



# Oakwood Drive, Niagara Falls

## D-6 Compatibility & Mitigation Study Air Quality, Dust, Odour & Noise Niagara Falls, ON

SLR Project No: 241.30441.00000

July 2022



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# D-6 Compatibility & Mitigation Study

## Air Quality, Dust, Odour & Noise

### Niagara Falls, ON

SLR Project No.: 241.30441.00000, Version 1

Prepared by  
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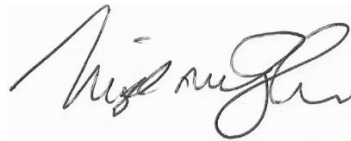
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## EXECUTIVE SUMMARY

SLR Consulting (Canada) Ltd. (SLR), was retained by Branthaven Development to conduct an environmental air and noise quality study for the proposed Oakwood development located in Niagara Falls, Ontario (“Project site”).

The environmental air and noise quality study is required by the City of Niagara Falls in support of a planning approval application for the development of the Project site. The proposed development is planned to include 2-storey and 3-storey townhouses combining for a total of 236 units, and associated surface parking. A portion of the townhouses are planned to accommodate secondary units.

The addition of “sensitive” land uses within the Project site, including residential, requires an assessment of land use compatibility with the surrounding proposed, and existing, employment land uses.

This assessment has considered:

- Industrial air quality, odour, and dust emissions;
- Transportation-related air pollution;
- Industrial/ commercial noise; and
- Transportation-related noise.

The assessment has included a review of air quality and noise emissions from industrial facilities in the area.

Based on the review completed, the Project site development is anticipated to be compatible with the surrounding land uses from an air quality perspective. Emissions of dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit surrounding existing or future industries and the ability to obtain or maintain required MECP permits or approvals.

However, it is recommended that the Mitigation Measures and Warning Clauses located in **Appendix A** be placed on units back lotted towards the pumping station:

- Purchasers/tenants are advised that due to the proximity of adjacent industries, dust and odours from these facilities may at times be perceptible.
- Mandatory air conditioning to allow for windows to remain closed if needed;
- Air intakes for building mechanical systems, central air conditioning units and heat recovery units shall be located in areas of least impact, on the lea-side of the building (west facade), facing away from the pumping station; and
- Air intakes for building mechanical systems, make-up air units, HVAC units, central air conditioning units and heat recovery units shall include space for the future installation of carbon and/or dust filters.

It is further recommended, that fresh air intakes on units facing the Queen Elizabeth Way be directed away from the Queen Elizabeth Way and Oakwood Drive. It is further recommended that fresh air intakes be placed in rooftop mechanical spaces, or at above-grade locations to provide separation distance from vehