ^{cv} . • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant ^{ccvii} • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid March to mid August. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMiST ^{cxlix} Index #26 provides development effects and mitigation measures	No forested shorelines present on subject property or in study area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Woodland Raptor Nesting Habitat					Not Present	Not Present
<u>Rationale:</u> Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	All natural or conifer plantation woodland/forest stands >30ha with >10ha of interior habitat ^{bxxviii, bxxix, xc, xci, xciii, xciv, xcv, xcvi, cxxxiii} . Interior habitat determined with a 200m buffer ^{cxlviii} . • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Cooper's hawk nest along forest edges sometimes on peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest. <u>Information Sources</u> • OMNRF • Check the Ontario Breeding Bird Atlas ^{ccv} or Rare Breeding Birds in Ontario for species documented. • Check data from Bird Studies Canada • Reports and other information available from CAs	Studies confirm: • Presence of 1 or more active nests from species list is considered significant ^{cxlviii} . • Red-shouldered Hawk and Northern Goshawk – a 400m radius around the nest or 28ha area of habitat is the SWH ^{ccvii} . • Barred Owl – a 200m radius around the nest is the SWH ^{ccvii} . • Broad-winged Hawk and Coopers Hawk – a 100m radius around the nest is the SWH ^{ccvii} . • Sharp-shinned Hawk – a 50m radius around the nest is the SWH ^{ccvii} . • Conduct field investigations from mid-March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • SWHMiST ^{cxlix} Index #27 provides development effects and mitigation measures.	No large woodland/forest present on subject property or in study area.	
Wildlife Habitat: Turtle Nesting Area					Not Present	Not Present
<u>Rationale:</u> These habitats are rare and when identified will often be the only breeding site for local populations of turtles	Midland Painted Turtle <u>Special Concern:</u> Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100m) ^{cxlviii} or within the following ELC Ecosites: MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used. <u>Information Sources</u> • Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). • Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. • Natural Heritage Information Center (NHIC) • Field Naturalist clubs and landowners	Studies confirm: • Presence of 5 or more nesting Midland Painted Turtles • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH ⁱ • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH ^{cxlviii} . • Travel routes from wetland to nesting area are to be considered within the SWH ^{cxlix} . • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • SWHMiST ^{cxlix} Index #28 provides development effects and mitigation measures for turtle nesting habitat.	No suitable natural wetlands on subject property or study area.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Seeps and Springs					Not Present	Not Present
<u>Rationale:</u> Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamander spp.	Seeps/Springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	Any forested area (with <25% meadow/field/pasture) within the headwaters of a stream or river system ^{cxvii, cxlix} • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species ^{cxix, cxx, cxxi, cxxii, cxiii, cxiv} <u>Information Sources</u> • Topographical Map • Thermography • Hydrological surveys conducted by CAs and MOE • Field naturalists clubs and landowners • Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped.	Field Studies confirm: • Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat ^{cxlviii} • SWHMiST ^{cxlix} Index #30 provides development effects and mitigation measures	No forested areas with seeps/springs on the subject property or within the study area.	
Wildlife Habitat: Amphibian Breeding Habitat (Woodland)					Not Present	Possible
<u>Rationale:</u> These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500m ² (about 25m diameter) within or adjacent (within 120m) to a woodland (no minimum size) ^{cxvii} Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat ^{cxlviii} <u>Information Sources</u> • Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records • Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. • OMNRF District • OMNRF wetland evaluations • Field naturalist clubs • Canadian Wildlife Service Amphibian Road Call Survey • Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) ^{lxxi} or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys ^{cviii} will be required during the spring March-June when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the woodland area plus a 230m radius of woodland area ^{lxxii,lxx, lxxi, lxxv, lxxvi, lxxvii, lxxviii, lxx, lxxi} if a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is the be included in the habitat. • SWHMiST ^{cxlix} Index #14 provides development effects and mitigation measures.	On-site wetland is >500m2 in size and within 120m of FOD5 and may possibly contain gray treefrog, spring peeper and/or wood frog, although a high abundance is unlikely due to the lack of permanent water. Wetland is retained and a link provided to the FOD5 community.	

Table 3. Characteristics of Specialized Wildlife Habitat for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH	Assessment Details	
	Wildlife Species	ELC Ecosite Codes	Habitat Criteria and Information Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Breeding Habitat (Wetland)					Not Present	Not Present
<u>Rationale:</u> These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Tree frog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bull Frog) may be adjacent to woodlands.	<ul style="list-style-type: none">Wetlands >500m2 (about 25m diameter)^{ccvii} supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats^{clxxxiv}.Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators.Bullfrogs require permanent water bodies with abundant emergent vegetation. <u>Information Sources</u> <ul style="list-style-type: none">Ontario Herpetofaunal Summary Atlas (or other similar atlases)Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count.OMNRF Districts and wetland evaluationsReports and other information available from CAs.	<p>Studies confirm:</p> <ul style="list-style-type: none">Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species and with at least 20 individuals (adults or eggs masses)^{lxxi, lxxiii}, or 2 or more of the listed frog/toad species with Call Level Codes of 3. or; Wetland with confirmed breeding Bullfrogs are significant.The ELC ecosite wetland area and the shoreline are the SWH.A combination of observational study and call count surveys^{cviii} will be required during spring March to June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands.If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule.SWHMiST^{cxlix} Index #15 provides development effects and mitigation measures.	No isolated wetlands present on the subject property or adjacent study area lands.	
Woodland Area-Sensitive Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	Yellow-Bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Special Concern: Cerulean Warbler Canada Warbler	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	<ul style="list-style-type: none">Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha.^{cv, cxxxi, cxoxii, cxoxiii, cxoxiv, cxoxv, cxoxvi, cxoxvii, cxoxviii, cxoxix, cxi, cxli, cxlii, cxliii, cxliv, cxlv, cxlvi, cli, clii, cliii, cliv, clv, clvii, clviii, clix}Interior forest habitats are at least 200m from forest edge habitat. <u>Information Sources</u> <ul style="list-style-type: none">Local bird clubsCanadian Wildlife Service (CWS) for the location of forest bird monitoring.Bird studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to greatest value to interior speciesReports and other information available from CAs.	<ul style="list-style-type: none">Presence of nesting or breeding pairs of 3 or more of the listed wildlife species.Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH.Conduct field investigations in spring and early summer when birds are singing and defending their territories.Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects"^{wccxi}SWHMiST^{cxlix} Index #34 provides development effects and mitigation measures.	No forests with interior habitat are present on the subject property or within the study area.	

Significant Wildlife Habitat Assessment Tables

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	ELC Ecosites	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Marsh Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Sandhill Crane Green Heron Trumpeter Swan <u>Special Concern:</u> Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: All SW, MA and CUM1 sites.	<ul style="list-style-type: none">• Nesting occurs in wetlands• All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present^{cxixiv}.• For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water. <u>Information Sources</u> <ul style="list-style-type: none">• Contact OMNRF, wetland evaluations are a good source of information.• Field naturalist clubs• Natural Heritage Information Center (NHIC) Records• Reports and other information available from CAs.• Ontario Breeding Bird Atlas^{ccv}	Studies confirm: <ul style="list-style-type: none">• Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or 1 pair of Sandhill Cranes; or breeding by any combination of 5 or more of the listed speciesⁱ.• Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWHⁱ.• Area of the ELC ecosite is the SWH• Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats.• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”^{ccxi}.• SWHMiST^{cxlix} Index #35 provides development effects and mitigation measures	No wetlands with emergent aquatic vegetation are on-site or in study area.	
Wildlife Habitat: Open Country Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow <u>Special Concern:</u> Short-eared Owl	CUM1 CUM2	<p>Large grassland areas (includes natural and cultural fields and meadows) >30 ha^{clx, clxi, clxii, clxiii, clxiv, clxv, clxvi, clxvii, clxviii, clxix}. Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years)ⁱ.</p> <p>Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.</p> <p>The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.</p> <u>Information Sources</u> <ul style="list-style-type: none">• Agricultural land classification maps, Ministry of Agriculture.• Ask local birders• Ontario Breeding Bird Atlas^{ccv}• Reports and other information available from CAs.	Field Studies confirm: <ul style="list-style-type: none">• Presence of nesting or breeding of 2 or more of the listed species.• A field with 1 or more breeding Short-eared Owl is to be considered SWH.• The area of SWH is the contiguous ELC ecosite field areas.• Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories.• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”^{ccxi}.• SWHMiST^{cxlix} Index #32 provides development effects and mitigation measures.	No large grassland areas present on-site or in the study area.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	ELC Ecosites	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Shrub/Early Successional Bird Breeding Habitat					Not Present	Not Present
<u>Rationale:</u> This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records cxcix.	<u>Indicator spp.:</u> Brown Thrasher Clay-coloured Sparrow <u>Common spp.:</u> Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher <u>Special Concern:</u> Yellow-breasted Chat Golden-winged Warbler	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	Large field areas succeeding to shrub and thicket habitats>10ha ^{clxiv} in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) ⁱ . Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species ^{clxxiii} . Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands. <u>Information Sources</u> • Agricultural land classification maps Ministry of Agriculture Local bird clubs • Ontario Breeding Bird Atlas ^{ccv} • Reports and other information available from CAs	Field Studies confirm: • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species ⁱ . • A field with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as Significant Wildlife Habitat. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects” ^{ccxi} • SWHMiST ^{cxlix} Index #33 provides development effects and mitigation measures.	No successional shrub and thicket habitats on-site or in the study area.	
Wildlife Habitat: Terrestrial Crayfish					Not Present	Not Present
<u>Rationale:</u> Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare. ^{ccii}	Chimney or Digger Crayfish: (<i>Fallicambarus fodiens</i>) Devil Crawfish or Meadow Crayfish: (<i>Cambarus Diogenes</i>)	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	Wet meadow and edges of shallow marshes (no minimum size) identified should be surveyed for terrestrial crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water. • Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed. <u>Information Sources</u> • Information sources from “Conservation Status of Freshwater Crayfishes” by Dr. Premek Hamr for the WWF and CNF March 1998	Studies Confirm: • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable marsh meadow or terrestrial sites ^{cci} • Area of ELC Ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH • Surveys should be done April to August during in temporary or permanent water Note the presence of burrows or chemistry are often the only indicator of presence, observance or collection of individuals is very difficult ^{cci} • SWHMiST ^{cxlix} Index #36 provides development effects and mitigation measures.	No suitable wetlands present on-site or in study area. Soils on-site are granular and contain stones, cobbles - not suitable for burrows.	

Table 4. Characteristics of Habitat for Species of Conservation Concern for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	ELC Ecosites	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Special Concern and Rare Wildlife Species					Candidate	Not Present
<u>Rationale:</u> These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the Natural Heritage Information Centre.	All plant and animal element occurrences (EO) within a 1 or 10km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites ^{lxviii} . <u>Information Sources</u> <ul style="list-style-type: none">• Natural Heritage Information Centre (NHIC) will have the Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data.• NHIC Website: "Get Information": http://nhic.mnr.gov.on.ca• Ontario Breeding Bird Atlas^{ccv}• Expert advice should be sought as many of the rare spp. have little information available about their requirements.	Studies Confirm: <ul style="list-style-type: none">• Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable.• The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs to be easily mapped and cover an important life stage component for a species e.g. specific nesting habitat or foraging habitat.• SWHMiST^{cxlix} Index #37 provides development effects and mitigation measures.	Special concern species Eastern Wood Pewee has been documented in the study area (Aboud 2014) and the adjacent FOD provides suitbale breeding habitat.	

Significant Wildlife Habitat Assessment Tables

Table 5. Characteristics of Animal Movement Corridors for Ecoregion 6E.

Rationale	Candidate SWH			Confirmed SWH		
	Wildlife Species	Habitat Description	Detailed Information and Sources	Defining Criteria	Study Area	Subject Property
Wildlife Habitat: Amphibian Movement Corridors					Not Present	Possible
Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. • Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	Movement corridors between breeding habitat and summer habitat ^{clxxiv, clxxv, clxxvi, clxxvii, clxxviii, clxxix, clxxx, clxxxi} . Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat – Wetland) of this Schedule ^l . <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center NHIC • Reports and other information available from CAs • Field Naturalist Clubs	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant ^{cxlix} . • Corridors should have at least 15m of vegetation on both sides of waterway ^{cxlix} or be up to 200m wide ^{cxlix} of woodland habitat and with gaps <20m ^{cxlix} . • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat ^{cxlix} . • SWHMiST ^{cxlix} Index #40 provides development effects and mitigation measures.	Amphibian breeding habitat is possibly present in the on-site wetlands. A movement corridor may exist between the wetlands and the woodland on adjacent lands. Wetland, woodland and corridor are retained.	
Wildlife Habitat: Deer Movement Corridors					Not Present	Not Present
Rationale: Corridors important for all species to be able to access seasonally important life-cycle habitats or to access new habitat for dispersing individuals by minimizing their vulnerability while travelling.	White-tailed Deer	Corridors may be found in all forested ecosites. A Project Proposal in Stratum II Deer Wintering Area has potential to contain corridors.	Movement corridor must be determined when Deer Wintering Habitat is confirmed as SWH from Table 1.1 of this schedule ^l . • A deer wintering habitat identified by the OMNRF as SWH in Table 1.1 of this Schedule will have corridors that the deer use during fall migration and spring dispersion ^{clxxxii, clxxxiii, cxlix, cxliv} . • Corridors typically follow riparian areas, woodlots, areas of physical geography (ravines, or ridges). <u>Information Sources</u> • MNRF District Office • Natural Heritage Information Center (NHIC) • Reports and other information available from CAs • Field Naturalist Clubs	• Studies must be conducted at the time of year when deer are migrating or moving to and from winter concentration areas. • Corridors that lead to a deer wintering yard should be unbroken by roads and residential areas. • Corridors should be at least 200m wide ^{cxlix} with gaps <20m ^{cxlix} and if following riparian area with at least 15m of vegetation on both sides of waterway ^{cxlix} . Shorter corridors are more significant than longer corridors ^{cxlix} . • SWHMiST ^{cxlix} Index #39 provides development effects and mitigation measures.	Deer wintering habitat is not present.	

Significant Wildlife Habitat Assessment Tables

Table 6. Exceptions for Ecodistricts within Ecoregion 6E.

Rationale	Candidate SWH				Confirmed SWH	Assessment Details	
	Wildlife Habitat and Species	Ecosites	Habitat Description	Habitat Criteria and Information Sources ¹	Defining Criteria ¹	Study Area	Subject Property
EcoDistrict: 6E-14							Not Present
<u>Rationale:</u> The Bruce Peninsula has an isolated and distinct population of black bears. Maintenance of large woodland tracks with mast producing tree species is important for bears. ^{clxxxvi, ccxvii}	Mast Producing Areas Black Bear	All Forested habitat represented by ELC Community Series: FOM FOD	<ul style="list-style-type: none">Black bears require forested habitat that provides cover, winter hibernation sites, and mast producing tree species. ^{clxxxv, clxxxvii, clxxxviii, clxxxix, cxc, cxci, cxcii, cxci, ccxvii}Forested habitats need to be large enough to provide cover and protection for black bears ^{ccxvii.}	Woodland ecosites >30ha with mast-producing tree species, either soft (cherry) or hard (oak and beech), Information Sources Important forest habitat for black bears may be identified by OMNRF.	<ul style="list-style-type: none">All woodlands > 30 ha with a 50% composition of these ELC Vegetation Types are considered significant: FOM1-1 FOM2-1 FOM3-1 FOD1-1 FOD1-2 FOD2-1 FOD2-2 FOD2-3 FOD2-4 FOD4-1 FOD5-2 FOD5-3 FOD5-7 FOD6-5SWHMiST ^{cxlix} Index #3 provides development effects and mitigation measures.	NA	Not Present
EcoDistrict: 6E-17							Not Present
<u>Rationale:</u> Sharp-tailed grouse only occur on Manitoulin Island in Ecoregion 6E, Leks are an important habitat to maintain their population	Lek Sharp-tailed Grouse	CUM CUS CUT	<ul style="list-style-type: none">The lek or dancing ground consists of bare, grassy or sparse shrubland. There is often a hill or rise in topography^{ccxix}.Leks are typically a grassy field/meadow >15h with adjacent shrublands and >30ha with adjacent deciduous woodland. Conifer trees within 500m are not tolerated. ^{ccxix}	Grasslands (field/meadow) are to be >15ha when adjacent to shrubland and >30ha when adjacent to deciduous woodland ^{ccxix} . <ul style="list-style-type: none">Grasslands are to be undisturbed with low intensities of agriculture (light grazing or late haying)Leks will be used annually if not destroyed by cultivation or invasion by woody plants or tree planting^{ccxix} Information Sources <ul style="list-style-type: none">OMNRF district officeBird watching clubsLocal landownersOntario Breeding Bird Atlas	Studies confirming lek habitat are to be completed from late March to June. <ul style="list-style-type: none">Any site confirmed with sharp-tailed grouse courtship activities is considered significantThe field/meadow ELC ecosites plus a 200 m radius area with shrub or deciduous woodland is the lek habitatSWHMiST ^{cxlix} Index #32 provides development effects and mitigation measures	NA	Not Present

Appendix II
Plant Species List

Plant Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Wellington County*	Aboud & Associates (2014)	NHIC Data*	NRSI Observed
		NDMNR 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	Dougan & Associates 2009	Citation	NDMNR 2022	NRSI Results From 2022
Pteridophytes	Ferns & Allies									
Equisetaceae	Horsetail Family									
<i>Equisetum pratense</i>	Meadow Horsetail	S5					R	X		
Gymnosperms	Conifers									
Cupressaceae	Cypress Family									
<i>Thuja occidentalis</i>	Eastern White Cedar	S5						X		X
Pinaceae	Pine Family									
<i>Picea abies</i>	Norway Spruce	SE3								X
<i>Picea glauca</i>	White Spruce	S5						X		X
<i>Picea pungens</i>	Blue Spruce	SE1								X
<i>Pinus strobus</i>	Eastern White Pine	S5								X
<i>Pinus sylvestris</i>	Scots Pine	SE5						X		X
<i>Tsuga canadensis</i>	Eastern Hemlock	S5								X
Dicotyledons	Dicots									
Aceraceae	Maple Family									
<i>Acer negundo</i>	Manitoba Maple	S5						X		X
<i>Acer saccharinum</i>	Silver Maple	S5						X		
<i>Acer saccharum</i>	Sugar Maple	S5								X
Anacardiaceae	Sumac or Cashew Family									
<i>Rhus typhina</i>	Staghorn Sumac	S5						X		X
Apiaceae	Carrot or Parsley Family									
<i>Daucus carota</i>	Wild Carrot	SE5						X		X
Asclepiadaceae	Milkweed Family									
<i>Asclepias syriaca</i>	Common Milkweed	S5						X		
Asteraceae	Composite or Aster Family									
<i>Achillea millefolium</i>	Common Yarrow	SE5?								X
<i>Arctium minus</i>	Common Burdock	SE5						X		
<i>Cirsium arvense</i>	Creeping Thistle	SE5						X		
<i>Erigeron annuus</i>	Annual Fleabane	S5						X		X
<i>Erigeron philadelphicus</i>	Philadelphia Fleabane	S5						X		
<i>Eupatorium perfoliatum</i>	Common Boneset	S5						X		
<i>Euthamia graminifolia</i>	Grass-leaved Goldenrod	S5								X
<i>Hieracium vulgatum</i>	Common Hawkweed	SE2?								X
<i>Solidago canadensis</i>	Canada Goldenrod	S5								X
<i>Solidago flexicaulis</i>	Zigzag Goldenrod	S5								X
<i>Solidago nemoralis</i>	Gray-stemmed Goldenrod	S5								X
<i>Sonchus arvensis</i> ssp. <i>arvensis</i>	Glandular Field Sow-thistle	SE5						X		
<i>Sonchus asper</i>	Prickly Sow-thistle	SE5								X
<i>Symphyotrichum boreale</i>	Rush Aster	S5						X		
<i>Symphyotrichum novae-angliae</i>	New England Aster	S5						X		X
<i>Symphyotrichum puniceum</i>	Swamp Aster	S5						X		
<i>Tanacetum vulgare</i>	Common Tansy	SE5						X		
<i>Taraxacum officinale</i>	Common Dandelion	SE5						X		
<i>Tragopogon pratensis</i>	Meadow Goat's-beard	SE5						X		
<i>Tussilago farfara</i>	Colt's-foot	SE5								X
Betulaceae	Birch Family									
<i>Betula papyrifera</i>	Paper Birch	S5						X		X
<i>Ostrya virginiana</i>	Eastern Hop-hornbeam	S5								X
Boraginaceae	Borage Family									
<i>Echium vulgare</i>	Common Viper's Bugloss	SE5								X
<i>Myosotis scorpioides</i>	True Forget-me-not	SE5						X		
Brassicaceae	Mustard Family									
<i>Alliaria petiolata</i>	Garlic Mustard	SE5						X		
Caprifoliaceae	Honeysuckle Family									
<i>Lonicera tatarica</i>	Tatarian Honeysuckle	SE5						X		X
<i>Viburnum opulus</i> var. <i>americanum</i>	Highbush Cranberry	S5						X		
Caryophyllaceae	Pink Family									
<i>Silene vulgaris</i>	Bladder Campion	SE5						X		
Cornaceae	Dogwood Family									

<i>Cornus alternifolia</i>	Alternate-leaved Dogwood	S5						X		X
<i>Cornus sericea</i>	Red-osier Dogwood	S5						X		X
Cucurbitaceae	Gourd Family									
<i>Echinocystis lobata</i>	Wild Mock-cucumber	S5						X		
Elaeagnaceae	Oleaster Family									
<i>Elaeagnus angustifolia</i>	Russian Olive	SE3								X
Fabaceae	Pea Family									
<i>Glycine max</i>	Soy Bean	SE2						X		
<i>Medicago lupulina</i>	Black Medic	SE5						X		
<i>Medicago sativa</i>	Alfalfa	SE5								X
<i>Medicago albus</i>	White Sweet-clover	SE5								X
<i>Trifolium pratense</i>	Red Clover	SE5								X
<i>Vicia cracca</i>	Tufted Vetch	SE5								X
Grossulariaceae	Currant Family									
<i>Ribes triste</i>	Swamp Red Currant	S5						X		
Juglandaceae	Walnut Family									
<i>Carya cordiformis</i>	Bitternut Hickory	S5								X
<i>Juglans nigra</i>	Black Walnut	S4?								X
Lamiaceae	Mint Family									
<i>Leonurus cardiaca</i>	Common Motherwort	SE5						X		
<i>Lycopus americanus</i>	American Water-horehound	S5						X		
<i>Mentha canadensis</i>	Canada Mint	S5						X		
Oleaceae	Olive Family									
<i>Fraxinus americana</i>	White Ash	S4						X		X
Onagraceae	Evening-primrose Family									
<i>Circaea canadensis</i> ssp. <i>canadensis</i>	Canada Enchanter's Nightshade	S5						X		
<i>Oenothera parviflora</i>	Small-flowered Evening-primrose	S5								X
Oxalidaceae	Wood Sorrel Family									
<i>Oxalis stricta</i>	Upright Yellow Wood-sorrel	SE5						X		
Papaveraceae	Poppy Family									
<i>Chelidonium majus</i>	Greater Celandine	SE5						X		
Plantaginaceae	Plantain Family									
<i>Plantago lanceolata</i>	English Plantain	SE5								X
Polygonaceae	Smartweed Family									
<i>Rumex crispus</i>	Curly Dock	SE5								X
Ranunculaceae	Buttercup Family									
<i>Anemonastrum canadense</i>	Canada Anemone	S5						X		
<i>Ranunculus acris</i>	Tall Buttercup	SE5						X		
<i>Ranunculus pensylvanicus</i>	Pennsylvania Buttercup	S5						X		
Rhamnaceae	Buckthorn Family									
<i>Endotropis alnifolia</i>	Alder-leaved Buckthorn	S5						X		
<i>Frangula alnus</i>	Glossy Buckthorn	SE5								x
<i>Rhamnus cathartica</i>	Common Buckthorn	SE5						X		X
Rosaceae	Rose Family									
<i>Crataegus</i> sp.	Hawthorn sp.									X
<i>Fragaria vesca</i>	Woodland Strawberry	S5						X		
<i>Fragaria virginiana</i>	Wild Strawberry	S5						X		X
<i>Geum laciniatum</i>	Rough Avens	S4					R	X		
<i>Malus pumila</i>	Common Apple	SE4						X		
<i>Physocarpus opulifolius</i>	Eastern Ninebark	S5								X
<i>Potentilla recta</i>	Sulphur Cinquefoil	SE5						X		
<i>Prunus avium</i>	Sweet Cherry	SE4								X
<i>Prunus serotina</i>	Black Cherry	S5						X		X
<i>Prunus virginiana</i>	Choke Cherry	S5						X		
<i>Rubus idaeus</i> ssp. <i>strigosus</i>	Wild Red Raspberry	S5						X		X
Rubiaceae	Madder Family									
<i>Galium asprellum</i>	Rough Bedstraw	S5						X		
<i>Galium palustre</i>	Marsh Bedstraw	S5						X		
Salicaceae	Willow Family									
<i>Populus alba</i>	White Poplar	SE5						X		
<i>Populus balsamifera</i>	Balsam Poplar	S5						X		X
<i>Populus deltoides</i>	Eastern Cottonwood	S5								X
<i>Populus tremuloides</i>	Trembling Aspen	S5						X		X
<i>Salix amygdaloides</i>	Peach-leaved Willow	S5						X		
<i>Salix eriocephala</i>	Heart-leaved Willow	S5						X		X
<i>Salix interior</i>	Sandbar Willow	S5								X
Scrophulariaceae	Figwort Family									

<i>Linaria vulgaris</i>	Butter-and-eggs	SE5						X		
<i>Verbascum thapsus</i>	Common Mullein	SE5								X
Solanaceae	Nightshade Family									
<i>Solanum dulcamara</i>	Bittersweet Nightshade	SE5						X		X
Tiliaceae	Linden Family									
<i>Tilia americana</i>	American Basswood	S5								X
Ulmaceae	Elm Family									
<i>Ulmus americana</i>	American Elm	S5						X		X
Vitaceae	Grape Family									
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	S4?						X		
<i>Parthenocissus vitacea</i>	Thicket Creeper	S5						X		
<i>Vitis riparia</i>	Riverbank Grape	S5						X		X
Monocotyledons	Monocots									
Cyperaceae	Sedge Family									
<i>Carex bebbii</i>	Bebb's Sedge	S5						X		
<i>Carex torreyi</i>	Torrey's Sedge	S2						X		
<i>Carex viridula</i>	Greenish Sedge	S5						X		
Poaceae	Grass Family									
<i>Bromus inermis</i>	Smooth Brome	SE5						X		X
<i>Dactylis glomerata</i>	Orchard Grass	SE5						X		X
<i>Elymus trachycaulus</i>	Slender Wildrye	S5						X		
<i>Miscanthus sinensis</i>	Chinese Silver Grass									X
<i>Phalaris arundinacea</i>	Reed Canary Grass	S5						X		X
<i>Phragmites australis ssp. australis</i>	European Reed	SE5								X
<i>Poa pratensis</i>	Kentucky Bluegrass	S5						X		X
Typhaceae	Cattail Family									
<i>Typha latifolia</i>	Broad-leaved Cattail	S5						X		
TOTAL								75	0	62

*NHIC Atlas Square(s): 17NJ6912

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Oct 14/22

2984 Wellington

EG

Motor Freight

10-1230

5°C overcast, breezy

blue jay

black-b. vireo

woodland at back of property

g. kinglet

- on a hill, steep undulating

r. t. hawk

topography, complex

Am. crow

- appears to be grading on site

cardinal

- to rear fence line, still fence along

Am. robin

woodland edge (old)

red-b. woodpecker

- woods are rocky.

m. dove

- large bitterroot, hickory, sugar maple, beech

scattered, buckthorn down in understory

- dead ash in canopy + subcanopy

- mixed composition, lots of variability, open

areas, aspen stands, etc.

- no woodland within 30m of subject property

to East of property

wet spot in ag field - not woodland, cultivated

see photo.

FIELD (S)



wellington motor freight -
wetlands

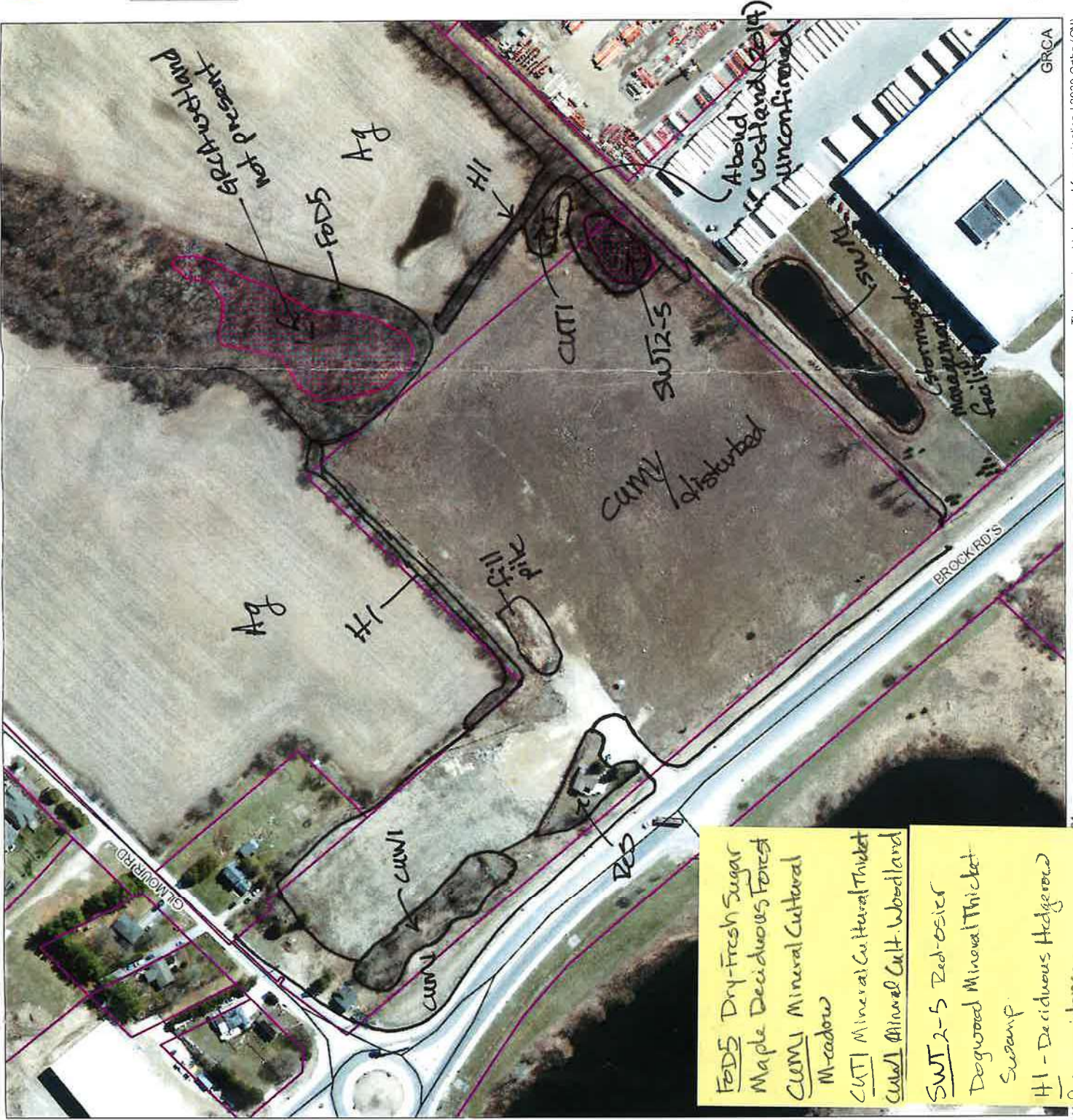
2984

Legend

- Regulation Limit (GRCA)
 - Regulated Watercourse (GRCA)
 - Wetland (GRCA)
 - Floodplain (GRCA)
 - Engineered
 - Estimated
 - Approximate
 - Special Policy Area
 - Slope Valley (GRCA)
 - Slope
 - Oversteep
 - Steep
 - Slope Erosion (GRCA)
 - Oversteep
 - Toe
 - Lake Erie Flood (GRCA)
 - Lake Erie Shoreline Reach (GRCA)
 - Lake Erie Dynamic Beach (GRCA)
 - Lake Erie Erosion (GRCA)
 - Parcel - Assessment (MPAC/MNRF)
- This legend is static and may not fully reflect the layers shown on the map. The text of Ontario Regulation 150/06 supercedes the mapping as represented by these layers.

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Disclaimer: This map is for illustrative purposes only. Information contained herein is not a substitute for professional review or a site survey and is subject to change without notice. The Grand River Conservation Authority takes no responsibility for, nor guarantees, the accuracy of the information contained on this map. Any interpretations or conclusions drawn from this map are the sole responsibility of the user.
The source for each data layer is shown in parentheses in the map legend. For a complete listing of sources and citations go to <https://maps.grandriverconservationauthority.com/Citations.pdf>

Scale: 2:779
N
0 15 30 60 90 Meters
NAD 1983 UTM Zone 17N



FODS Dry-Fresh Sugar
Maple Deciduous Forest
CWT1 Mineral Cultural
Meadow
CWT1 Mineral Cultural Thicket
CWT1 Mineral Cult. Woodland
SWT2-5 Red-osier
Disturbed Mineral Thicket
Swamp
H1 - Deciduous Hedgerow
RGS - Residence
Ag - Agricultural Field

NATURAL RESOURCE SOLUTIONS INC

Modified ELC Community Description

Page ___ of ___

Site: 2984 Wellington Motorway Jct

Polygon: 

UTM: _____

Date: 09/14/22 Time: 10-1230

Surveyor(s): E. Gossnell

Weather: 50% overcast

Community Classification

Vegetation Type: FDS

Inclusion: _____

Complex: _____

System		Substrate	Topo Feature	Community
<input checked="" type="checkbox"/> Terrestrial	<input checked="" type="checkbox"/> Organic	Lacustrine	Talus	Lake
<input type="checkbox"/> Wetland	<input checked="" type="checkbox"/> Mineral Soil	Riverine	Crevices/Cave	Pond
<input type="checkbox"/> Aquatic	<input type="checkbox"/> Parent Mn.	Bottomland	Alvar	River
	<input type="checkbox"/> Acidic Bedrock	Terrace	Rockland	Stream
	<input type="checkbox"/> Basic Bedrock	Valley Slope	Beachbar	Marsh
	<input checked="" type="checkbox"/> Carb. Bedrock	Tableland	Sand Dune	Swamp
	<input type="checkbox"/> Crib	Rock Upland	Bluff	Fen
	<input type="checkbox"/> Cliff			Bog
	<input type="checkbox"/> Plant Form			Coniferous
<input type="checkbox"/> Open	<input type="checkbox"/> Open Water	Random	Forb	Mixed
<input type="checkbox"/> Shrub	<input type="checkbox"/> Shallow Water	Submerged	Lichen	
<input checked="" type="checkbox"/> Tree	<input checked="" type="checkbox"/> Surficial Dep.	Floating-Lvld.	Bryophyte	
	<input type="checkbox"/> Bedrock	Graminoid	Deciduous	
	<input type="checkbox"/> Site			
	<input type="checkbox"/> Open Water			
	<input type="checkbox"/> Shallow Water			
	<input checked="" type="checkbox"/> Surficial Dep.			
	<input type="checkbox"/> Bedrock			

Stand Description

Layer	HT	Cover	Species
• Super-canopy			
1 Canopy	2	4	bitternut hickory, sugar maple
2 Sub-canopy	3	3	sugar maple, buckthorn, w. ash
3 Understorey	3	4	buckthorn
4 Groundcover	6	3	buckthorn, leucosceles

HT Codes: 1: >25m 2: 25-10m 3: 10-2m 4: 2-1m 5: 1-0.5m 6: 0.5-0.2m 7: <0.2m

Cover Codes: 0: none 1: 0-10% 2: 10-25 3: 25-50% 4: >50%

Size Class Analysis	A	< 10	10-24	25-50	> 50
Snags	0	< 10	0	25-50	0
Deadfall Logs	0	< 10	0	25-50	0

Abundance Codes: N: None R: Rare O: Occasional A: Abundant

Community Age	Pioneer	Young	Mid-age	Mature	Old Growth

Page ____ of ____

Site:	
Polygon:	
JTM:	
Date:	Time:
Surveyor(s):	
Weather:	

Layers: 1=canopy 2=sub-canopy 3=understorey 4=ground layer

Abundance Codes: R=rare O=occasional A=abundant D=dominant

Abundance Codes:	Rare / Occasional / Abundant				Sample
	1	2	3	4	
Species					
hill out broken					
swampy					
bed channel					
with elbow					
with ash					
framing a square					
black oak					
buried					
immersed					
can't lock					
it had damaged					
hickory					
hazelnut					
blackberry					
red in ground					

Copy:

Wildlife and Other Notes

grey squirrel
dec (skull)

Polygon Photo Number(s)

Appendix III
Bird Species List

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Aboud and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Aboud 2014	BSC et al. 2006	MNRF 2022	NRSI Results from 2022
Anatidae	Ducks, Geese & Swans									
<i>Aix sponsa</i>	Wood Duck	S5B,S3N						CO		
<i>Anas platyrhynchos</i>	Mallard	S5						CO		
<i>Anas rubripes</i>	American Black Duck	S4						CO		
<i>Branta canadensis</i>	Canada Goose	S5						CO		
Phasianidae	Partridges, Grouse & Turkeys									
<i>Bonasa umbellus</i>	Ruffed Grouse	S5						CO		
<i>Meleagris gallopavo</i>	Wild Turkey	S5					PR	PO		
Podicipediformes	Grebes									
<i>Podilymbus podiceps</i>	Pied-billed Grebe	S4B,S2N						PO		
Columbidae	Pigeons & Doves									
<i>Columba livia</i>	Rock Pigeon	SNA						CO		
<i>Zenaidura macroura</i>	Mourning Dove	S5					PO	CO		OB
Cuculiformes	Cuckoos & Anis									
<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo	S4S5B						PO		
<i>Coccyzus sp.</i>	Black/Yellow-billed Cuckoo	NP						PO		
Caprimulgidae	Goatsuckers									
<i>Chordeiles minor</i>	Common Nighthawk	S4B	SC	SC	T	Schedule 1		PO		
Apodidae	Swifts									
<i>Chaetura pelagica</i>	Chimney Swift	S3B	THR	T	T	Schedule 1		PO		
Trochilidae	Hummingbirds									
<i>Archilochus colubris</i>	Ruby-throated Hummingbird	S5B						CO		
Rallidae	Rails, Gallinules & Coots									
<i>Porzana carolina</i>	Sora	S5B						PR		
<i>Rallus limicola</i>	Virginia Rail	S4S5B						PR		
Charadriidae	Plovers & Lapwings									
<i>Charadrius vociferus</i>	Killdeer	S4B						CO		
Scolopacidae	Sandpipers & Allies									
<i>Actitis macularia</i>	Spotted Sandpiper	S5B						PR		
<i>Gallinago delicata</i>	Wilson's Snipe	S5B						PO		
<i>Scolopax minor</i>	American Woodcock	S4B						PR		
Ardeidae	Hérons & Bitterns									
<i>Ardea herodias</i>	Great Blue Heron	S4						PO		
<i>Botaurus lentiginosus</i>	American Bittern	S5B						PR		
<i>Butorides virescens</i>	Green Heron	S4B						PR		
Cathartidae	Vultures									
<i>Cathartes aura</i>	Turkey Vulture	S5B,S3N						PR		
Accipitridae	Hawks, Kites, Eagles & Allies									
<i>Accipiter cooperii</i>	Cooper's Hawk	S4	NAR	NAR	NS	No schedule		CO		
<i>Accipiter striatus</i>	Sharp-shinned Hawk	S5	NAR	NAR	NS	No schedule		PO		
<i>Buteo jamaicensis</i>	Red-tailed Hawk	S5	NAR	NAR	NS	No schedule		CO		OB
<i>Buteo platypterus</i>	Broad-winged Hawk	S5B						PR		
Strigidae	Typical Owls									
<i>Asio otus</i>	Long-eared Owl	S4						PR		
<i>Bubo virginianus</i>	Great Horned Owl	S4						CO		
<i>Megascops asio</i>	Eastern Screech-Owl	S4	NAR	NAR	NS	No schedule		PR		

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Aboud and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
Alcedinidae	Kingfishers									
<i>Megaceryle alcyon</i>	Belted Kingfisher	S5B,S4N						PR		
Picidae	Woodpeckers									
<i>Colaptes auratus</i>	Northern Flicker	S5					PR	CO		
<i>Dryobates pubescens</i>	Downy Woodpecker	S5						CO		
<i>Dryobates villosus</i>	Hairy Woodpecker	S5						PR		
<i>Dryocopus pileatus</i>	Pileated Woodpecker	S5						CO		
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	S5						PR		OB
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3	END	E	E	Schedule 1		PR		
Falconidae	Caracaras & Falcons									
<i>Falco sparverius</i>	American Kestrel	S4						CO		
Tyrannidae	Tyrant Flycatchers									
<i>Contopus virens</i>	Eastern Wood-Pewee	S4B	SC	SC	SC	Schedule 1	PO	PR		
<i>Empidonax alnorum</i>	Alder Flycatcher	S5B						PR		
<i>Empidonax minimus</i>	Least Flycatcher	S5B						PO		
<i>Empidonax traillii</i>	Willow Flycatcher	S4B						PR		
<i>Myiarchus crinitus</i>	Great Crested Flycatcher	S5B					PO	CO		
<i>Sayornis phoebe</i>	Eastern Phoebe	S5B						CO		
<i>Tyrannus tyrannus</i>	Eastern Kingbird	S4B					PO	CO		
Vireonidae	Vireos									
<i>Vireo gilvus</i>	Warbling Vireo	S5B					PR	CO		
<i>Vireo olivaceus</i>	Red-eyed Vireo	S5B					PO	CO		
<i>Vireo solitarius</i>	Blue-headed Vireo	S5B						PR		
Corvidae	Crows & Jays									
<i>Corvus brachyrhynchos</i>	American Crow	S5						CO		OB
<i>Cyanocitta cristata</i>	Blue Jay	S5					PR	CO		OB
Alaudidae	Larks									
<i>Eremophila alpestris</i>	Horned Lark	S4						PR		
Hirundinidae	Swallows									
<i>Hirundo rustica</i>	Barn Swallow	S4B	THR	SC	T	Schedule 1	OB	CO		
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	S4S5B						PR		
<i>Riparia riparia</i>	Bank Swallow	S4B	THR	T	T	Schedule 1	OB	CO		
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	S4B					OB	PR		
<i>Tachycineta bicolor</i>	Tree Swallow	S4S5B						CO		
Paridae	Chickadees & Titmice									
<i>Poecile atricapillus</i>	Black-capped Chickadee	S5					PO	CO		OB
Sittidae	Nuthatches									
<i>Sitta canadensis</i>	Red-breasted Nuthatch	S5						CO		
<i>Sitta carolinensis</i>	White-breasted Nuthatch	S5						PO		
Certhiidae	Creepers									
<i>Certhia americana</i>	Brown Creeper	S5						PO		
Troglodytidae	Wrens									
<i>Cistothorus palustris</i>	Marsh Wren	S4B,S3N						PO		
<i>Cistothorus stellaris</i>	Sedge Wren	S4B	NAR	NAR	NS	No schedule		PO		
<i>Troglodytes aedon</i>	House Wren	S5B						CO		
<i>Troglodytes hiemalis</i>	Winter Wren	S5B,S4N						CO		
Regulidae	Kinglets									
<i>Regulus satrapa</i>	Golden-crowned Kinglet	S5								OB
Turdidae	Thrushes									

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Abound and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
<i>Catharus fuscescens</i>	Veery	S5B						CO		
<i>Hylocichla mustelina</i>	Wood Thrush	S4B	SC	T	T	Schedule 1		CO		
<i>Sialia sialis</i>	Eastern Bluebird	S5B,S4N	NAR	NAR	NS	No schedule		CO		
<i>Turdus migratorius</i>	American Robin	S5					CO	CO		OB
Mimidae	Mockingbirds, Thrashers & Allies									
<i>Dumetella carolinensis</i>	Gray Catbird	S5B,S3N					PR	CO		
<i>Mimus polyglottos</i>	Northern Mockingbird	S4						PR		
<i>Toxostoma rufum</i>	Brown Thrasher	S4B						PR		
Sturnidae	Starlings									
<i>Sturnus vulgaris</i>	European Starling	SNA					CO	CO		
Bombycillidae	Waxwings									
<i>Bombycilla cedrorum</i>	Cedar Waxwing	S5					PR	PR		
Passeridae	Old World Sparrows									
<i>Passer domesticus</i>	House Sparrow	SNA						CO		
Fringillidae	Finches & Allies									
<i>Haemorhous mexicanus</i>	House Finch	SNA					PO	CO		
<i>Haemorhous purpureus</i>	Purple Finch	S5						PO		
<i>Spinus pinus</i>	Pine Siskin	S5						CO		
<i>Spinus tristis</i>	American Goldfinch	S5					PR	PR		
Emberizidae	New World Sparrows & Allies									
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1		PR		
<i>Junco hyemalis</i>	Dark-eyed Junco	S5								OB
<i>Melospiza georgiana</i>	Swamp Sparrow	S5B,S4N						CO		
<i>Melospiza melodia</i>	Song Sparrow	S5					PR	CO		
<i>Passerculus sandwichensis</i>	Savannah Sparrow	S5B,S3N						CO		
<i>Passerella iliaca</i>	Fox Sparrow	S5B,S3N								OB
<i>Pipilo erythrophthalmus</i>	Eastern Towhee	S4B,S3N						PR		
<i>Poocetes gramineus</i>	Vesper Sparrow	S4B						PO		
<i>Spizella pallida</i>	Clay-colored Sparrow	S4B						CO		
<i>Spizella passerina</i>	Chipping Sparrow	S5B,S3N					PR	CO		
<i>Spizella pusilla</i>	Field Sparrow	S4B,S3N					PR	CO		
<i>Zonotrichia albicollis</i>	White-throated Sparrow	S5						PR		OB
Icteridae	Troupials & Allies									
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	S5					CO	CO		
<i>Dolichonyx oryzivorus</i>	Bobolink	S4B	THR	SC	T	Schedule 1		CO		
<i>Icterus galbula</i>	Baltimore Oriole	S4B					PO	CO		
<i>Icterus spurius</i>	Orchard Oriole	S4B						CO		
<i>Molothrus ater</i>	Brown-headed Cowbird	S5					PO	CO		
<i>Quiscalus quiscula</i>	Common Grackle	S5					CO	CO		
<i>Sturnella magna</i>	Eastern Meadowlark	S4B,S3N	THR	T	T	Schedule 1		CO		
Parulidae	Wood Warblers									
<i>Geothlypis philadelphia</i>	Mourning Warbler	S5B						PO		
<i>Geothlypis trichas</i>	Common Yellowthroat	S5B,S3N						PR		
<i>Leiostyris alpestris</i>	Nashville Warbler	S5B						PO		
<i>Mniotilta varia</i>	Black-and-white Warbler	S5B						PR		
<i>Parkesia noveboracensis</i>	Northern Waterthrush	S5B						PR		
<i>Seiurus aurocapilla</i>	Ovenbird	S5B						PR		
<i>Setophaga coronata</i>	Yellow-rumped Warbler	S5B,S4N						PO		
<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler	S5B						PR		

Bird Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Aboud and Associates EIS	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence
<i>Setophaga petechia</i>	Yellow Warbler	S5B					PR	CO		
<i>Setophaga pinus</i>	Pine Warbler	S5B,S3N						CO		
<i>Setophaga ruticilla</i>	American Redstart	S5B					PR	PO		
<i>Setophaga virens</i>	Black-throated Green Warbler	S5B						CO		
<i>Vermivora cyanoptera</i>	Blue-winged Warbler	S4B						CO		
<i>Vermivora sp.</i>	Blue-winged/Golden-winged Warbler	NP						PR		
Cardinalidae	Cardinals, Grosbeaks & Allies									
<i>Cardinalis cardinalis</i>	Northern Cardinal	S5						CO		OB
<i>Passerina cyanea</i>	Indigo Bunting	S5B						CO		
<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	S5B					PO	CO		
<i>Piranga olivacea</i>	Scarlet Tanager	S5B						PO		
Total							29	114	0	12

*OBBA Atlas Square: 17TNJ61

**NHIC Atlas Square: 17NJ6912

References

Ministry of Natural Resources and Forestry (MNR). 2022. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.

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Government of Canada. 2022. Species at Risk Public Registry: Species Search. COSEWIC Last Assessment Date: 2022-05-11.

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

Appendix IV
Reptiles and Amphibians Species Lists

Reptile and Amphibian Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	ORAA*	NHIC Data**
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Ontario Nature 2019	MNRF 2022
Turtles								
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1	X	
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1	X	
<i>Emydoidea blandingii</i>	Blanding's Turtle (Great Lakes / St. Lawrence)	S3	THR	E	E	Schedule 1	X	
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	X	
<i>Trachemys scripta</i>	Pond Slider	SNA					X	
Snakes								
<i>Lampropeltis triangulum</i>	Milksnake	S4	NAR	SC	SC	Schedule 1	X	
<i>Nerodia sipedon sipedon</i>	Northern Watersnake	S5	NAR	NAR	NS	No schedule	X	
<i>Storeria dekayi</i>	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule	X	
<i>Storeria occipitomaculata</i>	Red-bellied Snake	S5					X	
<i>Thamnophis sauritus septentrionalis</i>	Northern Ribbonsnake	S4	SC	SC	SC	Schedule 1	X	
<i>Thamnophis sirtalis sirtalis</i>	Eastern Gartersnake	S5					X	
Salamanders								
<i>Ambystoma jeffersonianum</i>	Jefferson Salamander	S2	END	E	E	Schedule 1	X	
<i>Ambystoma laterale</i>	Blue-spotted Salamander	S4					X	
<i>Ambystoma maculatum</i>	Spotted Salamander	S4					X	
<i>Hemidactylium scutatum</i>	Four-toed Salamander	S4	NAR	NAR	NS	No schedule	X	
<i>Notophthalmus viridescens viridescens</i>	Red-spotted Newt	S5					X	

Reptile and Amphibian Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	ORAA*	NHIC Data**
<i>Plethodon cinereus</i>	Eastern Red-backed Salamander	S5					X	
Frogs and Toads								
<i>Anaxyrus americanus</i>	American Toad	S5					X	
<i>Dryophytes versicolor</i>	Gray Treefrog	S5					X	
<i>Pseudacris triseriata pop. 2</i>	Western Chorus Frog (Great Lakes / St. L.	S4	NAR	T	T	Schedule 1	X	
<i>Pseudacris crucifer</i>	Spring Peeper	S5					X	
<i>Lithobates catesbeianus</i>	American Bullfrog	S4					X	
<i>Lithobates clamitans</i>	Green Frog	S5					X	
<i>Lithobates palustris</i>	Pickrel Frog	S4	NAR	NAR	NS	No schedule	X	
<i>Lithobates pipiens</i>	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule	X	
<i>Lithobates septentrionalis</i>	Mink Frog	S5					X	
<i>Lithobates sylvaticus</i>	Wood Frog	S5					X	
Total							27	0

*ORAA Atlas Square: 17NJ61

**NHIC Atlas Square: 17NJ6912

References

Ministry of Natural Resources and Forestry (MNR). 2022. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17. All Species List Updated: 2022-04-11.

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Updated 2022-01-20. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix V
Mammals Species Lists

Mammal Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Dobbyn 1994	MNRF 2022	NRSI Results from 2022
Didelphimorphia	Opossums								
<i>Didelphis virginiana</i>	Virginia Opossum	S4					X		
Eulipotyphla	Shrews, Moles, Hedgehogs, and Allies								
<i>Blarina brevicauda</i>	Northern Short-tailed Shrew	S5					X		
<i>Condylura cristata</i>	Star-nosed Mole	S5					X		
<i>Parascalops breweri</i>	Hairy-tailed Mole	S4					X		
<i>Sorex cinereus</i>	Masked Shrew	S5					X		
<i>Sorex fumeus</i>	Smoky Shrew	S5					X		
<i>Sorex palustris</i>	Water Shrew	S5					X		
Chiroptera	Bats								
<i>Eptesicus fuscus</i>	Big Brown Bat	S4					X		
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	S4					X		
<i>Lasiurus borealis</i>	Eastern Red Bat	S4					X		
<i>Lasiurus cinereus</i>	Hoary Bat	S4					X		
<i>Myotis leibii</i>	Eastern Small-footed Myotis	S2S3	END				X		
<i>Myotis lucifugus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1	X		
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1	X		
<i>Perimyotis subflavus</i>	Tri-colored Bat	S3?	END	E	E	Schedule 1	X		
Lagomorpha	Rabbits and Hares								
<i>Lepus americanus</i>	Snowshoe Hare	S5					X		
<i>Lepus europaeus</i>	European Hare	SNA					X		
<i>Sylvilagus floridanus</i>	Eastern Cottontail	S5					X		
Rodentia	Rodents								
<i>Castor canadensis</i>	Beaver	S5					X		
<i>Erethizon dorsatum</i>	Porcupine	S5					X		
<i>Glaucomys sabrinus</i>	Northern Flying Squirrel	S5					X		
<i>Marmota monax</i>	Woodchuck	S5					X		
<i>Microtus pennsylvanicus</i>	Meadow Vole	S5					X		
<i>Microtus pinetorum</i>	Woodland Vole	S3?	SC	SC	SC	Schedule 1	X		
<i>Mus musculus</i>	House Mouse	SNA					X		
<i>Napaeozapus insignis</i>	Woodland Jumping Mouse	S5					X		
<i>Ondatra zibethicus</i>	Muskrat	S5					X		
<i>Peromyscus leucopus</i>	White-footed Mouse	S5					X		
<i>Peromyscus maniculatus</i>	Deer Mouse	S5					X		
<i>Rattus norvegicus</i>	Norway Rat	SNA					X		
<i>Sciurus carolinensis</i>	Eastern Gray Squirrel	S5					X		X
<i>Synaptomys cooperi</i>	Southern Bog Lemming	S4					X		
<i>Tamias striatus</i>	Eastern Chipmunk	S5					X		
<i>Tamiasciurus hudsonicus</i>	Red Squirrel	S5					X		
<i>Zapus hudsonius</i>	Meadow Jumping Mouse	S5					X		
Canidae	Canines								
<i>Canis latrans</i>	Coyote	S5					X		
<i>Vulpes vulpes</i>	Red Fox	S5					X		
Felidae	Felines								
<i>Lynx rufus</i>	Bobcat	S4					X		
Mephitidae	Skunks and Stink Badgers								
<i>Mephitis mephitis</i>	Striped Skunk	S5					X		
Mustelidae	Weasels and Allies								
<i>Mustela frenata</i>	Long-tailed Weasel	S4					X		

Mammal Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Mammal Atlas	NHIC Data**	NRSI Observed
<i>Mustela richardsonii</i>	American Ermine	S5					X		
<i>Neovison vison</i>	American Mink	S4					X		
<i>Taxidea taxus jacksoni</i>	American Badger (Southwestern Ontario)	S1	END	E	E	Schedule 1	X		
Procyonidae	Raccoons and Allies								
<i>Procyon lotor</i>	Northern Raccoon	S5					X		
Ursidae	Bears								
<i>Ursus americanus</i>	American Black Bear	S5	NAR	NAR	NS	No schedule	X		
Artiodactyla	Deer and Bison								
<i>Odocoileus virginianus</i>	White-tailed Deer	S5					X		
Total							46	0	1

*Mammal Atlas Square Numbers: NU

**NHIC Atlas Squares: 17NJ6912

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Ministry of the Environment, Conservation, and Parks (MECP). 2022. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2022-04-01. Available: <https://www.ontario.ca/page/species-risk-ontario>

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Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Appendix VI
Butterfly Species Lists

Butterfly Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**
		NDMNRF 2022	MECP 2022	Government of Canada 2022	Government of Canada 2022	Government of Canada 2022	Macnaughton et al. 2022	MNRF 2022
Hesperiidae	Skippers							
<i>Anatrytone logan</i>	Delaware Skipper	S4					X	
<i>Ancyloxypha numitor</i>	Least Skipper	S5					X	
<i>Carterocephalus palaemon</i>	Arctic Skipper	S5					X	
<i>Erynnis baptisiae</i>	Wild Indigo Duskywing	S4					X	
<i>Erynnis juvenalis</i>	Juvenal's Duskywing	S5					X	
<i>Euphyes vestris</i>	Dun Skipper	S5					X	
<i>Pholisora catullus</i>	Common Sootywing	S4					X	
<i>Poanes hobomok</i>	Hobomok Skipper	S5					X	
<i>Poanes viator</i>	Broad-winged Skipper	S4					X	
<i>Polites mystic</i>	Long Dash Skipper	S5					X	
<i>Polites peckius</i>	Peck's Skipper	S5					X	
<i>Polites themistocles</i>	Tawny-edged Skipper	S5					X	
<i>Pompeius verna</i>	Little Glassywing	S4					X	
<i>Thymelicus lineola</i>	European Skipper	SNA					X	
<i>Wallengrenia egeremet</i>	Northern Broken Dash	S5					X	
Papilionidae	Swallowtails							
<i>Papilio canadensis</i>	Canadian Tiger Swallowtail	S5					X	
<i>Papilio cresphontes</i>	Giant Swallowtail	S4					X	
<i>Papilio glaucus</i>	Eastern Tiger Swallowtail	S5					X	
<i>Papilio polyxenes</i>	Black Swallowtail	S5					X	
Pieridae	Whites and Sulphurs							
<i>Colias eurytheme</i>	Orange Sulphur	S5					X	
<i>Colias philodice</i>	Clouded Sulphur	S5					X	
<i>Pieris oleracea</i>	Mustard White	S4					X	
<i>Pieris rapae</i>	Cabbage White	SNA					X	
Lycaenidae	Harvesters, Coppers, Hairstreaks, Blues							
<i>Callophrys augustinus</i>	Brown Elfin	S5					X	
<i>Celastrina lucia</i>	Northern Spring Azure	S5					X	
<i>Celastrina sp.</i>	Azure species	SNA					X	
<i>Cupido comyntas</i>	Eastern Tailed Blue	S5					X	
<i>Feniseca tarquinius</i>	Harvester	S4					X	
<i>Glaucopsyche lygdamus</i>	Silvery Blue	S5					X	
<i>Lycaena hyllus</i>	Bronze Copper	S5					X	
<i>Satyrus acadica</i>	Acadian Hairstreak	S4					X	
<i>Satyrus calanus</i>	Banded Hairstreak	S4					X	
Nymphalidae	Brush-footed Butterflies							
<i>Aglais milberti</i>	Milbert's Tortoiseshell	S5					X	
<i>Asterocampa clyton</i>	Tawny Emperor	S3					X	
<i>Boloria bellona</i>	Meadow Fritillary	S5					X	
<i>Boloria selene</i>	Silver-bordered Fritillary	S5					X	
<i>Cercyonis pegala</i>	Common Wood-Nymph	S5					X	

Butterfly Species Reported from the Study Area - Wellington Motor Freight EIS (Project #2984)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	Ontario Butterfly Atlas*	NHIC Data**
<i>Coenonympha californica</i>	Common Ringlet	S5					X	
<i>Danaus plexippus</i>	Monarch	S2N,S4B	SC	E	SC	Schedule 1	X	
<i>Euphydryas phaeton</i>	Baltimore Checkerspot	S4					X	
<i>Lethe anthedon</i>	Northern Pearly-Eye	S5					X	
<i>Lethe appalachia</i>	Appalachian Brown	S4					X	
<i>Lethe eurydice</i>	Eyed Brown	S5					X	
<i>Limenitis archippus</i>	Viceroy	S5					X	
<i>Limenitis arthemis arthemis</i>	White Admiral	S5					X	
<i>Limenitis arthemis astyanax</i>	Red-spotted Purple	S5					X	
<i>Megisto cymela</i>	Little Wood-Satyr	S5					X	
<i>Nymphalis antiopa</i>	Mourning Cloak	S5					X	
<i>Nymphalis l-album</i>	Compton Tortoiseshell	S5					X	
	Northern Crescent	S5					X	
	Pearl Crescent	S4					X	
	Eastern Comma	S5					X	
	Question Mark	S5					X	
	Gray Comma	S5					X	
	Great Spangled Fritillary	S5					X	
	Red Admiral	S5B					X	
	Painted Lady	S5B					X	
	American Lady	S5					X	
							58	0

*TEA Atlas Square: 17NJ61

**NHIC Atlas Square: 17NJ6912

References

Ministry of Natural Resources and Forestry (MNR). 2022. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-07-17.

All Species List Updated: 2022-04-11. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

Ministry of the Environment, Conservation, and Parks (MECP). 2022. Species at Risk in Ontario. Published: 2018-07-12. Updated: 2022-04-01. Available: <https://www.ontario.ca/page/species-at-risk>

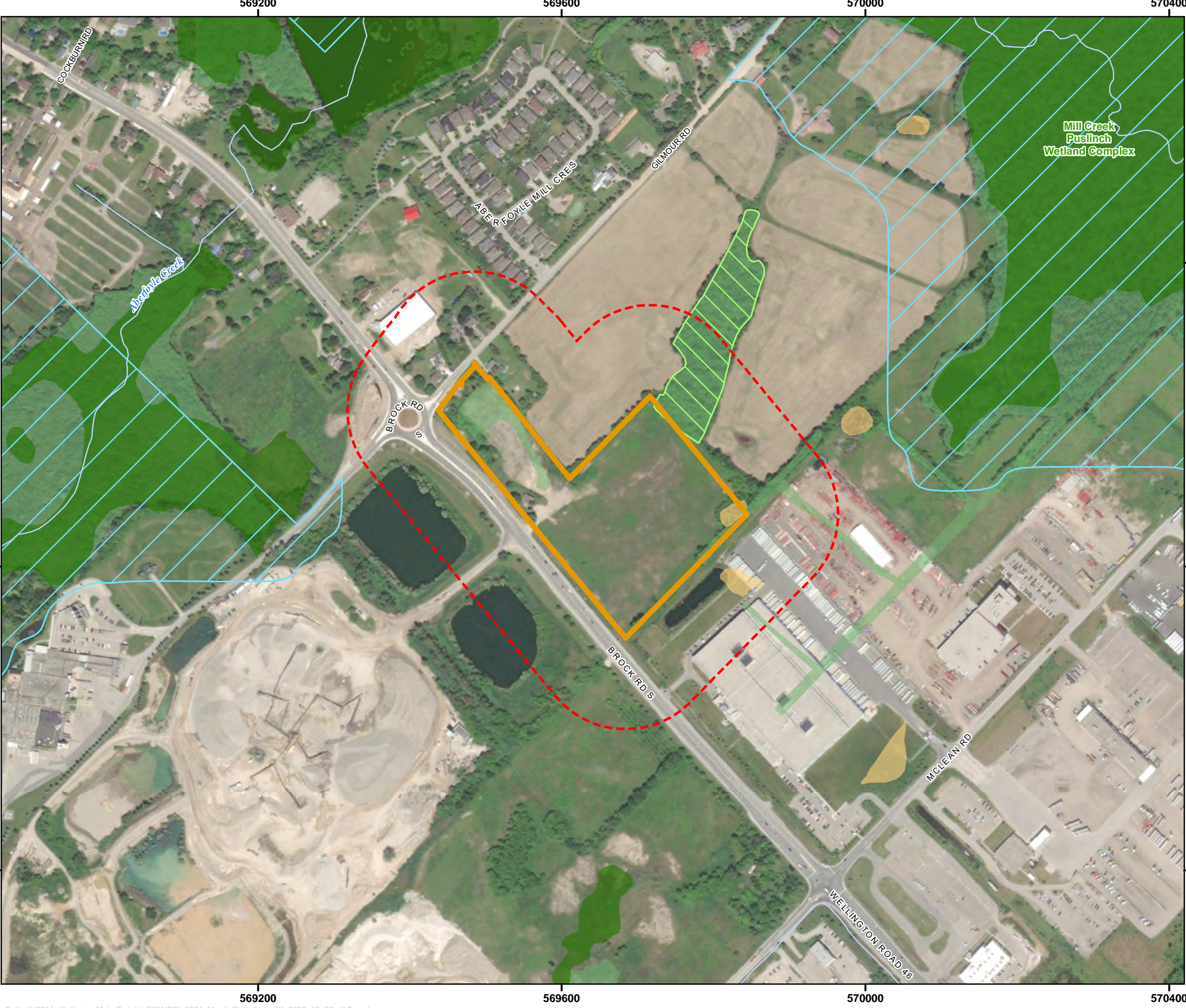
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Macnaughton A., Layberry R., Cavaasin R., Edwards B., and C. Jones. 2022. Ontario Butterfly Atlas. Updated February 2022. Available: <https://www.ontarioinsects.org/atlas/index.html>

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Updated 2022-01-20. Available: <https://www.ontario.ca/page/make-natural-heritage-area-map>

Maps



Map 1

Wellington Motor Freight EIS

Study Area

Legend

Subject Property

Study Area (120m Adjacent Lands)

Permanent Watercourse

Provincially Significant Wetland (PSW)

Unevaluated Wetland

Wooded Area

Significant Woodland (Wellington County 2021)

Provincial Natural Heritage System for the Growth Plan (2020)

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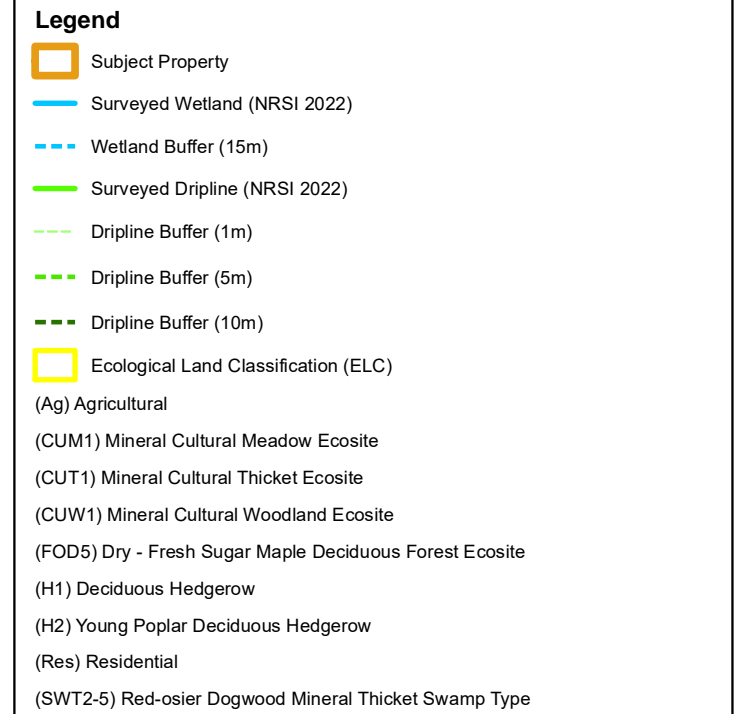
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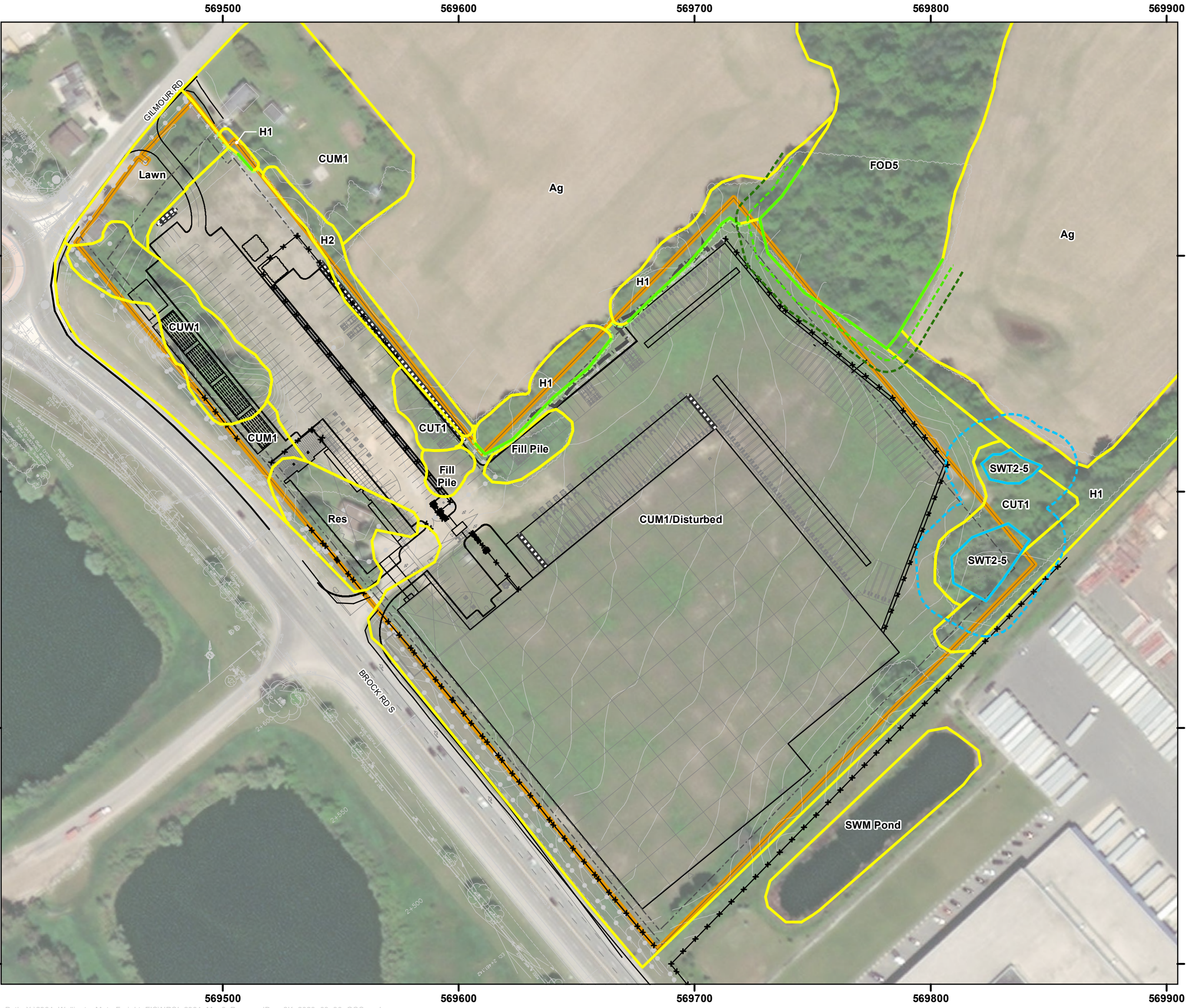
Project: 2984
Date: December 22, 2022

NAD83 - UTM Zone 17
Size: 11x17"
1:5,000

0100200300

Metres

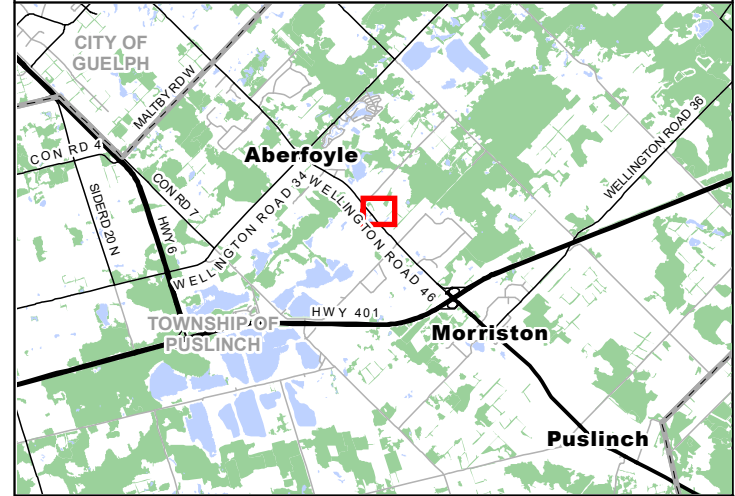




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Wellington Motor Freight EIS

Proposed Development



Legend	
Subject Property	Ecological Land Classification (ELC)
Limit of Grading	(Ag) Agricultural
Property Setback	(CUM1) Mineral Cultural Meadow Ecosite
Parcel Boundary	(CUT1) Mineral Cultural Thicket
Proposed Site Plan	(CUW1) Mineral Cultural Woodland Ecosite
Proposed Fencing	(FOD5) Dry - Fresh Sugar Maple Deciduous Forest Ecosite
Proposed Retaining Wall	(H1) Deciduous Hedgerow
Utilities	(H2) Young Poplar Deciduous
Existing Conditions	(Res) Residential
Existing Fence	(SWT2-5) Red-osier Dogwood Mineral Thicket Swamp Type
Existing Contours	
Drainage	
Surveyed Wetland (NRSI 2022)	
Wetland Buffer (15m)	
Surveyed Dripline (NRSI 2022)	
Dripline Buffer (1m)	
Dripline Buffer (5m)	
Dripline Buffer (10m)	

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Project: 2984 Date: March 30, 2023	NAD83 - UTM Zone 17 Size: 11x17" 1:1,600
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DOUGAN & ASSOCIATES

ECOLOGICAL CONSULTING & DESIGN

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April 6, 2023

Lynne Banks
Development and Legislative Coordinator
Township of Puslinch
7404 Wellington Rd. 34, Puslinch, Ontario N0B 2J0
lbanks@puslinch.ca

RE: P11/6678 Ecology Peer Review of: 128 Brock Road South, Puslinch (Wellington Motor Freight) Scoped Environmental Impact Study (NRSI, Revised March 2023)

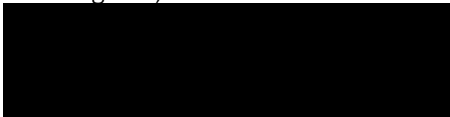
Dear Lynne,

Dougan & Associates (D&A) has completed a review of the revised EIS for 128 Brock Road South (NRSI, March 2023). This resubmission has addressed all of our outstanding comments, as detailed in the table below.

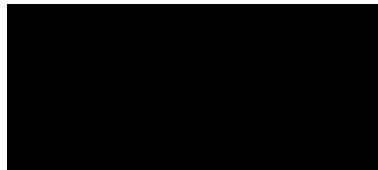
Please note that, as noted in the EIS, a detailed Landscape Plan and Tree Preservation Plan should be reviewed as part of the Site Plan submission and approved prior to pre-grading.

Please do not hesitate to contact the undersigned with any questions or concerns regarding this review.

Regards,



Christina Olar, HBSc, Eco. Mgmt. Tech., ISA
Ecology Manager, Ecologist, Arborist



Todd Fell, OALA, CSLA, CERP
Director, Landscape Arch., Rest. Ecologist

KEY COMMENTS

D&A Comment (January 27, 2023)	Additional Comments and Clarifications
<p>There is no indication whether the Terms of Reference for the Scoped EIS were reviewed or approved by any reviewing agencies. This is concerning given the fact that most of the field surveys conducted by NRSI occurred prior to the submission of the TOR, and because the Scoped EIS relies heavily on field data collected by Aboud & Associates as part of a 2014 EIS. The field data collected by Aboud & Associates in 2013/2014 is considered out-of-date (i.e., > 5 years old). Since that time, the site has undergone significant changes (e.g. clearing and filling of some portions of the property, years of natural vegetation regeneration). Some of the surveys completed by Aboud & Associates were not repeated by NRSI during appropriate survey/breeding windows. As a result, the 2014 data and surveys conducted outside of appropriate survey windows should not be used to draw conclusions about the existing conditions and significance of features on site.</p>	<p>Addressed; also see detailed comments.</p>
<p>Seasonally appropriate field surveys should be conducted to address the above noted deficiencies. Alternatively, (i.e., In absence of such information), a conservative interpretation should be applied to the evaluation and status of existing natural heritage features, unless it can be explicitly explained (preferably with more detailed information) why such an interpretation is not appropriate, and the deficiencies are not of concern. Please refer to the detailed comments below for further reference/guidance</p>	<p>Addressed; also see detailed comments.</p>
<p>The EIS concludes that there will be no negative impacts on natural features onsite or adjacent lands, however this conclusion is likely premature; adequate field studies have not been carried out to support the EIS.</p>	<p>Addressed; also see detailed comments.</p>

DETAILED COMMENTS

Table 1 summarizes our comments, which identify specific concerns and/or requests for clarification based on the review of the Revised Scoped EIS.

Table 1 Detailed comments on NRSI's Scoped Environmental Impact Study

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
1	2.2	Collection and Review of Background Information	One additional source of background information should have been consulted, i.e., the Nestlé Waters Canada Biological Monitoring Program data collected at the 101 Brock Street South location, directly across the road from the subject lands.	Consult with Nestlé Waters Canada to see if they will release their monitoring data for review.	Nestle Waters no longer exists as the company was sold to Blue Triton. The team is in contact with Blue Triton to discuss.	No additional comments.	n/a
2	2.2.1	Significant Species Screening	The text indicates that there is suitable habitat present in the study area for only one SAR/SCC 3listed species, Eastern Wood-Pewee.	Please indicate why the SWM pond directly south of the property, and the two Dufferin Aggregates ponds, are not considered suitable habitat for Snapping Turtle.	Snapping turtles may inhabit SWM ponds but these are man-made infrastructure for containing and treating storm runoff and should not be identified as habitat. Similarly, the aggregate ponds across Brock Road may be inhabited by	Although manmade structures like SWM ponds cannot qualify for protection as SWH, they should still be considered potential habitat for SAR like Snapping Turtle. Unless sufficient surveys were	Comment addressed in revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
					snapping turtle, but these ponds lack natural cover and are across a busy 4-lane road, and are not considered to be connected to the subject property. The EIS text has been updated.	undertaken to prove the absence of sensitive species, they should be assumed to be present and using the ponds as habitat, and suitable mitigation should be put in place. Please ensure this is clarified in the EIS.	
3	2.2.1	Significant Species Screening	The text indicates that there is suitable habitat present in the study area for only one SAR/SCC listed species, Eastern Wood-Pewee.	Please indicate why the trees on the subject lands (e.g., CUW1, H1, H2) and adjacent to the property (e.g., FOD5) are not considered suitable maternity roost habitat for SAR listed bats. Text in Section 2.2.2 states that there is potential Bat Maternity Colonies SWH within FOD5.	Bat maternity roost habitat is a type of SWH which is related to woodland or forest communities and not isolated trees.	Although isolated trees do not qualify for SWH designation, they can still provide suitable habitat for SAR bats that should be preserved where possible. Please ensure it is clear in the EIS whether isolated SAR habitat trees are present and that any impacts/removals are in compliance	Addressed in revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
						with the Endangered Species Act.	
4	2.2	Significant Wildlife Habitat Screening	The EIS text states that <i>"The subject property does not contain habitats that may be significant for wildlife."</i> However, the statement could not be verified because the SWH screening/assessment was not included in the EIS for review.	Please provide the complete SWH screening/assessment for review (i.e., including those features not considered SWH). For example, please indicate why Reptile Hibernaculum SWH (i.e., for snakes) is not present on or adjacent to the subject lands.	<p>The SWH screening table has been provided.</p> <p>Two types of SWH are considered possible for the site and adjacent study area; bat maternity colonies and amphibian breeding habitat (woodland). Snake Hibernaculum SWH is considered not present due to the lack of burrows, rock crevices, crumbling foundations on-site and adjacent, as well as the level of disturbance that has occurred on-site and the developed/disturbed nature of the adjacent lands study area (roads, aggregate operation,</p>	The SWH table indicates that amphibian movement corridors are also possible on the subject property. Please ensure this is included in the text.	Addressed in revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
					commercial development).		
5	3.0	Relevant Policies, Legislation and Planning Studies Table 1: Provincial Policy Statement (OMMAH, 2020)	The Natural Heritage Reference Manual and Significant Wildlife Habitat Technical Guide (OMNR, 2000) were listed as relevant policy documents pertaining to the Provincial Policy Statement. However, the Significant Wildlife Habitat Criteria Schedule (SWHCS) for Ecoregion 6E (OMNR, 2015) was not listed.	Please include the SWHCS for Ecoregion 6E on this list. Reference to this document is made in the Terms of Reference.	This document has been added.	Sufficient if updated in EIS.	Addressed in revised EIS.
6	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	Puslinch Zoning bylaw is a relevant policy document missing from the table.	The Puslinch Zoning By-law should be reviewed and added to the table.	Added.	Sufficient if updated in EIS.	Addressed in revised EIS.
7	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	In the County of Wellington Official Plan section, there is a reference to Schedule A7-3. This schedule only shows Greenbelt designations and	Refer to Schedule A7 instead of Schedule A7-3	Added.	Sufficient if updated in EIS.	Addressed in revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
			there are none related to this property. Likely this was intended to refer to Schedule A7, which shows the property designated as “secondary agriculture” and illustrates a patch of Core Greenlands adjacent to the property.				
8	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	With respect to the County Official Plan, Schedule B7 shows the property within the “Paris Galt Moraine Policy Area”. The EIS has not considered this policy designation.	Review County Official Plan Schedule B7 and policies related to the <i>Paris Galt Moraine Policy Area</i> designation and clarify whether there are implications that should be addressed in the EIS.	Added.	Sufficient if updated in EIS.	Addressed in revised EIS.
9	3.0	Relevant Policies, Legislation and Planning Studies, Table 1	The Wellington County Official Plan has policies related to wetlands and woodlands that are not clearly noted in Table 1.	Table 1, Wellington County Official Plan, under “project relevance” it should refer to relevant policies regarding wetlands and woodlands.	Added.	Sufficient if updated in EIS.	Addressed in revised EIS.
10	3.0	Relevant Policies, Legislation and Planning	It is noted that the unevaluated wetlands may be suitable for complexing with the	The concept of complexing has been removed from OWES protocol as of January 1,	Noted.	No further comments.	n/a

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
		Studies, Table 1	Mill Creek PSW, however, in result of very recent changes to the OWES system this is no longer the case.	2023. Please note that if a wetland evaluation were required, these unevaluated wetlands would have to be considered as individual units. No action required at this time.			
11	4.0	Field Methods	None of the field surveys took place during the standard wildlife breeding windows. The 2014 survey data is 8.5 years old and considered out-of-date.	Please conduct seasonally appropriate breeding bird, amphibian, and reptile surveys and include the survey results in an EIS addendum. In absence of such information, a conservative interpretation should be applied to the evaluation and status of existing natural heritage features, unless explicitly explained why such an interpretation is not appropriate.	The natural features on-site and adjacent are well defined and have been incorporated into the Site Plan along with appropriate buffers and other mitigation measures such as timing windows for tree removal, construction limit fencing, erosion and sediment control measures, tree protection plan, noise and lighting recommendations and a landscape plan. These measures are considered sufficient to protect the	Response pending review of revised EIS.	Addressed in revised EIS. Note: landscape plan to be reviewed during Site Plan submission.

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					common and significant species, wildlife habitat functions and provide areas for enhancement plantings.		
12	4.1.2	Vegetation Inventories	Aboud & Associates vegetation inventories included only 2 site visits: August 2013 and June 2014. The site has undergone significant change since this time including clearing, fill/grading, and 8+ years of time for natural vegetation regeneration to occur. The 2013/2014 data is therefore of very minimal value at this point. The NRSI vegetation inventories included only mid- to late October visits, which is insufficient to characterize the flora of the site.	Spring and summer vegetation surveys should be completed to accurately characterize the current vegetation composition of the site.	The 2014 data was included for completeness and as valuable for characterizing the natural features which remain on-site and adjacent. The vegetation communities of the woodland and wetlands will be retained entirely. The vegetation currently on-site in the area of the proposed undertaking has arisen since the clearing and filling/grading (2016) and is sparse and weedy in nature. Most plant species documented in this area in the 2022	This rationale is acceptable. No further comment.	n/a

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					field work are non-native and typical of disturbed sites. Spring and summer vegetation surveys within this area are not expected to provide additional value to the study as there are no significant or sensitive habitats present.		
13	4.1.3	Wetland Boundary Delineation	<p>The report states <i>"The GRCA confirmed that no on-site verification with their ecologist was required (email from J. Simons, GRCA November 16, 2022).</i></p> <p><i>A GRCA mapped wetland is shown within the woodland to the east of the subject property. This area was investigated during the fall 2022 field work and the wetland was found not to exist. The area in question is a hilly</i></p>	Please provide the email correspondence with GRCA indicating that on-site verification of the wetland is not required. Similarly, please provide additional evidence/field notes to confirm the mapped wetland does not exist including photographs, soil texture and moisture regime, plant species.	GRCA email is provided. Notes and ELC data forms are provided for the FOD5 community, showing no wetland community present.	Acceptable data provided. No further comment.	n/a

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			<i>wooded landform feature and has no wetland present as shown on Map 2."</i>				
14	4.1.5	Additional Wildlife	The EIS text states: <i>"The house on-site was inspected for any evidence of use by nesting birds and/or bats. Individual trees were assessed for the presence of cavities suitable for SAR bats."</i>	Please indicate what protocols were used to conduct the bat surveys in order to ensure that they were conducted appropriately.	Survey Protocol for Maternity Roost Surveys (Forests/Woodlands) (MECP 2022) Bat Survey Standards Note (MECP 2022) Survey Protocol for Species at Risk Bats within Treed Habitats for Little Brown Myotis, Northern Myotis & Tri-colored Bats (MNRF 2017)	Acceptable response. No further comment.	n/a
15	5.1	Soils, Terrain and Drainage	The last paragraph states that the small wetlands are largely surface water dependent, and that <i>"The proposed development and the associated grading are not expected to have any impact on this wetland feature, since it is sustained by</i>	This statement needs to be substantiated. Wetlands sustained by overland runoff may be vulnerable to changes in surficial hydrology. The EIS should clearly demonstrate no negative impact to wetland hydrology.	This analysis of wetland water balance and impacts was provided by CVD in their Scoped Hydrogeological Assessment (2022) report and is based on their analysis of background information, geotechnical	Acceptable response. No further comment.	n/a

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			<i>overland runoff (and possibly some shallow interflow) originating from higher topographic areas located further east from the property (CVD 2022b)."</i>		investigations, water level monitoring and groundwater sampling. Refer to pages 4 and 5 of their report. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands.		
16	5.2.2	Vascular Flora	The second paragraph states that one SAR plant is reported from the vicinity of the property, but there is no habitat for this	Please correct the spelling error and qualify this statement by providing a brief overview of the species' habitat vs. habitats within the study area.	Spelling error fixed. This species is found in dry open woods and savanna habitats (MECP 2022), of which there is none	Acceptable response. No further comment.	n/a

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			species within the study area. The common and scientific names of this plant are spelled incorrectly (should be Fern-leaved Yellow False Foxglove (<i>Aureolaria pedicularia</i>)). We agree this species is unlikely to exist on the property due to lack of suitable habitat, however this should be justified more specifically in the text.		present on-site or in the study area.		
17	5.2.2	Vascular Flora	The second paragraph states that no provincially or federally significant species were recorded in the 2014 study or during 2022 field investigations, however, local status does not appear to have been considered.	Please confirm whether any locally significant plant species were documented, using the “Significant Plant List for Wellington County” which can be found on page 128 of the <i>Guelph Natural Heritage Strategy – Phase 2: Terrestrial Inventory and Natural Heritage System</i> document (Dougan & Associates, 2009) available online.	Two locally significant plant species were found on the site based on the Dougan and Associates 2009 list; rough avens (<i>Geum laciniatum</i>) and meadow horsetail (<i>Equisetum pratense</i>). These species were documented by Aboud (2014) in the forest and wet	Acceptable response. No further comment.	n/a

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					meadow communities in the north-west part of the property. Those communities were removed during the site grading.		
18	5.3.2	Amphibians and Reptiles	<p>It is stated that: “NRSI biologists did not observe any herpetofauna species during any of the field investigations. Aboud and Associates also did not document any amphibian or reptile species during their 2014 EIS.”</p> <p>However, except for the turtle nesting surveys carried out by Aboud & Associates, no dedicated reptile and amphibian surveys were carried out by Aboud & Associates or NRSI. For example, no nocturnal amphibian call surveys were conducted at the unevaluated wetland</p>	<p>Please qualify this statement by acknowledging that with the exception of turtle nesting surveys conducted by Aboud & Associates in 2014, no dedicated surveys to document the presence of herpetofauna were conducted on or adjacent to the subject lands, and as a result it can’t be concluded that none are presently utilizing the natural features on or adjacent to the property.</p> <p>Also, please indicate whether the SWM pond directly to the south or the Dufferin Aggregates (Aberfoyle Pit 1) ponds across Brock Road were surveyed?</p>	<p>No additional dedicated surveys for herpetofauna were carried out by Aboud and Associates or NRSI during the studies to date on the subject property, and no studies were undertaken at the adjacent SWM pond or the ponds across Brock Road. The wetlands on-site likely provide habitat for a small population of common amphibian species such as spring peeper, gray treefrog and American toad as well as reptiles such as eastern gartersnake. The</p>	<p>Given that amphibian breeding surveys were not undertaken and the wetlands on site possibly contain Amphibian Breeding Habitat SWH, mitigation strategies should assume that SWH is present. Additional rationale is required to support that a 15 m buffer is sufficient to specifically protect amphibian breeding populations from indirect impacts</p>	<p>Comment addressed in revised EIS.</p>

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			features at the NE edge of the property. Similarly, no snake surveys were conducted. Certainly, the information provided did not indicate that the unevaluated wetland features did not provide suitable amphibian breeding habitat.		on-site wetlands do not have permanent standing water and are not suitable for turtles or salamander species. The proposed plan retains the wetlands and provides a suitable buffer for its protection and the habitat necessary for these expected species. The off-site manmade pond features were not surveyed. These ponds may contain amphibian and reptile species but these are not natural features and do not warrant protection. The SWM pond to the south is entirely contained by chain link fencing and the ponds across Brock Road are separated from the site by a busy 4 lane road and	of the development.	

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					over 70m of distance. There is very little likelihood of turtles travelling from these ponds onto the subject property.		
19	5.3.2	Amphibians and Reptiles	The EIS text states: <i>"Their study included turtle nesting surveys during the nesting season with no evidence of turtles recorded"</i> .	For clarity, please indicate how many turtle nesting survey visits were conducted by Aboud & Associates and whether NRSI considers the effort consistent with standard survey protocol.	The turtle nesting surveys were requested as part of the previous EIS as the subject property previously contained a gravel extraction site and a small pond in the NW part of the site. Aboud & Associates carried out turtle nesting surveys in conjunction with the breeding bird surveys on May 29, June 19 and July 6, 2013. No evidence of turtles or nesting was found, and the on-site wetlands and wet areas have since been removed. Given the changes on-site, no additional surveys	Acceptable response. No further comment.	n/a

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					for turtles are recommended to be required.		
20	5.3.3	Mammals	The EIS text states: <i>“Based on available background information, 1 mammal SCC and 5 mammal SAR are reported from the vicinity of the study area (Dobbyn 1994; MNRF 2022). No regionally, provincially or federally significant species, or their preferred habitats, were observed within the subject property during the 2014 or 2022 field surveys and none are expected to be present.”</i>	Please include the list of SAR/SCC mammal species and indicate why they are not expected to be present within the study area.	The SAR screening table has been updated based on field work and is included in the appendices of the EIS (and appended to this response), and provides rationale as to why all SAR mammals and their habitat have potential to be present or not present in the study area. With respect to bat SAR, during the recent tree inventory, only one tree was documented to have habitat features suitable for roosting bats (common species or SAR), and this is not considered to meet the habitat requirements of SAR bats.	Response is generally acceptable. Please note that Appendix I indicates that no suitable habitat is present within subject property for Little Brown Myotis, Northern Myotis and Tricolored Bat but the rationale column conflicts with this assessment stating that isolated trees may provide habitat. Please clarify.	Comment addressed in revised EIS.

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21	5.3.4	Butterflies	NRSI states: "NRSI biologists and Abound and Associates did not observe any butterfly species during any of the field investigations."	<p>At least as it applies to NRSI's field surveys, please qualify this statement by indicating that NRSI field surveys were conducted well outside the prime survey windows for documenting butterflies, explaining why none were observed.</p> <p>With respect to the surveys conducted by Abound & Associates, please indicate whether any dedicated butterfly surveys were carried out. If not, please qualify the statement to indicate that and that the results may not be considered reflective of the species present.</p>	No dedicated butterfly surveys were carried out by Abound & Associates or NRSI. No regionally, provincially or federally significant species were observed within the subject property during the 2022 field surveys and none are expected to be present due to the small size and overall poor quality of the meadow habitat.	Response is acceptable. Please clarify in the report that dedicated surveys were not carried out, and no incidental observations of these species were recorded.	Comment addressed in revised EIS.
22	5.3.5	Insects	NRSI states: " <i>No regionally, provincially or federally significant species were observed within the subject property during the 2022 field surveys and none are</i>	While the conclusion is not necessarily disputed, please provide rationale to support the statement.	No regionally, provincially or federally significant species were observed incidentally within the subject property during field surveys and none are	This comment has been clarified through the Appendix I: SAR/SCC Screening. No further comment.	n/a

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			<i>expected to be present."</i>		expected to be present due to the lack of preferred habitat.		
23	6.0	Significance and Sensitivity	Please note that the discussion regarding wetland complexing is no longer necessary as complexing has been removed from the OWES system as of January 1, 2023.	N/A. See comment 10.		No further comment.	n/a

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24	6.0	Significance and Sensitivity	<p>The EIS concludes that <i>“A 15 m buffer to the wetland is recommended to maintain its limited water balance and to protect it from any direct impacts of the development.”</i></p> <p>It is later stated that <i>“The previous depression created a considerably higher than normal groundwater recharge and a lower runoff from the property. These influences are to be factored into the pre-post water balance assessment and in the stormwater management plan to maintain and enhance the groundwater discharge function to Mill Creek.”</i></p> <p>Appendix I: TOR notes that a grading limit of 19 m from the</p>	<p>Please demonstrate that there will be no changes to wetland hydrology of the unevaluated wetlands if a 15 m buffer is applied vs. the recommended 19 m buffer in the 2014 EIS. Justification for the basis of the 15 m buffer should be clearly provided.</p> <p>Also, please note that section 4.1.7 and 4.3.4 of the Planning Justification Report (MHBC, 2023) state that a buffer of 37 m is applied between the development and environmental features (including unevaluated wetlands). This should be reviewed for consistency between reports.</p>	<p>A minimum 15m buffer is applied to the wetland on the site plan. This buffer is considered sufficient to protect the wetland hydrology as the majority of the wetland’s surface water catchment is to the east. The on-site portion of the surface water catchment of the wetlands is very small, with the majority of water coming from lands that are higher topographically and east of the subject property. The proposed development is located downslope and outside of the catchment and will have little to no effect on the surface water contribution to the wetlands. The limit of</p>	<p>Response is acceptable regarding wetland hydrology. Please see additional comment 26.</p>	n/a

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			wetlands was implemented in 2014 to maintain wetland hydrology. The 2014 EIS indicates that grading would be limited to approximately 19 m or more from the wetlands in order to cause no impact to wetland hydrology (Aboud & Associates, 2014, page 7).		construction is generally more than 15m from the wetlands as can be seen by the fencing limit on the Site Plan. The Planning Report makes reference to the actual 37m setback, which is the distance from the wetland to the warehouse building.		
25	6.0	Significance and Sensitivity	The second last paragraph recommends the trees in HR1 be protected at or 1m	While we do not disagree with this statement, please include a recommendation that trees should be protected	The Tree Preservation Plan is 21separate and will be submitted at the Site Plan Application	Response is acceptable pending review of the TPP. No	Note: TPP will be reviewed during Site Plan submission.

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			beyond their surveyed dripline. The last sentence recommends that a Tree Preservation Plan should be prepared to inventory and assess trees and recommend protection measures.	using standard tree protection fencing in which no site alteration or disturbance may occur. A Tree Preservation Plan should be submitted for review at the Site Plan Application/detailed design phase.	stage. Details of tree protection fencing will be provided in the TPP.	further comment.	
26	6.0	Significance and Sensitivity	With respect to the Significant Woodland, it is stated that <i>“a 5m buffer from the new dripline to any grading has been recommended, and an additional 5m buffer be provided to any structures or impervious surfaces.”</i>	Section 4.31 of the Puslinch Zoning By-law requires a 30 m setback for buildings or structures from lands designated “Natural Environment Zone”. As per the bylaw mapping, the Significant Woodland is considered Natural Environment Zone, and therefore this setback is applicable. The EIS should clarify whether the proposed development is in compliance with bylaw setback requirements (e.g. the proposed retaining wall is only 10 m from the dripline. If the Township planners consider this a structure,	The building is well over 30m from the significant woodland. A low retaining wall (0.2-0.5m in height; not a structure according to the OBC) may be implemented along the northern edge of the parking area to protect adjacent trees from grading impacts. The 1.5m retaining wall along the east edge of the truck parking area has been removed from the design.	Acceptable clarification provided to demonstrate compliance with the Zoning Setback. Please provide additional rationale to demonstrate that a 5 m ‘no touch’ buffer is adequate to protect the Significant Woodland feature (i.e. tree rooting zones) and its ecological functions which include but are	Comment addressed in revised EIS.

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				the required setback will need to be considered).		not limited to SWH and SAR habitat (Eastern Wood-Pewee).	
27	6.0	Significance and Sensitivity	The EIS states that <i>"There are no significant species or other habitats present on the property..."</i>	There is insufficient information to support this conclusion. Presence/absence of significant species cannot be confirmed based on the scope of field surveys completed.	See previous responses to comments regarding significant species and habitats. EIS text updated.	Acceptable response if EIS text has been updated.	Comment addressed in revised EIS.
28	7.1	Proposed Development	The EIS states: <i>"A Conceptual Site Plan has been prepared by Tacoma Engineers (2022) and is superimposed onto the natural feature mapping and shown on Map 3."</i> In addition, a more detailed version of the Conceptual Site Plan is included at the end of Appendix I.	Please indicate whether land along the southeastern periphery of the property will be dedicated as a terrestrial linkage, to provide connectivity between the natural habitats around the unevaluated wetlands and the SWM pond immediately to the south.	The lands along the eastern property boundary are available for plantings and enhancements. It is agreed that the lands between the woodland and the on-site wetlands are a good opportunity for plantings to enhance connectivity. A new section 7.6 has been added to the EIS to discuss enhancement opportunities. Along the south boundary is not recommended	Section 7.6 has not been included with this response. Please forward for review.	Comment addressed in revised EIS and recommendations in section 7.6 are generally acceptable. Note: Detailed Landscape Plan will be reviewed during the Site Plan submission.

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					as a linkage as it is not recommended that wildlife be encouraged to travel toward SWM ponds and busy roads. A landscape plan will be prepared at the Site Plan stage.		
29	7.3.1	Tree and Vegetation Removal	It is unclear why a retaining wall would be required “to match grade with root zones of offsite trees”. Installation of the retaining wall could negatively impact tree root zones and result in hazard trees. No avoidance/ mitigation measures have been recommended to address this potential impact.	Clarify why the retaining wall is needed. Elaborate on impacts regarding how the retaining wall could impact tree roots and avoidance/mitigation measures to address this.	The grading plan includes a low retaining wall along the north limit of the parking lot, in order to match grades within the root zones of off-site trees. The use of a retaining wall in this area was proposed in order to protect the root zones of trees along the shared north property boundary. Detailed elevation surveying along the dripline has since taken place and will be used to refine the grading plan and identify where retaining walls may	Sufficient clarification regarding the retaining wall. Please also see additional comment number 26.	Comment addressed in revised EIS.

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					be necessary. The retaining wall will only be used where the change in grade is such that it would result in fill being placed over an extensive portion of the root zones of adjacent trees and at too great a depth that would result in impacts to those trees. The details of the retaining wall and tree retention will be determined in the Site Plan stage and reported in the Tree Preservation Plan.		
30	7.3.2	Birds and Their Nests	On page 23, the EIS states: <i>"Should any active nest be identified, ..."</i>	Given that it is not recommended to search vegetatively dense or otherwise complex natural habitats for fear of disturbing nesting birds and contravening the Act, please consider revising the text to read, <i>"Should any active nest be identified, <u>or signs of an active nest be</u></i>	Text has been revised.	Sufficient if updated in EIS.	Comment addressed in revised EIS.

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				<i>observed, there shall be"..."</i>			
31	7.4.1	Alterations to Drainage and Flow Patterns, Water Quality, Groundwater	This section is missing a discussion of potential hydrological impacts to wetlands. The EIS should clearly demonstrate that wetland hydrology will be maintained.	Please include a clear demonstration that wetland hydrology will be maintained post-development.	The Hydrogeological Report prepared by CVD indicates that the small wetlands on-site and adjacent are expected to be sustained by overland runoff and are often only seasonally wet. The majority of the small wetlands' surface water catchment is off-site and to the east and will remain unchanged. On-site the wetlands' catchment is very small and will be largely retained within the buffer. The proposed development is downslope of the wetland and is not expected to have any impact on this wetland feature. See also previous responses and refer to CVD	Acceptable response regarding water balance. No further comment.	n/a

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					Hydrogeological Investigation report.		
32	7.4.2	Wildlife Disturbance	<p>The EIS states: <i>“Common and tolerant species of wildlife were documented using the wetlands and woodland during the 2014 EIS and this study.”</i> While this statement singles out wildlife use of wetlands and woodlands, all wildlife species, regardless of the habitats they use, can be disturbed by the proposed development.</p> <p>In addition, some of the wildlife species documented by Aboud & Associates and NRSI are not considered ‘common’. Three Species at Risk were documented (i.e., BANS, BARS, & EAWP), as well as 7 locally significant</p>	Please revise the statement to acknowledge the potential presence of the significant species noted in the 2014 EIS, and discuss any potential impacts to these species resulting from the proposed development.	The EIS statement has been revised. The wildlife species and individuals that are present in the study area are those which have adapted to the current noise, lighting and disturbance conditions which are present due to the existing adjacent trucking facility, heavy equipment business, Brock Road South traffic and neighboring aggregate operations. This includes the common species as well as the significant species which have been noted or have potential to be present within the on-site and adjacent woodland such as	Response pending review of revised EIS.	Comment addressed in revised EIS.

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			species (i.e., significant in Wellington County): AMRE, BAOR, EAKI, FISP, NOFL, RBGR, and RBWO. Please refer to Appendix B (Significant Wildlife List for Wellington County) in the Guelph Natural Heritage Strategy, Phase 2: Terrestrial Inventory & Natural Heritage System – Volume 2: Technical Appendices (2009) for more details.		Eastern wood-pewee and SAR bats.		
33	7.4.2	Wildlife Disturbance	The EIS states: <i>“To avoid and minimize disturbance to wildlife during operation it is recommended that truck movements and noise be limited to the extent possible during the breeding season for birds and wildlife which includes April to August, including nighttime.”</i>	While such a general statement is always desirable, is it feasible given the proposed purpose of the development? If so, please provide examples of tangible restrictions that could be implemented considered to limit truck movement and noise. According to the Township of Puslinch	The recommended daily construction timing restriction for noise has been edited to between 9:00am and 9:00pm during the spring and summer months (April to August). In terms of operational noise restrictions, the proposed hours of operation of the facility are 8:00am	Sufficient if updated in EIS.	Comment addressed in revised EIS.

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			The EIS goes on to state: <i>“Construction noise [should] be restricted during spring and summer (April to August) to between 7:00 am and 7:00 pm.”</i>	Noise Control bylaw (5001-05), it appears that noise restrictions apply between 9:00 p.m. and 7:00 a.m. Therefore, this recommendation would reduce daily construction noise by of 2 hours. However, given that wildlife species are likely to be more active early in the morning vs. early in the evening, it is recommended that the onset of construction activities be delayed 2 hours in the morning to 9:00 a.m.	to 5:00pm, Monday to Friday, year round. These hours are not expected to result in noise impacts to breeding birds and other wildlife.		
34	7.4.2	Wildlife Disturbance	The EIS states: <i>“Permanent parking lot lighting should be shielded and directed away from the adjacent natural features so as to prevent ‘lightwash’ of these areas.”</i>	While these recommendations are supported, please also include a recommendation that the height of the light standards be reduced as much as possible, to further reduce the incidence of ‘lightwash’.	Noted. Reduction in height of light standards has been included in the recommendations.	Sufficient if updated in EIS.	Comment addressed in revised EIS.
35	7.4.3	Erosion and Sedimentation	It is unclear whether there are any possible impacts related to runoff entering the wetlands.	Clarify whether there could be any impacts to the wetlands regarding erosion and sedimentation and how	The on-site and adjacent wetlands are located upslope from the development and	Acceptable response. No further comment.	n/a

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
				such impacts would be addressed.	therefore are not at risk of sedimentation during construction, however, erosion/construction limit fencing is recommended along the outer limit of the work area. An Erosion and Sediment Control Plan will be prepared at the Site Plan stage.		
36	7.5	Induced Impacts	Dumping of debris is listed as an example of an induced impact.	Although it seems unlikely intentional dumping would occur during normal operations, please confirm if any mitigation measures are proposed to help ensure debris associated with the normal operation of the facility will not collect in adjacent natural areas.	Debris from the operation of the facility will be contained within the site by a chain link fence as well as routine maintenance and garbage collection, and will not blow into adjacent natural features.	Acceptable response. No further comment.	n/a
37	8.0	Summary	The EIS concludes that there will be no negative impacts on natural features onsite or adjacent lands, however this	See comments 11, 12, 18,21, and 27.	Based on the background review, fall field work, subsequent analysis and the buffers and mitigation measures	Response pending review of revised EIS.	Comment addressed in revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
			conclusion is premature; adequate field studies to support the EIS have not been completed.		proposed, our conclusion remains that there will be no negative impacts on natural features onsite or on adjacent lands.		
38	Appendix I	Terms of Reference	Text in the Reporting Section states: <i>“Recommendations to avoid, or otherwise minimize or mitigate impacts to significant natural features and functions will be presented in the EIS report. Opportunities for ecological enhancement and restoration on the Subject Property, will be highlighted.”</i> Ecological enhancement and restoration opportunities are not mentioned in the EIS.	Given the previous and proposed loss of natural habitat, ecological enhancement and restoration opportunities should be recommended. One area that could be considered for enhancement is the land between the unevaluated wetland at the NE corner of the property and the proposed parking area. In addition, the connection between this same area and the SWM pond to the south could be enhanced.	Enhancement plantings have now been recommended in the east parts of the property including the buffers to the woodland and wetlands as well as gaps between existing vegetation. See new Section 7.6 of the revised EIS. A landscape plan will be prepared at the Site Plan stage.	Response pending review of revised EIS.	Comment addressed in revised EIS and recommendations in section 7.6 are generally acceptable. Note: Detailed Landscape Plan will be reviewed during the Site Plan submission.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
39	Appendix I	SAR/SCC Screening	The table indicates that there is no suitable woodland or treed habitat for: Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tricolored Bat. However, based on MECP's Survey Protocol for SAR Bats in Treed Habitats (2021), the following ELC codes present suitable habitat for SAR bats: FOD, FOM, FOC, SWD, SWM, SWC. The FOD5 community therefore present potentially suitable habitat for these species. Further, the EIS notes that many mature isolated trees are present within the study area. These trees may provide similar habitat for SAR bats.	Please revise this table to indicate that suitable habitat is present for these species. It is recommended that snag trees be inventoried during the forthcoming Tree Preservation Plan in accordance with MECP survey protocols. Note that an Information Gathering Form (IGF) should be submitted to MECP if impacts to suitable SAR bat habitat are anticipated.	The FOD5 community provides potentially suitable habitat for some SAR bats, as described in the SAR screening table. Isolated trees on-site were assessed for suitable bat habitat during the tree inventory with one being noted.	See response to comment 3.	Comment addressed in revised EIS. Note: TPP will be reviewed during Site Plan submission.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
40	Appendix II	Plant Species List	This table does not include regional/local status information.	Please update to include species status information from the <i>Guelph Natural Heritage Strategy, Phase 2: Terrestrial Inventory & Natural Heritage System</i> (D&A, 2009). Any locally significant species and their habitats within the study area should be addressed in the EIS.	Added.	Sufficient if updated in EIS.	Comment addressed in revised EIS.
41	Appendix II	Plant Species List	Appendix H of the Aboud & Associates report, <i>"Additional Vegetation Study for Wet Depression in Gravel Pit"</i> appears to contain additional plant species that were not incorporated into the NRSI report.	Please review Appendix H of the Aboud & Associates report and ensure all plant species are incorporated into the plant species list.	Plant species in Appendix H have been added to the plant species list. However, those species were recorded in the habitats present in the northern portion of the site, associated with the former gravel pit, which have since been removed.	Sufficient if updated in EIS.	Comment addressed in revised EIS.

Comment Number	Section Number	Section Title	D&A Original Comment (January 27, 2023)	D&A Recommendation (January 27, 2023)	Applicant Response (March 9, 2023)	D&A Comment (March 14, 2023)	D&A Comment (April 6, 2023)
42	Appendix II	Plant Species List	False Hop Sedge (<i>Carex lupuliformis</i>) is recorded on the plant list and attributed to the Aboud & Associates 2014 study. This is an extremely rare sedge that is easily confused with the much more common Hop Sedge (<i>Carex lupulina</i>). A review of Aboud & Associates field data sheets suggests that False Hop Sedge was reported erroneously.	Please confirm whether False Hop Sedge (<i>C. lupuliformis</i>) was reported erroneously and, if so, correct the record to Hop Sedge (<i>C. lupulina</i>).	Aboud and Associates confirm that the sedge species could not be identified due to the timing of the survey and it was listed as <i>Carex</i> sp. In their plant list. <i>Carex lupuliformis</i> was included in the NRSI plant species appendix in error, and has been corrected.	Sufficient if updated in EIS.	Comment addressed in revised EIS.

April 11, 2023

Memorandum

To: Lynne Banks – Development and Legislative Coordinator, Township of Puslinch

Cc: Meagan Ferris – Manager of Planning and Environment, Wellington County
Zach Prince – Senior Planner, Wellington County
Courtenay Hoytfox – Municipal Clerk, Township of Puslinch

From: Danielle Walker, Source Protection Coordinator, Wellington Source Water Protection

Reviewed by: Kyle Davis, Risk Management Official, Township of Puslinch

RE: 128 Brock Road South, Township of Puslinch – Zoning By-law amendment

1. *Clean Water Act* Part IV Requirements

Due to the site's location outside any water quality WHPA or ICA, and because the draft WHPA-Q is not yet in legal effect, a Section 59 Notice under the *Clean Water Act* is not required for any applications under the *Planning Act* or *Ontario Building Code*.

2. Conditions

If Council approves this application, Wellington Source Water Protection recommends that the following conditions be fulfilled to the satisfaction of the Township's Risk Management Official, **prior** to the Holding Zone being lifted. The below conditions and recommendations are suggested based on a review of the Preconsultation and Zoning By-Law Amendment documents submitted by the applicant and could be included either as Holding Zone conditions or as conditions in a Site Plan Agreement, that is required to be approved prior to the removal of a Holding Zone.

- a. That the Drinking Water Threats Screening Form be completed and submitted.
- b. That the applicant complete and submit a Drinking Water Threats Disclosure Report and associated Management Plan(s) to the satisfaction of the Township Risk Management Official including, but not limited to, winter maintenance activities and liquid fuel, chemical and waste handling / storage activities.

- c. That the applicant provide a liquid fuel handling / storage and spill response procedure for construction and facility operation, to the satisfaction of the Risk Management Official.
- d. That the applicant provide the Environmental Compliance Approval (ECA) application and supporting documentation for the proposed sewage works to the Township for review and that the applicant provide Township comments on the application and supporting documentation to the Ontario Ministry of the Environment, Conservation and Parks.
- e. That the applicant submit a Water Balance Assessment report for the property to the satisfaction of the Township Hydrogeologist including addressing Township comments related filling in of depressions and meeting recharge conditions post development.
- f. That the applicant install a flow meter that records water usage at the site and retains records of water usage to provide upon request by the Township.
- g. That the applicant confirm and address mitigation of any transport pathways proposed for this development including addressing the Township Hydrogeologist's recommendation to either retrofit or decommission the existing on-site well to prevent groundwater flow from the Guelph Formation to the lower geological formations.

The following sections are provided for rationale and further information to the reader pertaining to the *Clean Water Act* requirements and recommended *Planning Act* approval conditions listed above. The following sections do provide any additional requirements.

3. Rationale

Drinking Water Threats Screening Form

- This form is an important tool that the Risk Management office uses to determine how Source Protection Plan policies may affect the property.
 - The applicant has noted that MHBC is to complete and submit the Source Water Protection screening form, however, it was not submitted with the application.

Threats Disclosure Report and associated Management Plan(s)

- For management of drinking water threat activities and other chemicals, waste, or fuels, a Drinking Water Threats Disclosure Report (TDR) and management plan (MP) are required under County of Wellington Official Plan 4.9.5.4. This report must address all Prescribed Drinking Water Threats and any other chemical, fuel (including generators), or waste storage listed in section 4.9.5 of the Official Plan. Please see Appendix A for the TDR guidance document and contact the undersigned if you have any questions.
- For any chemicals, waste, or fuel identified in the TDR as being stored or handled on site, a management plan must be submitted with the TDR. A management plan outlines the storage requirements, handling requirements, spill response plan and staff training for the site. Based on the application documents, it is anticipated that, at a minimum, the report and management plans will address liquid fuel, chemical and waste handling and storage and winter maintenance activities.

Liquid Fuel Handling

- During future submissions, please address whether there will be fuel storage on site temporarily during construction. If liquid fuel storage over 250 litres will occur during construction, it is requested that the applicant provide details on temporary fuel usage (quantity anticipated on site and a liquid fuel handling / storage and spill response procedure) during the application approval process.
- Given the nature of the proposal and that liquid fuel will be present on site during facility operation, a spills response procedure for fuel is requested. This can be incorporated into the fuel Management Plan referenced above.

Water usage

- The threshold for a Permit to Take Water is 50,000 L/day, however, draft water quantity policies which will be in legal effect in the future, recommend that the Township also monitor water usage below 50,000 L/day in the WHPA-Q.
- Given the size of the proposed development within the draft WHPA-Q, we request that the Township require the applicant to install a flow meter to monitor water takings.

Sewage Works

- The submitted documents indicate that an Environmental Compliance Approval for sewage works will be necessary. The Township will wish to review and make comment on that application.

Transport Pathways

- The response matrix indicates that there are transport pathways proposed for this site and that the existing well is also functioning as a transport pathway.

4. Further Information

The subject property is located in:

- a) a draft Wellhead Protection Area Q (WHPA-Q);
- b) a Significant Groundwater Recharge Area (SGRA); and
- c) a high- medium Aquifer Vulnerability Index (AVI) zone.

Attachments show the relevant mapping. Please note the subject property is not located in a Wellhead Protection Area for Quality, a Highly Vulnerable Aquifer (HVA), or Issue Contributing Area (ICA).

The vulnerable areas listed above are identified and mapped pursuant to the *Clean Water Act* and the Grand River Source Protection Plan, as amended. The Grand River Source Protection Plan – Wellington County chapter can be accessed [here](#). For ease of reference, some of the vulnerable areas are available either through online mapping tools such as the County of Wellington Explore Wellington [here](#) or the Provincial Source Protection Information Atlas [here](#).

Water quantity vulnerability is determined through the completion of water budgets. All Source Protection Areas initially completed either a Tier 1 (watershed) or a Tier 2 (subwatershed) water budget study for the entire watershed. Out of the Tier 2 studies, each Source Protection Area identified subwatersheds that had a 'moderate' or 'significant' potential for experiencing stresses related to water takings. In these areas, a Tier 3 Water Budget Study is conducted to further determine the risk to drinking water quantity. In Wellington County, there are Tier 3 water budget studies that are in various process stages in the Townships of Centre Wellington, Guelph Eramosa, Puslinch and the Town of Erin. Find more information [here](#).

The *Clean Water Act's* stated purpose is the protection of all drinking water sources, however, the Province of Ontario has currently scoped the implementation of this Act primarily to municipal drinking water systems through language in both the Act and associated regulations. Other drinking water systems, including non-municipal systems and private well clusters, can only be included in the implementation of this Act through Council resolution, acceptance by the Lake Erie Source Protection Committee and approval by the Provincial Minister of the Environment, Conservation and Parks. To date, other drinking water systems such as non-municipal drinking water systems and

private well clusters have not been included in the implementation of the Act within the County of Wellington and have only been sporadically included elsewhere in Ontario.

Therefore, although there is a cluster of private wells and a non-municipal drinking water system (Meadows of Aberfoyle) in close proximity to the subject property, the *Clean Water Act* and the Grand River Source Protection Plan do not legally apply to the protection of these private wells or non-municipal drinking water systems. It is important to note, however, that any protection measures that are legally required to protect the much more distant City of Guelph municipal wells, will also, by default, provide protection to the much closer private wells even if the measures are not legally required for the protection of the private wells. It is also noted that the Township Hydrogeologist has provided hydrogeological comments related to the hydrogeological characterization of the site and measures to reduce potential off-site impacts. We defer to and support the Township Hydrogeologist comments related to the subject property and support the inclusion of measures to ensure protection of private wells through *Planning Act* and *Ontario Water Resource Act* approvals.

In response to public concerns that the *Clean Water Act* does not provide default legal protection to private wells or non-municipal drinking water systems, the Ministry of the Environment, Conservation, and Parks released a 'Best Management Practice' guide that outlines steps to manage risks and identify actions that can be taken to protect private wells and non-municipal drinking water sources. The practices discussed in the guide are a proactive approach to protecting sources of drinking water And can be accessed here : <https://www.ontario.ca/document/best-practices-source-water-protection>.

The identification of vulnerable areas pursuant to the *Clean Water Act* is a tool used to assess potential risk to municipal drinking water sources. The vulnerability scoring is a ten point scale from 2 and 4 (low vulnerability) to 6, 8 (moderate vulnerability) to 10 (high vulnerability). The shading on the mapping reflects the vulnerability scoring, the highest vulnerability being shaded red (score 10). The scoring takes into account geological or hydrogeological features such as bedrock close to the ground surface, human influenced features (transport pathways) such as improperly decommissioned wells or aggregate pits and proximity to the municipal well(s). This mapping is only provided in proximity to municipal well(s) where the *Clean Water Act* specifies the establishment of wellhead protection areas for quality based on the estimated time of travel for water to travel to the municipal well(s). The highest vulnerability of 10 can only be present in the wellhead protection areas that are closest to the municipal wells either the WHPA – A (100 metre radius around the municipal well) or the WHPA – B (2 year time of travel).

To develop the vulnerable areas and scoring, aquifer vulnerability mapping, often at a watershed scale, is available for reference from the Conservation Authorities and referenced in the applicable Assessment Report. As noted above, the site is not located within a municipal wellhead protection area for quality and therefore only aquifer vulnerability mapping is available. This site is located in a high to medium Aquifer Vulnerability Index zone which indicates that geological, hydrogeological or transport pathway features indicate a potential for medium to high vulnerability to surface contamination. This was considered and is part of the rationale for the recommended conditions above.

Further comments will be provided during future planning applications and the requested conditions and recommendations may be updated at that time.

For more information, please contact the undersigned.

Sincerely,



Apr 11, 2023

Danielle Walker, Source Protection Coordinator
519-846-9691 ext 236
dwalker@centrewellington.ca



Apr 11, 2023

Kyle Davis, Risk Management Official
519-846-9691 ext 362
kdavis@centrewellington.ca

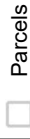
Attachments: DWT Screening Form
WHPA Maps
TDR Guidance



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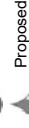


Parcels

Well Locations



Existing

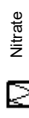


Proposed

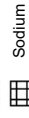
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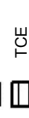
Chloride



Nitrate



Sodium



TCE

Wellhead Protection Area



A



B



C



D

Vulnerability Score



10



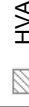
8, D, 8, C



2, 4, 6 (A, B or C)



2, 4, 6, D; 2, 4, D; 2, 4, 6 (D); 4, D; 6,



HVA

RoadsLookUp

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Notes

1.2 Kilometers

0.59

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1.2



Explore
Wellington

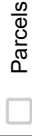
128 Brock Road South, Puslinch - AVI



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Legend



Parcels



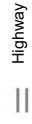
Roads



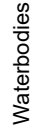
Local Road



County Road



Highway



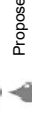
Waterbodies



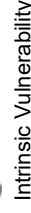
Well Locations



Existing



Proposed



Intrinsic Vulnerability



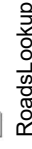
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RoadsLookup

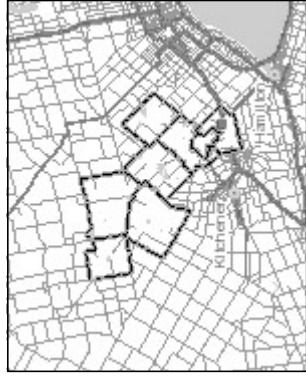
Notes

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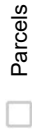
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Legend



Parcels

Roads

Local Road

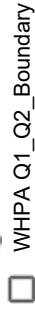
County Road

Highway

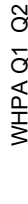
Well Locations

Existing

Proposed



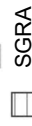
WHPA Q1_Q2_Boundary



WHPA Q1_Q2

Approved

Draft



SGRA

RoadsLookup



1: 5,784



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Notes

0.3 0 0.15 0.3 Kilometers


Source Water_Comments_BrockS_128_full_final April 11 23

Final Audit Report

2023-04-11

Created:	2023-04-11
By:	Danielle Walker (dwalker@centrewellington.ca)
Status:	Signed
Transaction ID:	CBJCHBCAABAAsga1LX8m4RUBHVu-T68vDpyz6RIkuZiE

"Source Water_Comments_BrockS_128_full_final April 11 23" History

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-  Document e-signed by Danielle Walker (dwalker@centrewellington.ca)
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-  Document emailed to Kyle Davis (kdavis@centrewellington.ca) for signature
2023-04-11 - 4:22:04 PM GMT
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Names and email addresses are entered into the Acrobat Sign service by Acrobat Sign users and are unverified unless otherwise noted.



PLANNING REPORT for the TOWNSHIP OF PUSLINCH

Prepared by the County of Wellington Planning and Development Department

MEETING DATE: April 18th, 2023
TO: Glenn Schwendinger, CAO
Township of Puslinch
FROM: Zach Prince, Senior Planner
County of Wellington
SUBJECT: **INFORMATION MEMO**
Zoning By-law Amendment Application D14/WEL
Puslinch Concession 7 Concession 8 Part Lot; 24 Part Road
128 Brock Road South

SUMMARY

This memo is to provide staff and Council with additional information, specifically related to tools available under the *Planning Act*, that can be used for the subject proposal at 128 Brock Road S. This report is in addition to the public meeting report provided to Council on March 22nd, 2023.

It is recommended that this Information Memo regarding the proposed Zoning By-law Amendment D14/WEL be considered by Township staff and Township Council.

Introduction

This file has been through a detailed review by planning staff and the Township's various consultants. A statutory public meeting was also held on March 22nd, 2023, and a detailed planning report outlining specific policies was provided at that time.

It is understood that the applicant has submitted additional information to the Township and that the Township has solicited additional comments from their consultants and agents. The additional consultant comments have not been reviewed by planning staff in advance of preparing this memo and does not form part of this memo.

It is further understood that the Township is hosting an Open House and a 2nd Public Meeting on April 18th. This memo is in addition to the information provided to Council previously.

Planning Tools for Consideration

Holding By-law

Planning staff will consider the appropriateness of applying a Holding by-law as part of the zoning by-law amendment. Section 13.5 of the County's Official Plan provides criteria for Holding By-laws, which is provided below:

"Where the use of land for a particular purpose has been established but details related to design, servicing, phasing, environmental considerations and other matters have not been completely resolved, a local council may use holding provisions in accordance with the Planning Act. The symbol "H" or "h" used in association with a zone symbol will indicate that holding provisions are in effect.

In order to remove a holding provision from a parcel of land, the following conditions must be satisfied, where appropriate:

- a) demonstration of the developer's commitment to proceed through the signing of, and compliance with the necessary subdivision and servicing agreements;
- b) indication from the municipal engineer that water and sewer services are available;
- c) indication from appropriate utilities that the necessary utilities are available;
- d) indication from provincial, county or local authorities having jurisdiction that road access is available;
- e) satisfactory provisions for the completion of any necessary drainage works, including down-stream or off-site improvements.
- f) demonstration that the use can be established within an acceptable level of risk to municipal water and/or communal supply sources in accordance with Sections 4.9.5 and 4.9.5.13 of this Plan, as applicable"

Some examples of site specific conditions that could be included in a holding by-law provision include:

- Decommissioning of the existing deep well
- Site Plan approval and associated Site Plan Agreement
- Requirement for updated or final studies to be completed
- Implementation of recommendations from noise study and/or Source Water Protection

Site Plan Control

The proposed development is subject to site plan approval which is a mechanism used to control design features of developments. Section 41 of the Planning Act and 13.9 of the County's Official Plan provides policies for site plan control. Additionally, the Township has a site plan control by-law, 2022-027. The review and finalization of site plan applications and site plan agreements often include parking and loading, accessibility, walkways, lighting, buffering, waste storage, grading, stormwater facilities, groundwater impact mitigation, remedial measures and other features can be addressed.

NEXT STEPS

A second public meeting will be held on April 18th and planning staff will be in attendance to hear comments from the public. Upon review of any additional information provided by the applicant, planning staff will prepare a recommendation report for Council's consideration regarding the proposed use.

Respectfully submitted,
County of Wellington Planning and Development Department



Zach Prince MCIP RPP
Senior Planner



The Aberfoyle Industrial Park is already a Trucking and Distribution Hub.

And it will get worse with the purchase of the Schneider Development @7475 McLean Rd. E. in Puslinch. With the purchase of this 40-acre development site by Summit Industrial Income REIT (across from their existing 280,000 sq ft property), they identify that it can accommodate approx. 790,000 square feet of additional density.

The Aberfoyle Industrial lands are home to more than **20** trucking, distribution and warehousing companies. A quick visual of properties identified parking and storage well in excess of **700** trucks and trailers (not including the new Summit purchase). Add that to the sprawling Dufferin Aggregate facility and the Aberfoyle GO Bus terminal, the scope and concentration of trucking and transportation facilities is significant.

And now the application for rezoning of 128 Brock Rd S by Wellington Motor Freight has proposed the additional of a 3 storey 30,031 sq ft headquarters, a 207,549 sq ft warehouse, parking for 150-170 employees, 21 loading bays and parking for 123 tractors and trailers.

This proposal is expanding the Industrial Park into residential areas and squeezing the Hamlet of Aberfoyle.

This proposal adds significantly to the concentration of Trucking and Distribution companies and further creates a gauntlet for anyone coming to our community and northbound through Morriston.

This proposal changes traffic flow and directs it into our residential community and along Gilmour Rd. **The buffer we currently have between Industrial and Residential areas will disappear.**

Aberfoyle is losing its identity – and we are losing it to Trucking and Distribution companies whose only concern is access to the 401.

But we still have a choice. We can limit Industrial expansion and direct efforts towards building our community into the haven we all believe it to be. Or we can rezone lands that will forever leave it's mark on how we will be seen – A *Trucking and Distribution Hub*.

Please say NO to rezoning 128 Brock Rd. S.

Regards

A black rectangular redaction box covering the signature area.

Sent from [Mail](#) for Windows

Justine Brotherston

From: [REDACTED]
Sent: Friday, March 24, 2023 1:39 PM
To: Russel Hurst
Subject: AGAINST D-14-WEL-128 BROCK RD S

Dear Councillor Hurst

Please do not allow the rezoning request D14-WEL-128 BROCK RD S. This would be very bad for our community in regards to water safety, traffic, and noise and air pollution. As residents of Aberfoyle, we join our community as **very much opposed** to this rezoning request.

Sincerely

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Saturday, April 01, 2023 3:46 PM
To: Sara Bailey; Planning; John Sepulis; James Seeley; Russel Hurst
Cc: [REDACTED]
Subject: AGAINST D14-WEL-128 BROCK RD S

Please do not allow the rezoning request D14-WEL-128 BROCK RD S.

This would be very detrimental to Aberfoyle. It would be extremely bad for our families - especially our children, and elderly.

- it would jeopardize water and
- it would cause unsafe traffic - especially for the neighborhood children
- it would increase noise pollution, and
- it would cause health issues due to air pollution.

As residents of Aberfoyle, we join our community as **very much opposed** to this callous, and unwise rezoning request.

Please support the citizens who voted you into office, by rejecting this unreasonable rezoning request.

Sincerely

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Monday, April 03, 2023 10:39 AM
To: Planning
Subject: Request to change zoning of 128 Brock Rd. S.

Dear Planning Dept:

After studying details concerning this rezoning application I basically cannot find one good reason for this application to be approved. Does anyone consider how bad traffic interaction was at Gilmour and Brock BEFORE the traffic circle was built? If this application is approved I think a traffic light would have to be installed on this proposed Terminal's exit onto Gilmour just to prevent people living on Gilmour being trapped in a traffic jam when 170 employee cars all arrive or depart at the same time.

My address at 15 Aberfoyle Mill Crescent is several hundred feet from this proposed entry way. Just considering the traffic impact on our community alone is reason enough to squash this application.

Other obvious reasons to deny this application: noise pollution, water table issues, water contamination, loss of property values, etc.

Approving this application would be a very bad idea. You elected officials should do what is obvious..protect the citizens of Puslinch and protect the concept of appropriate land use.

I think the citizens of Puslinch, Puslinch Planning Dept., and all elected officials of this Township should wholeheartedly stand united behind the original zoning of Highway Commercial for 128 Brock Rd. S.

[REDACTED]

Justine Brotherston

To: John Sepulis; Planning
Subject: RE: Proposed Truck Terminal at Gilmour and Brock Rd

From: [REDACTED]

Date: March 21, 2023 at 3:47:15 PM EDT

To: James Seeley <jseeley@puslinch.ca>

Cc: John Sepulis <jsepulis@puslinch.ca>, Russel Hurst <rhurst@puslinch.ca>, Sara Bailey <sbailey@puslinch.ca>, Jessica Goyda <jgoyda@puslinch.ca>

Subject: Proposed Truck Terminal at Gilmour and Brock Rd

Dear Mayor and Counsellors,

Now is the time for you folks to step up to the plate and protect Puslinch residents' property values and way of life. Our little Meadows of Aberfoyle is a 55 home subdivision that has poured over 4 million dollars in taxes into Puslinch since its inception. We have not gotten much in return. We pay to maintain our subdivision streets, pay for snow removal, pay for lighting, pay for maintaining a well system. This has been a win /win situation for this township. We have been a cash cow to Puslinch with very little in return. I think the time has come for you folks to get proactive on this issue. This proposed Terminal will have many truck drivers, many office staffand not one of them pays taxes in Puslinch.

What is the point of Official Plans when all a smart developer has to do is run around our first line of defense (which is you elected officials) and make big plans that will severely affect our homes. I know that none of you folks live near this proposed development like we do, but I hope you realize how important this issue is to us property owners.

I will reiterate our main concerns with this proposal:

- (1)property devaluation
- (2)environmental issues
- (3)water table problems

I really have to wonder how this application has gotten this far. Just because some developer has put a lot of money into this application is not supposed to mean this application is a done deal. Now is the time to act. Perhaps you should also consider what a lot of very angry taxpayers can do at election time.

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Monday, March 20, 2023 9:34 PM
To: Admin; [REDACTED]
Subject: Re: Your Submission to Puslinch

Dear Mayor Seeley,

I thank you for your reply to my concern of this proposed Truck terminal next door to our subdivision. I wrote emails regarding my concerns about this proposed amendment to you and all of our counsellors. Only you and one other counsellor bothered to reply to my email. Regarding the impact of this proposal on us residents, it really only confirms to me that maybe the "fix" is already in. What is the point of a Master development plan if the first thing that happens is some development company proposes contentious changes.....and they are approved? Why not stick with the original plan...did us taxpayers not pay good money for this plan? Why bother voting? Why bother with development plans? Why plan for the future when anyone can come up with a plan to increase the township's tax base? We are paying extremely high residential property taxes.....do you think this proposed Terminal's township taxes will lower my taxes? So, who are you and the other counsellors representing and working for...tax paying residents, or outside developers? I did note that none of your counsellors live near this proposed development.

[REDACTED]

On Thu, Mar 2, 2023 at 6:11 PM Township of Puslinch <admin@puslinch.ca> wrote:

Thank you for sending an email to Mayor Seeley. Please find a copy of your submission below.

Your Name

[REDACTED]

Your Email

[REDACTED]

Your Address

[REDACTED]

Subject

Zoning application Wellington Trucking

Your Message

Dear Mayor..How could this situation get this far? Are you and the other counselors not aware of the proximity of our subdivision just across the road from this planned monster truck terminal. If this goes thru I will probably have to sell and move on....I did not move here 6 years ago to be living in the middle of an industrial area. Isn't it your job to protect the residents of this township? Did no one think about the scarcity of our water resources? The destruction of property values? The kind of money I spend on taxes in this township I think I deserve to have somebody in my corner, and that should be you and the elected counselors

Sent from [Township of Puslinch](#)

To the Members of Puslinch Township Council,

I am writing to express my concerns about the current zoning by-law amendment submitted by Wellington Motor Freight in January of 2023. 128 Brock Road S. in the village of Aberfoyle is currently zoned for 'Highway Commercial', which does not permit the proposed use, by Wellington Motor Freight. As a resident and concerned citizen, I believe that the current application to rezone 128 Brock Road S. is not serving the best interest of our community.

The village of Aberfoyle is a growing community and must have a secure tax base for financial health and stability. A tax base provides the resources necessary to fund public services and infrastructure that are essential to the well-being and quality of life of its residents.

A diversified tax base will make our community more resilient to economic downturns. Our village is rapidly becoming a hub for the trucking industry. This rezoning request is for yet another warehouse and transformational terminal. In order to prosper a focus on multiple business sectors sets our community up for success.

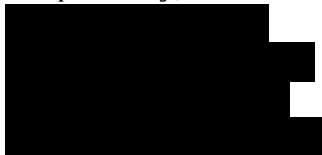
I urge the planning department, our mayor and councilors to diversify our tax base and keep the current zoning at 128 Brock Road S as 'Highway Commercial'. Understandably Wellington Motor and Freight wishes to be a larger part of our community and we welcome them to select a property that is currently zoned 'Industrial'. I am asking for clarification and seeking to understand the compelling rationale that is being considered for Wellington Motor and Freight's by-law amendment submission.

Retaining a tax base requires a concerted effort by our local government, businesses and residents to create a welcoming and supportive environment for economic growth.

Rezoning is not required. Wellington Motor and Freight should select another site that is zoned 'Industrial' within Puslinch.

Thank you for your time and consideration.

Respectfully,

A large black rectangular redaction box covering the signature and name of the sender.

Justine Brotherston

From: [REDACTED]
Sent: Tuesday, March 21, 2023 6:36 PM
To: John Sepulis
Cc: James Seeley; Jessica Goyda; Russel Hurst; Sara Bailey; Admin; Planning
Subject: RE: [External]RE: Proposed Warehouse and Truck Transportation Hub Gilmour and Brock Road

Importance: High

Thank you for your response and we certainly appreciate that you would keep an open mind when considering this rezoning application. We also ask that you please keep in mind the people that live, drive, and vote here – we are the ones that have the most to lose – property values, safety, and quality of life to name a few.

We believe that the studies conducted are inadequate and lack transparency. The application from the developer / trucking company has many shortcomings with many questions left without answers. Our biggest concerns are property devaluation, environmental and water related problems, safety, and quality of life that many people in our community cherish dearly.

We are not opposed to commercial development which could add value to our beautiful community, but we are apposed to industrial development as it absolutely does not add value.

Sincerely,

[REDACTED]

From: John Sepulis <jsepulis@puslinch.ca>
Sent: Wednesday, March 15, 2023 9:04 AM
To: [REDACTED]
Cc: Planning <planning@puslinch.ca>
Subject: [External]RE: Proposed Warehouse and Truck Transportation Hub Gilmour and Brock Road

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Thank you for your email Catherine.

I am copying in the Township so that your email can be part of the public record on this proposal.

To be frank I am keeping an open mind at this time. Council will be at the public meeting to hear the residents and the proponent.

A decision will not be made until a report comes forward to Council requesting a decision on the rezoning application.

Have a great day,

John

John Sepulis
Councillor

From: [REDACTED]
Sent: Tuesday, March 14, 2023 11:16 PM
To: John Sepulis <jsepulis@puslinch.ca>
Subject: Proposed Warehouse and Truck Transportation Hub Gilmour and Brock Road
Importance: High

Dear Councillor Sepulis:

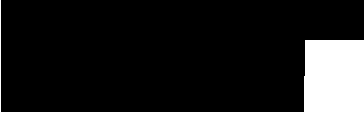
We are writing to you to express our very strong concerns with the proposed Warehouse and Truck Transportation Hub at Gilmour and Brock Road. Our quaint and beautiful community does not need this type of business so close to a residential area.

1. Rezoning from Highway Commercial / Secondary Agricultural to Industrial does a number of things:
 - o The subject lands are designated Highway Commercial, which comprises the Rural System. Permitted uses are agricultural, small scale commercial, industrial and institutional uses, as well as public service facilities. Changing it to Industrial:
 1. Removes restricted use of the land
 2. Removes the buffer that currently exists between the Industrial Area as laid out in the Official Plan and Aberfoyle Downtown Commercial, Urban Rural, Rural and Agricultural lands
2. Proposed use of the land and a lack of commitment not to operate outside of business hours will have a direct impact on:
 - o Residential Property values – with additional noise / light / visual impacts
 - o Traffic increase with 21 loading docks, 123 Tractor and trailer parking spaces and over 150 employees
 1. Exiting/entering the 401 and thru Morriston (until Morriston bypass is completed)
 2. Down Brock Street, thru the town of Aberfoyle and the corresponding roundabouts
 3. The road capacity along Gilmour especially during shift changes
 4. Proposed entrance to the development on Brock is adjacent to the truck turning of the existing aggregate facility - causing additional delays
 - o Environmental
 1. Noise from the additional traffic and the nature of the operations themselves
 2. Light from loading docks and traffic
 3. Air quality from trucking facility
 4. Soil / water and aquifer concerns with reduced permeability after paving over a sizable amount of land and the addition of a massive septic system.
 5. Addition of a well and the water reservoirs needed for fire and sprinkler systems (including regular testing, emptying and refreshing)
 - o Safety
 1. With residents using Gilmour as a walking route
 2. School bus routes along rural, residential, and school zones.
 3. Security of the site and our surrounding community

3. Potential for storage and transportation of hazardous goods

We ask you to strongly consider the above areas of concern when voting on this proposed rezoning application and remember the residential community that would be greatly impacted by this change. Not to mention the environmental impact and safety concerns that this would also bring to our beautiful community.

Sincerely,

A black rectangular redaction box covering the signature of the sender.

Justine Brotherston

From: [REDACTED]
Sent: Friday, March 10, 2023 11:18 AM
To: Russel Hurst
Subject: Concerns Regarding Proposed Warehouse & Truck Hub at Brock & Gilmour

Good morning Mr Hurst,

Hope you had a wonderful week and are staying safe and warm on this snowy Friday!

It was recently brought to our attention that there has been an application to rezone property at the end of our road for a proposed warehouse and truck transportation hub at Brock and Gilmour Road and needless to say as a Puslinch resident this is extremely concerning to us.

Currently Gilmour Road is lovely, quiet residential street, where people enjoy the beautiful country life, safe walks on the road with pets and children and time with friends and neighbours. This has created lots of opportunity for the township by making it one of the more desirable places to live. And sadly the proposal for a large, dirty and busy truck hub will greatly ruin the appeal of moving and living in Puslinch/Aberfoyle. Currently on your website you state "Our residents know that the Township of Puslinch is the ideal place to call home. With its laidback country feel and convenient proximity to major cities, it truly is a perfect fusion of rural and urban living." but if you allow companies like this to come in and threaten our beautiful community you are essentially turning your backs on this statement as well as your current residents.

As a resident my list of concerns if you allow this to proceed is extensive:

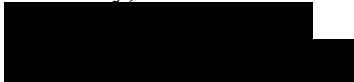
1. I am extremely disappointed to see the township is yet again turning its back on beautiful agricultural land to be rezoned for industrial use. We are an agricultural community that used to support farmers and local produce, but we seem to have lost our way the last couple years, focusing more on stealing precious farmland from those that work hard to feed our towns and cities for industrial and truck stops.
2. By allowing a truck company to build here you are placing enormous risk to our local environment. A large company like this, specifically in the trucking business places a huge risk to our groundwater, increased garbage on our local roadsides, extreme risk of pollutant leaks such as oil, antifreeze and other fluids being leaked into our grounds. All of this is only mere meters from residential homes and our beloved local elementary school.
3. Take a real look at the current truck hubs we have in the county. They all create excess dust, look dirty and unkept, create issues with traffic and park along the roads, cause light pollution all night long, and show little respect for their neighbours. My family currently farms in Puslinch and we have a couple fields that back onto the current truck hubs and I can tell you from experience they companies and their drivers have little to no respect for others properties, the environment or the community they are in. We constantly have to walk our fields before trying to harvest our crops to clean up all the garbage they throw over the fence into our fields. They seldom stop let alone slow down coming out of the facility's lane creating an extremely dangerous road. And we have no doubt in our minds they do not dispose of mechanical fluids properly, rather quickly and cheaply, with no respect for the land they are on or the negative effects they have on our environment and water supply.
4. You would be allowing a loud, dirty and busy truck location to be within feet of beautiful well sought after residential areas. With no buffer land in between. I have no doubt this will greatly decrease the value of all the beautiful family homes on Gilmour Road and surrounding area, and will most likely mean the majority of residents will potentially look to leave the area, in search of another community to live in.

5. The roads are not set up for the number of trucks this new hub would have. The small street through Morriston and Aberfoyle, as well as the small side roads (which truckers already drive on regardless of regulations) are not appropriate or safe to have these large transports travelling on them, nor are the roundabouts throughout the route.
6. As a trucking hub the location would undoubtedly be open 24 hours, this means shifts of employees coming in and out at all hours, all night lighting disturbing the country sky, excessive noise all hours of the day.
7. Air quality due to excessive exhaust and trucks being left on. We always say that the air in Puslinch, in the country, is so beautiful compared to the smog and dirty exhaust you see in the big cities, but by opening our doors to this company you are basically inviting the horrible air pollution to our front doors, only meters away from family residents and an elementary school.
8. How much water will this new company use? We currently are known for our great water in Puslinch, but if this company is allowed to move in, how much will they be draining from our groundwater supply? By time you figure in office, septic, sprinkler systems, reservoirs, washing trucks and automobiles on site? Add in the fact that they will take from the township but will most likely also be the main cause of water pollution in our area as well, with run off, lack of environmental stewardship practices and harmful liquids on site. It would only be a matter of a couple years before our well sought after clean water would be a health hazard.
9. Safety concerns for the community, with additional traffic, school bus routes, school safety zones are all at risk for additional accidents and deaths.
10. We have already seen on Gilmour Road the disrespect of people using our lovely country roads to dump garbage and pollute the roadside. This has been excessive in the past, but we can guarantee there will be lots more if you allow a trucking company to be on the road as well.

I am sure in theory the company that has purchased the land will make promises up front on paper, but will they truly stick to their promises to protect the local environment and respect their neighbours? Probably not. They do not live here, they are not raising their families here, they do not have kids going to the school down the road. They are here to make money and do what makes them most profitable, with no regard whatsoever to those around them. That is not what Puslinch is about and I don't think we should be allowing people who do not have the same values and goals as our township to come in and destroy them.

I really hope that the township truly takes all the current residents' concerns into consideration. Families used to be excited at the prospect of moving to this area but if we continue to disregard the reasons that make Puslinch so great for less savory development, I think we will soon find Puslinch is no longer the wonderful place it once was, which is extremely sad.

Sincerely,

A black rectangular redaction box covering the signature of the letter.

Justine Brotherston

From: [REDACTED]
Sent: Saturday, April 01, 2023 7:46 PM
To: Planning
Subject: Rezoning Application

We moved to Aberfoyle in the Township of Puslinch to enjoy a safe and beautiful rural location.

Rezoning and allowing Wellington Motor Freight would have an enormous adverse impact on the community. It would bring noise, air pollution, water contamination and huge safety issues from the increased traffic activity

This is a loud and clear message that Wellington Motor Freight is not wanted.

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Monday, March 20, 2023 11:40 AM
To: Planning
Subject: Objection to rezoning 128 Brock Rd South

To Whom It May Concern

Please see my email below sent to puslinch councillors in response to the rezoning of the above named property! We plan on attending the meeting this Wednesday March 22nd@ 7 pm.

Regards
Don & Julie Gillett

Your Name

[REDACTED]

Your Email

[REDACTED]

Your Address

[REDACTED]

Subject

Rezoning of 128 Brock rd south

Your Message

I'm writing you to express my objection to the rezoning of the above address . I'm a resident of Aberfoyle Meadows and have lived here for 4+ years. We've enjoyed moving to the country for the fresh air, quiet community & the close proximity to Guelph. Rezoning of this nature could potentially affect not only our safety for the water system (septic) drinking water but walking down the street on Gilmour that we do everyday with our children, dogs & grandchildren. Having large trucks at all hours running up and down Gilmour is a safety issue. It's already used by large illegal heavy trucks which is detrimental to the road , a huge increase in noise factor & the environment . A rezoning of this nature would b catastrophic for our quiet community! We look forward to hearing from you in this matter.

[REDACTED]

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Monday, April 03, 2023 7:04 PM
To: Planning
Subject: The proposed rezoning by The Wellington Trucking Company

Currently the residents of the hamlet of Aberfoyle enjoy rural walkways, clean air, clean water, maintained green spaces and a safe, beautiful rural environment.

We purchased our properties with the understanding that the zoning of the area in question was secondary agriculture/ highway commercial.

Rezoning this area to industrial will destroy the present Aberfoyle environment.

The proposed twelve-hour shift of workers can increase, the lack of knowledge of stored materials is a potential health and safety issue, even if the stored materials are deemed safe under normal circumstances, what if there is a fire!! After a fire, safe materials can become very toxic and present long-term health and safety issues to residents and the environment.

The waste water from this large plant will just be deposited in a ditch next to natural wetlands and monitored wells and septic beds.

The pollution from the increased car and truck traffic and the idling trucks at the unloading bays will have extreme health and safety issues to the area residents and students and staff at the nearby Aberfoyle Public school.

I vote a definite NO to the proposed rezoning change.

[REDACTED]

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Justine Brotherston

From: [REDACTED]
Sent: Wednesday, April 05, 2023 9:00 PM
To: Planning
Cc: James Seeley; Jessica Goyda; Sara Bailey; John Sepulis; Russel Hurst; matthewb@wellington.ca
Subject: Opposition to Wellington Motor Freight Rezoning

To Whom It May Cocern,

We are the residents of [REDACTED]. We are writing to express our strong opposition to the proposed rezoning of the Wellington Motor Freight right beside our residential community.

RESIDENTIAL HOUSES AND WELLINGTON MOTOR FREIGHT DOESN'T GO TOGETHER SIDE BY SIDE!!!

Obviously, the increased truck traffic and noise pollution from the company would be a significant disruption to the peace and quietness of our neighborhood. This could have a detrimental effect on the mental and physical health of residents, particularly children and the elderly. We have a 9 year old and most of our neighbours are retired people who chose to live here because of the quietness.

Furthermore, rezoning would lead to an increase air and water pollution and environmental hazards in this area. This could have long-term health effects on the residents, as well as the local ecosystem.

We urge you to consider the negative impact this rezoning would have on our community and to reject it. Please encourage Wellington Motor Freight relocate somewhere else.

Thank you for your consideration.

Sincerely,
[REDACTED]

April 2,2023

Township of Puslinch

I am adding my name to the list of people who are opposed to the proposed rezoning change at 128 Brock Road south. This is not an area which should have a truck depot.

I moved to Aberfoyle over 13 years ago. At the time we liked how Aberfoyle had such a clean and quite atmosphere. We liked the small town feel and also the feel of community and its ready location to Guelph, Cambridge, and the 401.

The idea of a truck depot, in my opinion, anywhere north of Mclean Road does not seem like the right location for this type of business. We have two industrial areas at or south of Mclean Road which I feel would be better suited for a business such as this one. These industrial areas are away from residential areas and do not take away from the beautiful and quite drive through Aberfoyle. (just need to stop some speeders now)

I have seen the trucks which line up on Brock Road to go into the gravel pits early in the morning. I think those quantity of trucks will pale in comparison to those which will be destined for the proposed new truck depot at 128 Brock Road south. It also seems like these trucks could be at any time of day. With about 21 truck bays you can imagine the amount of truck traffic in and out of this location. The noise levels will probably also increase. I do not think the truck depot will have control of all the various truck drivers using this location. There goes our quite and clean Aberfoyle.

We shall now also have additional traffic on Gilmour.Road. We already have approximately 83 household residential propoities who use Gilmour Road for access to Brock road at the roundabout. You will now have to add between 85 and 170 additional automobiles who will have to use this area. The amount of traffic and congestion at times will be unreal. Again there goes our clean and quite Aberfoyle.

I have not touched on the potential problems which will arise in regards to water usage and potential waste water usage. We all know how this area is reliant on clean and unpolluted water. The problems which could arise because of all these truck, cars and business issues could endanger all businesses and residents in the area.

Please DO NOT approve the rezoning at 128 Brock Road south for this proposed truck depot, and keep our Aberfoyle beautiful and clean.

Yours truly



April 2, 2023

The Township of Puslinch
Planning Dept.,
7404 Wellington Rd. 34
Puslinch, ON. N0B 2J0
Attn: Township Clerk

RE: Zoning Bi-Law Amendments Application-Wellington Trucking

Dear Sirs/Madam,

For the record, I and my husband are opposed to the Wellington Trucking Development Proposal for so many reasons, including but not limited to, damage to the environment, noise, property values, traffic but more importantly well water concerns.

I would have liked to believe the Puslinch Council would have had significant apprehension regarding this proposal, unfortunately it has come to this. Since watching the latest Council Meeting on YouTube, attending the public meeting, it appears there is not much of a push back from the Council which is troubling to all those affected by this careless decision to even move forward.

What is so concerning to me is that Puslinch has even considered paving over farmland for possible construction on a green belt. I had once believed that Puslinch Township was better than this. This is why we moved to this area, of which we pay substantial taxes, never dreaming we would be amid industrial areas and not agricultural/rural residential areas.

This proposal will only increase the traffic in this area. At present even with the addition of the "roundabout" at Brock and Gilmour, it has become the "INDY 500" of Puslinch. No regard for posted speed limits and transport trucks need the two lanes to make it through the roundabout. Without question there would be some new employees of this facility who live north of Aberfoyle that will be accessing Gilmour from Victoria as this will be possibly a quicker route. A road that is constantly in repair due to non-pavement.

We all are aware at the lack of **comprehensive studies** of our well water, noise, pollution, environment, property values or traffic that would suggest this is a fair and productive development for both the residents of the area and Township of Puslinch.

More importantly, after living In Meadows of Aberfoyle for several years it has become very apparent for the need to preserve our well water. The preservation of our water is paramount and could never be stress enough. It will take more than berms, landscaping or planting a few trees/shrubs to preserve our water and a valued quality of life this area has provided to so many.

Respectfully

[Redacted Signature]

Justine Brotherston

From: [REDACTED]
Sent: Monday, April 03, 2023 2:51 PM
To: Planning; James Seeley; Jessica Goyda; Sara Bailey; John Sepulis; Russel Hurst
Cc: andyl@wellington.ca; matthewb@wellington.ca
Subject: Zoning Bi-Law Amendments Application-Wellington Trucking

My spouse and I vehemently oppose the rezoning of the Brock Road and Gilmour site to allow for a trucking operation.

This proposal will do nothing for our community but add increased noise, air and water pollution to an already highly stressed environment.

Further there does not seem to be an adequate financial assessment on the impact this proposal would have. What additional funding will be required to handle the additional traffic and impact on Gilmour Road? Brock Road? Will the tax revenue from the applicant offset the loss in tax revenue from the otherwise future commercial developments in line with current zoning?

The applicant talks of increased growth with the new site - how will this impact our water resource? Have they included their growth on their water needs? Do they have the necessary provincial water permits?

Putting an industrial complex adjacent to a rural residential community is not good planning. I trust the council to do the right thing and deny the application.

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Monday, March 20, 2023 9:41 AM
To: Planning
Subject: Re-zoning on Gilmour Road

Puslinch Mayor and Council members:

My husband and I were absolutely horrified to see the plans for the end of our very peaceful street, Gilmour Road. I really don't know what A) that company is thinking and B) how anyone could think this is a good idea.

First: traffic! Over 150 employees coming and going. This is a small road and I don't believe the majority of the residents want the road paved.

Second: noise! 3 storey office building? 123 parking spaces for big rigs? 170 parking spaces for employees?

Third: destruction of the nature of the area! If this plan goes through, the people who will be most impacted will be homes that are directly across from the buildings/parking of big rigs and the residents of the Meadows of Aberfoyle. How can they begin to deal with all the traffic this will bring in? Indeed how can anyone on this road be happy with such a zone change? Certainly we are not. Every single home on Gilmour Road will be impacted by this.

The placement of this company and the changes to the environment will likely bring home prices down. I surely wouldn't consider buying a home that close to the end of Gilmour Road with this company across from me.

Already many people cut through back roads and use Gilmour as a cut through to Gordon. Once they find out they can get to work that way from Victoria, the road will just turn into a thorough fare.

We moved here to enjoy the peace and quiet and also the nature of the land. I know that Brock Road is becoming busy, but this change at the end of Gilmour Road seems ridiculous to us.

We sincerely hope that those in charge will do the right thing, and that would be to disallow the zone change. We are in opposition to this rezoning and Wellington Motors moving to that spot at the end of Gilmour Road.

[REDACTED]

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Thursday, March 23, 2023 4:46 PM
To: Sara Bailey; Planning; James Seeley; John Sepulis; Russel Hurst; Jessica Goyda; Admin
Subject: Re: Changes to zoning Gilmour Road and Brock Road

Good afternoon: We attended the meeting last night on zoom. We found the meeting so disappointing. The person from Wellington Motors said that if they weren't wanted here, of course, they wouldn't move here. That is quite rich. We're furious that this has even gotten this far. And everyone on Gilmour Road should have been involved from the beginning, it has an impact for all of us of on the road.

If he could not tell from EVERY single speaker that this is the case, I guess he doesn't understand that this community does NOT want them here.

Also we could not understand a word Mayor Seeley said, very poor mic. Also some people who were actually there in person they couldn't hear any of the speakers and ended up leaving.

We do not have confidence that the requirements of the residents will be met. I don't know of a single family/resident on Gilmour Road who doesn't oppose this. There was nothing the company brought forward that made us feel comfortable with the company locating at the end of our road. Re-zoning this area and getting rid of the residential buffer is a huge mistake.

[REDACTED]

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Saturday, March 18, 2023 12:52 PM
To: Planning
Subject: Fwd: Proposed Warehouse and Truck Transportation Hub at Gilmour & Brock Rd

Good afternoon.

We have been made aware of the rezoning application which would see a proposed Warehouse and Truck Transportation Hub at Gilmour and Brock Road. As residents/homeowners/parents in the closest community to the site, we have grave concerns regarding this proposed rezoning from Highway Commercial/Secondary Agricultural to Industrial.

By changing from current designation to Industrial will:

- remove restricted use of the land
- remove the buffer between the industrial area and the commercial, urban rural, rural and agricultural areas
- potential future industrial expansion/development

The proposed use of the land will:

- decrease residential property values
- increase noise pollution
- increase light pollution
- increase air pollution from trucking facility
- pose concerns on soil quality due to sizeable paving
- pose concerns on water & aquifer quality particularly with addition of well/septic system and reserves
- increase traffic due to 21 loading docks, 123 Tractor and trailer parking spaces and over 150 employees
- increase safety concerns while exiting/entering the 401 and thru Morriston until bypass is constructed
- increase safety concerns down Brock, through the town of Aberfoyle and the corresponding roundabouts
- decrease pedestrian safety along Gilmour and Brock
- decrease road capacity along Gilmour especially during shift changes

- decrease safety of school bus routes
- increase additional delays due to proposed entrance on Brock is adjacent to the truck turning of the existing aggregate facility
- increase security concerns both at the site and in the community
- increase potential for storage & transport of hazardous goods

The lack of commitment not to operate outside of business hours is a serious concern - the potential 24/7 traffic, noise and light is a detriment to a community that is composed primarily of seniors and young families. An industrial complex this close to a residential & agricultural area poses a risk we are not willing to take. Please do not consider this application.

Regards,

[REDACTED]

[REDACTED]

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Tuesday, March 21, 2023 4:44 PM
To: James Seeley; John Sepulis; Russel Hurst; Sara Bailey; Jessica Goyda; Admin
Cc: [REDACTED]
Subject: Trucking rezoning pre-read from The Meadows of Aberfoyle

Dear Mayor Seeley, and Councillors,

As a volunteer President of our condo association, The Meadows of Aberfoyle, I must have a thick skin and a sense of humour. We all know the expression about herding cats...but this rezoning application has stirred this bucolic little community in ways I've not seen before. The residents are wide awake, some more animated than I would like, but very united in opposition to the rezoning. Our reasons are substantial, not as they say, NIMBY.

- We are in favour of commercial development. It adds value. Industrial does not.
- We take great pride in our compliance with the Provincial Water Permit, weekly monitored water treatment plant, our stormwater retention pond, our constructed and natural wetlands as well as our advanced decentralized septic systems.
- It is inconceivable to us that such a large and heavy industrial trucking hub could operate with a simple private well.
- We suspect the septic as proposed is undersized and located much too close to the stormwater outflow. The stormwater and septic combine to threaten the groundwater and watershed in the area.
- Our first row of houses have elevated lots. They also have elevated decks facing Brock. No amount of acoustic berms or vegetation will mitigate the noise due to the elevation difference. These will be the first houses to decrease in value, dragging the whole community down.
- We understand that the traffic studies indicated only a one second delay in traffic flow. Good...but I have to wonder if anyone besides those that live and drive here everyday really understand how dangerous the traffic circle is. Northbound during rush hour at the Gilmore exit is like Russian Roulette every afternoon. Please see for yourself. It will only get much worse with the additional cars and trucks blocking visibility. I suggest one hand on the horn and one foot near the brake

We cherish the environment and lifestyle here in this secret little oasis we call home. We ask you to support us to protect this wonderful place. Seriously, I haven't experienced a community like this since I was a boy in the 1960's. The stories I could tell you, if I had the time. Not even the realtors really understand it.

I have copied and pasted some content (and web links) below for your consideration.
We look forward to meeting you tomorrow and presenting our case in opposition.

Yours Sincerely,

[REDACTED]

Warehouses & Distribution Centers: Potential Adverse Effects

While warehouses or distribution centers provide vital services, poorly planned projects can cause harm to neighborhoods and the environment, due to:

- Adverse health effects due to diesel exhaust,
- Excessive truck traffic on neighborhood streets,
- Disturbing levels of noise, and
- Property value decline.

The vast majority of new warehouses or distribution centers are built in areas far removed from homes.

Diesel Exhaust & Health

There's a large and growing body of research documenting the adverse effects of diesel engine exhaust on respiratory health.

Noise

CEDS conducted a survey of those living near facilities with a high-volume truck traffic. The neighbors reported excessive noise due to truck engine idling, shouting, loud music, backup beepers, etc. While it is possible that noise barriers or other measures might resolve noise impacts, effectiveness may depend upon maintenance or other provisions that could be difficult to enforce.

Meadows of Aberfoyle Commentary: *The first row of housing on Aberfoyle Mill Cres has elevated back yards with elevated decks. No amount of berm or vegetation will mitigate noise issues to our community. The property values in this row will be negatively impacted first and pull down the entire neighborhood. Warehouses are NOT light industrial use.*

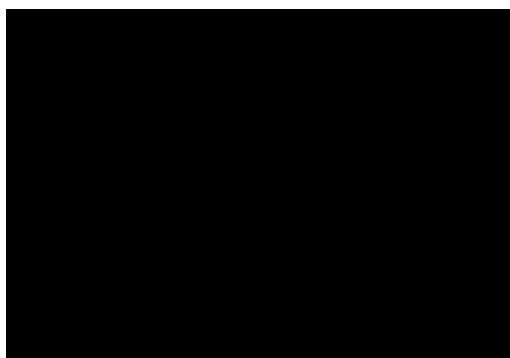
Union of Concerned Scientists: Warehouses as an Environmental Justice Issue [Warehouses As an Environmental Justice Issue - Union of Concerned Scientists \(ucsusa.org\)](http://ucsusa.org)

When we think of locally undesirable land uses, we often think of large power plants, puffing single plumes of pollution. But many plumes of pollution from trucks traveling to and from warehouses can have equally large impacts on health.

The increased number of warehousing facilities not only consume large tracts of land, but also bring about substantial environmental externalities. Freight trucks generate air pollutants, noise, pavement damage, and traffic safety threats while moving into and out of warehouses.

According to studies in public health and traffic engineering, a truck creates significantly higher environmental impacts than a passenger vehicle. The exposure of local residents, especially children and elderly people, to truck

related emissions like [NO_x](#) and [particulate matter](#) would cause health outcomes including [asthma and respiratory allergies](#).



Justine Brotherston

From: [REDACTED]
Sent: Monday, March 13, 2023 9:35 PM
To: Russel Hurst
Subject: New Entry - Email Councillor Russel Hurst

Your Name

[REDACTED]

Your Email

[REDACTED]

Your Address

[REDACTED]

Subject

Gilmore rd zoning for trucking company

Your Message

Dear councillor Russel Hurst. , I wanted to introduce myself. My name is [REDACTED] [REDACTED] and I am a mother, wife and educator. I moved to puslinch so my children can have a safe place to play outdoors and enjoy nature and all it has to offer. I was so sad to hear that the land across (the meadows of aberfoyle mill) from where I live is

a potential zoning area for a trucking company. This is not only going to be a risk and safety issue for my children and the children of our community. We take walks down Gilmore rd and it is currently not busy and full of trucks and cars which it will become if this trucking company relocates across my home. I am writing to you as you are one that I hope can keep our families and children safe. Please stop this from happening. Not only will it be a dangerous area for our children to play outdoors alone and explore because of additional traffic, but it will be a safety issue for our watering system. It will impact the peaceful area we live in. I have an infant and chose this place for our home because it is quiet and personal. Not to mention all the pollution in the air that will surround our home and influence the health and safety of every single family member. Please help us save our children's health and their safety in a community. I pray that this email finds you well and that you can find it in your heart to help our community stay slow (traffic flow), quiet, and safe as well as free of any harmful chemicals in our air and water.

Thank you again,

██████████

Sent from [Township of Puslinch](#)

Justine Brotherston

From: [REDACTED]
Sent: Tuesday, April 04, 2023 11:19 AM
To: Planning
Subject: Reports regarding Wellington Motor Freight's Zoning Application for 128 Brock Road South S.

Good morning.

I was at the Wednesday, the 22nd of March's Wellington's Application meeting at the Puslinch Community centre. There were many statements made by Wellington Motor Freight and MHBC Planning the that I was not in agreement with, but there were 2 statements made by Pierre Chauvin from MHBC Planning, the planning consultant engaged to do the application for Wellington Motor Freight:

- 1) The first statement was that the traffic congestion in and around the Gilmore and Brock Rd S roundabout would only increase by one second compared to the time it takes to go through this roundabout now, (prior to any proposed construction of a project like the Wellington Motor Freight HUB of the future with projected revenue of over \$100 million. (As stated by Wellington Motor Freight management team)
 - a. NB. Every tractor/trailer, 40ft or longer commandeers both lanes of the roundabout due to the turning radius of this size of truck and that the back end uses the inside lane of the 2 lanes in the roundabout to navigate at the Gilmour/Brock RD S in any entry and exit. The speed limit in the roundabout is 20Km/h, the trucks go through at 10Km/h due to the trailing back end of the truck .
 - b. Also, all of the trucks coming from the north on Brock Rd., from the east off of Highway 7 and from the west from Highway 7 and Wellington Side Road #34 from both east and west, will have no other choice but to go south on Brock Road S, through the roundabout and then turn across the north bound traffic. Every truck that has to wait to turn at the proposed entry, blocks one lane of Brock Rd south at the two busiest times of the day. Imagine when Wellington Motor Freight does their consolidation of warehouses', and as they grow their sales to over 100 million dollars per year over the next five years. These facts no longer point to having only 15 trucks coming in and out of the facility! We need to take into consideration what this proposed project is at the start, and, more importantly, what this will look like going forward in five and ten years!
- 2) With regards to the water safety quality and water septic management program, please note that the whole site of 15 acres will be covered by buildings and asphalt and the septic flow and rain will all end up in the front ditch at the corner of Gilmore and Brock Rd South. Details were hard to come by at the Wed 29th meeting regarding this. I am hoping that we would not see water accumulation at this corner like a mini lake. It was noted that Pierre Chauvin from MHBC Planning, when asked "What will happen with the septic water from the proposed plan go?" Pierre Chauvin stated that it will go into the ditch at the front of the proposed site. This cannot be right and needs to be verified and greatly improved!

I would like to get copies of both the water and traffic studies for this proposed project to better understand how my interests of both traffic safety at the Gilmore roundabout and the quality of my and everybody else's drinking water that will be affected by this proposed mega project.

Please note I am against the rezoning of the property at 128 Brock Rd. South.

Sincerely,



Justine Brotherston

From: [REDACTED]
Sent: Monday, March 13, 2023 6:57 PM
To: Russel Hurst
Subject: D14/WEL

Dear Councilor Hurst,

As a taxpayer in this county, I am writing to you to let you know that I strongly oppose file application D14/WEL.

Gilmour Rd and Aberfoyle Mill Cres are residential roads. The proposed plan to change a portion of Gilmour Rd. To industrial zoning would have a considerably negative impact on the residents of the area. I have no doubt that if your family lived in the area you would agree.

The negative impacts include greatly increased traffic along Gilmour, additional noise and pollution to go along with that. There are safety concerns with the additional traffic as residents in the area use Gilmour as a walking route. Also, school buses routes are along Gilmour.

I am also concerned about property values being impacted because of the additional noise and visual impact of the proposal.

I urge you to oppose this application.

Sincerely,

[REDACTED]

Justine Brotherston

To: John Sepulis; [REDACTED]
Cc: Planning
Subject: RE: D14/WEL

On Mar 30, 2023, at 4:04 PM, [REDACTED] wrote:

Dear John,

I was unable to attend the public meeting as I was out of town.

I believe several of my neighbours attended the meeting. I think even more questions were raised after the meeting. There appear to be many environmental issues - water usage, storm water and septic runoff management, septic size and orientation. There are health and safety concerns for our community. There are traffic and road condition concerns. There are property value concerns.

I strongly believe that there should be no industrial zoning beside residential zoning.

I just wanted to reiterate that I strongly oppose this application.

Sincerely,

[REDACTED]

On Tue, Mar 14, 2023 at 8:12 AM John Sepulis <jsepulis@puslinch.ca> wrote:

Thank you Sarah for your email.

I am copying in the Township so that your email can be part of the public record on this proposal.

To be frank I am keeping an open mind at this time. Council will be at the public meeting to hear the residents and the proponent.

A decision will not be made until a report comes forward to Council requesting a decision on the rezoning application.

Have a great day,

John

John Sepulis

Councillor

Get [Outlook for iOS](#)

From: [REDACTED]
Sent: Monday, March 13, 2023 6:55:01 PM
To: John Sepulis <jsepulis@puslinch.ca>
Subject: D14/WEL

Dear Councilor Sepulis

As a taxpayer in this county, I am writing to you to let you know that I strongly oppose file application D14/WEL.

Gilmour Rd and Aberfoyle Mill Cres are residential roads. The proposed plan to change a portion of Gilmour Rd. To industrial zoning would have a considerably negative impact on the residents of the area. I have no doubt that if your family lived in the area you would agree.

The negative impacts include greatly increased traffic along Gilmour, additional noise and pollution to go along with that. There are safety concerns with the additional traffic as residents in the area use Gilmour as a walking route. Also, school buses routes are along Gilmour.

I am also concerned about property values being impacted because of the additional noise and visual impact of the proposal.

I urge you to oppose this application.

Sincerely,

[REDACTED]

[REDACTED]

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Tuesday, March 21, 2023 8:04 PM
To: Planning
Subject: ReZoning : Please Stop!!!!

Your Name

[REDACTED]

Your Email

[REDACTED]

Your Address

[REDACTED]

Subject

Rezoning - please stop!

Your Message

Good afternoon Mayor,

I am emailing you again to express my grave concern as to the proposed rezoning of Brock Rd and Gilmour Rd in Puslinch. I live in the Aberfoyle Meadows community just off Gilmour Rd, and I, along with all of the members of our subdivision, are extremely worried about the possibility of a trucking company moving just down the road from us. We all use Gilmour Rd to enter our community, which is a quiet, residential area close to protected natural land and an elementary school. The idea that a trucking company adding more vehicle congestion, noise, and safety issues for our community is unacceptable. We have a precious well and water supply that supports all the houses in our subdivision, and there could be problematic implications of a large operation and septic system being so close in proximity.

I urge you to please deny this rezoning application and allow the hamlet of Aberfoyle and north Puslinch to remain the quiet and peaceful place that it is. Many of us moved here to get away from the noise of busier towns, and we are now faced with the disturbing future of being neighbours to the sounds and pollution factors of a trucking company. I am a very saddened and concerned citizen.

Please, do what is right Councillor.

Best regards,

[REDACTED]

Justine Brotherston

From: [REDACTED]
Sent: Sunday, April 02, 2023 9:18 PM
To: Planning
Cc: Russel Hurst; andyl@wellington.ca; matthewb@wellington.ca
Subject: For public record. Cc of March 25 letter to Councillor Hurst regarding Rezoning application submitted by Wellington Trucking

From: Township of Puslinch <admin@puslinch.ca>
Date: March 25, 2023 at 11:52:50 PM EDT
To: esdaniel@rogers.com
Subject: Your Submission to Puslinch
Reply-To: admin@puslinch.ca

Thank you for sending an email to Councillor Hurst. Please find a copy of your submission below.

Your Name

[REDACTED]

Your Email

[REDACTED]

Your Address

[REDACTED]

Subject

Please vote no on the rezoning application submitted by Wellington Trucking

Your Message

Dear Councillor Hurst,

I am writing to you once again to ensure you are aware of the major opposition of the residents of Puslinch against the application to rezone the parcel of land just south of Gilmore to permit Wellington Trucking to build there.

As a long time resident I am asking for your support to ensure we do not allow a new swell of trucks into our beautiful town. This will bring with it more truck traffic, pollution, noise pollution and weigh heavy on the environment for our local community. Not to mention be an eyesore as you enter into our town. As a fellow resident of Puslinch I am hopeful that you too see the detrimental impact of this on our town and specifically the adjacent roads and lovely adjacent resident properties. We invested heavily into creating a lovely community and do our part well maintaining well groomed properties and paying significant taxes to support our lovely community.

We need your support please to ensure we leave this zoning as is and to allow a business use more suitable and useful for our community.

I can be reached at [REDACTED] anytime to discuss further.
Respectfully

[REDACTED]

Sent from [Township of Puslinch](#)

Hillary Miller

From: [REDACTED]
Sent: Monday, April 10, 2023 8:31 PM
To: James Seeley
Cc: Planning
Subject: Truck Depot Application

Dear Mayor Seeley:

I am a resident of Aberfoyle residing in Aberfoyle Meadows for numerous years now. I am a lifelong nurse with a family and new grandchild who as you can imagine has become a huge part of our hearts and community very quickly. We also are the proud parents of 3 children and 2 rescue dogs who we respectfully walk around our lovely community several times a day. Our family relocated here from south Guelph attracted by the beauty and peacefulness of this lovely area. It's a place we want to be our forever home and I cannot wait till my granddaughter walks along our lovely streets including beautiful Gilmour Road. We are proud of living in Aberfoyle and have been active in helping our community.

I am writing to you today regarding a heart wrenching issue related to an application of a trucking firm who have applied to rezone a piece of land very near to our home which would permit them to build a trucking depot way too close to our community and just directly south of us. This is very disturbing and would result in a major change to our lovely Aberfoyle Meadows. This will bring major traffic, noise, pollution and waste to our neighbourhood and have a significant impact on the environment. The effects of this will be felt forever into the future. And all of this does not even address the impact it will have on the further displacement of wildlife in our beautiful fields and forested areas.

I am writing to ask for your support to ensure that this does not get approved. It clearly is not going to be good for our lovely town and will be an embarrassment based on its appearance and use. Please know that our residents do not want this to move forward and we are looking for your support to ensure it gets denied.

Kindest regards,

[REDACTED]

[REDACTED]

Hillary Miller

From: [REDACTED]
Sent: Monday, April 10, 2023 7:54 AM
To: Planning
Cc: James Seeley; John Sepulis; Russel Hurst; Sara Bailey; Jessica Goyda; Admin
Subject: Wellington Group: "we don't want to ram it down your throats"

Dear Mr. Mayor, Councilors and Planning Dept.

As noted in Community papers on March 23rd, 2023, there was a loud outcry from the local community in opposition to the proposed rezoning of 128 Brock Rd. S. In that article, Wellington Group of Companies spokesperson and President, Mark Lunshof was also quoted on record:

In response to unanimous opposition from the community he said **"Everything you are saying are valid concerns"**

"If it doesn't work out, we are not going to be offended"

"And through this process, if it turns out this is not right, **we don't want to ram it down your throats."**

I am sure Wellington is a company with integrity, proud of their Brand and that Mr. Lunshof is a man of his word.

Since that meeting there has been a concerted effort to understand how all the communities in the area feel about this expansion of industrial lands to encroach upon residential areas and whether increasing the density of trucking / warehousing facilities and increased traffic in this area is appropriate.

To that end, an information website has been created OneAberfoyle.com to inform and assist residents in assessing the application. An on-line petition has been started to provide an avenue to voice opinions. <https://change.org/OneAberfoyle> And since many Townships do not acknowledge third party petitions, a door-to-door paper version is being conducted now in multiple communities.

To date, the response has been overwhelming throughout the Village of Aberfoyle and Morristown, with many people offering their assistance, voicing their support and encouraging the Township of Puslinch Council to not to accept the application and to maintain the existing commercial buffer between Industrial and Residential lands.

Many of us are business professionals and are not opposed to growth and understand that multiple land use opportunities must coexist in a vibrant community. We understand that the tax base is bolstered by well planned Industrial areas and must be balanced with plans to maintain and enhance the small-town character.

We also understand that County Official plans and Community Improvement Plans may change, but they shouldn't change easily or recklessly and should not be changed at the expense of existing residents for whom the plans were made.

We hope the Township and the Wellington Group of Companies are finally beginning to hear the overwhelming and growing objections to this application.

[REDACTED]

[REDACTED]

Sent from [Mail](#) for Windows

Hillary Miller

From: [REDACTED]
Sent: Tuesday, April 11, 2023 9:32 AM
To: James Seeley; Jessica Goyda; Sara Bailey; John Sepulis; Russel Hurst; [REDACTED] Planning
Cc: 'Meadows of Aberfoyle'
Subject: Stop the Rezoning of 128 Brock Rd. Re: Wellington Group of Companies Application.

Dear Mr. Mayor James Seeley, Councillors of Puslinch Ms. Jessica Goyda, Ms. Sara Bailey, Mr. John Sepulis, Mr. Russel Hurst, Wellington County Mr. Mathew Bulmer and the Township of Puslinch Planning Department

Please Stop the Rezoning of 128 Brock Rd.

Re: Wellington Group of Companies Application

I want to add my voice to opposition over the planned rezoning of 128 Brock Rd. to Industrial.

There has been a lot of discussion about the Wellington Freight's proposed rezoning of 128 Brock Rd S over the last few weeks. It has been voiced that having a trucking and warehouse distribution centre in this location is not in the best interest the residents or the community at large.

On top of environmental, water, noise, and traffic concerns, of particular focus is the impact on Gilmour Rd. and what it means to both the infrastructure and the current access to residents.

Over the past week we were greeted with survey stakes outlining where the employee entrance would be placed on Gilmour Rd. Although this was a surprise, as we are being told that a decision has yet to be made, we were able to get a visual confirmation that such a decision would prove disastrous. The entrance is approximately 120 feet from the pedestrian crosswalk at the roundabout and 170 from the roundabout entrance itself.

That runway would, at best, accommodate 7-10 vehicles turning left from the facility onto Brock Rd. S. With employee numbers upwards of 170 entering and exiting during rush hours, traffic will be a nightmare. And that is on top of an already busy intersection that proves difficult for residents to use during peak hours.

For those exiting the facility, such a backup would force them to turn right along Gilmour Rd. A road that is not built for excessive traffic and is used for resident walking, cycling and school bus routes.

Wellington Freight consultants have suggested that there will be little or no impact on Gilmour. How is that conclusion possible or even supported?

This rezoning should not be approved and consideration of residents should be prioritized over a trucking firm's desire to have access to the 401 at the expense of the community around them.

I am also very concerned about the proposed septic system to support the large workforce that will be on sight. I have a state of the art Septic, Shallow Buried Trench leaching bed that covers approximately 1,600 square feet of my back yard. We have 55 homes in the Meadows of Aberfoyle and that would mean the total Septic bed coverage for our subdivision would be approximately 88,000 square feet (approximately 2 acres) for roughly 110-120 people. This is the size that is deemed required for proper septic treatment. Looking at some of the proposed drawings for the Distribution/Office centre, the Septic beds seem to cover a much smaller area than would logically be required.

I believe that this project is a disaster waiting to happen.

Please Say NO to rezoning 128 Brock RD. S.

Yours respectfully

[Redacted signature]

Hillary Miller

From: [REDACTED]
Sent: Tuesday, April 11, 2023 8:54 AM
To: James Seeley; Jessica Goyda; Sara Bailey; John Sepulis; Russel Hurst
Cc: Planning; matthewb@wellington.ca
Subject: Rezoning and letter to President & CEO of Wellington Trucking
Attachments: [REDACTED]

Good Morning,

Attached is a letter I recently sent (mailed hard copy) to [REDACTED] President & CEO of the Wellington Trucking Company, concerning rezoning the land at 128 Brock Road South.

I wanted to reiterate to Mr. Koza the consequences of rezoning and how the Aberfoyle hamlet would be affected by this change.


I am sending this letter to you as well so that our efforts in trying to stop the rezoning is heard.

Regards,

[REDACTED]

Sent from my iPhone

March 30, 2023


Wellington Motor Freight
7419 McLean Rd. W
N1H 6H9

Dear Mr. Koza:

I am a long time resident of Aberfoyle Meadows. Our residential community is in very close proximity to where you are attempting, via rezoning, to relocate your trucking company. To say your potential relocation has put our community in a tailspin would be an understatement.

Our residents have made Aberfoyle Meadows their forever homes, many with their families and many retired here. They chose it for its natural beauty, acres of walking trails, beautiful trees, wildlife and a serene quietness that attracted us all to this little community. It is a sought after neighbourhood with very few homes coming up for sale. We know a good thing when we have it!

With all that said, we stand to lose much of what we value if you are successful in relocating your company to the land adjacent to our community. When we bought here, we did so with the adjacent land south of Gilmour zoned residential. It was rezoned to light commercial a number of years back with the worse case scenario of some small businesses supporting our community needs. We strongly oppose it being rezoned again to bring in a large trucking firm such as Wellington Trucking.

In the recent Puslinch Council meeting you said "if we are not wanted here, we will relocate". Please don't take this personally, but we would like to hold you to your statement and beg you to find another location for your company. It seems to me that finding a piece of land that doesn't pose a detrimental impact to the residents and the surrounding area would be a lot easier and less costly on your part.

We have too much to lose and will fight with everything we have to keep our community and surrounding area untouched by water contamination, air pollution, sound pollution, traffic congestion, and last but not least the devaluation of our homes.

Please reconsider. We would be forever grateful.

Sincerely,



Hillary Miller

From: [REDACTED]
Sent: Monday, April 10, 2023 8:16 PM
To: John Sepulis
Cc: Planning
Subject: Re-zoning Application

Dear Councillor Sepulis

I am writing this email to voice my sincere opposition to granting approval for a re-zoning application, effectively allowing Wellington Transportation Inc to set up a trucking Depot and logistics center on vacant land, presently zoned commercial.

I am a long time Guelph resident. My wife and I moved to Puslinch, after downsizing from our family home. We have been living on Aberfoyle Mill Cres, a wonderful neighborhood that includes walking trails, ponds, and shared neighborhood green spaces.

I attended the initial public meeting on this matter, at which time I, along with others from our neighborhood, were allowed time at the "mic" to voice our concerns and opposition. Thank you for listening.
The same concerns, and others, were nicely articulated by a number of speakers at that meeting.

I continue to believe strongly that a trucking hub should not be located close to any residential community. My concerns include concerns of noise pollution, light pollution, air pollution from diesel exhaust and potential land/water pollution from any diesel or chemical spill, albeit unlikely.

My biggest concerns centre around increased traffic on Gilmor Road, the only exit from our neighborhood and the effects that increased trucking traffic will have on our adjacent roundabout. I have no doubts that there will be significantly increased traffic congestion caused by trucks slowing down to negotiate the roundabout. In the short time that the roundabout has been open, I have witnessed a major traffic disruption, requiring traffic diversion, caused by a car on the inside lane, effectively being "squeezed" by a long truck, negotiating the roundabout in the outside lane at the same time. I wonder whether this particular roundabout was designed to accommodate transport truck traffic.

At the meeting, I distinctly remember hearing one of the co-owners speak in support of his company's application. I recall him effectively saying that they would not build on that site, if they were not "wanted". What ensued were many voices, telling him that this project was clearly not wanted. I know the mayor and council members heard those voices as well.

With dedicated industrial parks, some advertising land for sale, it bewilders me that a project such as this cannot be redirected there, instead of having to convert greens, in proximity to residential areas.

Thank you for taking the time to read this. I sincerely hope that this project does not go ahead as proposed. I along with members of our community ask for your support in denying this application.

Sincerely,

[REDACTED]

[REDACTED]

[REDACTED]

Hillary Miller

From: [REDACTED]
Sent: Monday, April 10, 2023 11:14 AM
To: James Seeley; Planning
Cc: Jessica Goyda; Sara Bailey; John Sepulis; Russel Hurst
Subject: Your residents need your support on this critical issue for our community

Hello Mayor Seeley, I am writing to you with the deepest respect for you and your team and with the understanding that you too want what is best for your residents here in Aberfoyle. I am hopeful that you also believe that people need to come first...ALWAYS. Our community is one of respectful residents serving their community well.....Aberfoyle Meadows, the community directly north of the rezoning application site...is a community of well respected professionals including Doctors, Police Officers, Firefighters, business owners and many retired professionals who are extremely stressed and worried that a trucking company is applying to set up shop within literally hundreds of yards of our family homes. This is where our residents, their children and grandchildren walk their dogs, play outdoors and catch the bus to school along Gilmour. It is hard to fathom how this can even be considered in any fashion. Industrial sites such as this do not belong next to families homes in residential communities. I am sure you would agree that you would not want this happening next to your home. Residents are losing sleep...REALLY... they are.

We need your support and that of our councillors to ensure that we do not allow the parcel of land south of Gilmour to once again be re-zoned (first from it's residential zoning) to allow for a major trucking firm to set up shop there. This would be a disaster for the entry point of our lovely town to be a source of air pollution, noise pollution, light pollution, water contamination, truck traffic, car traffic and a distasteful appearance for our lovely community. There is plenty of land elsewhere more suited to a business of this sort and adjacent to industry where it belongs. When our lovely community was built this piece of land was residential and should have remained as such. Now that it is zoned to allow a business set up then please let's make that business one that our residents need and can appreciate, one that serves our community. A large trucking firm bringing workers here with their waste and pollution is not what our community needs or wants.

For all the right reasons please support us here and vote "No" to Wellington Trucks request for rezoning this parcel of land. This is a community which rallied in support of you for Mayor and overwhelmingly moved to vote "Yes" for your team as we knew you were looking to improve our community for it's families bringing new parks and positive elements forward. We intend to fight for our lovely community and need your support. I would appreciate hearing back from you on this critical issue for us all.

Respectfully submitted,

Hillary Miller

From: [REDACTED]
Sent: Monday, April 10, 2023 10:06 PM
To: Planning
Subject: Updates

Hi

I am waiting to inform that I am absolutely against this project. Puslinch is such a nice quiet neighborhood therefore we would like to stop the rezoning.

Thanks

[REDACTED]

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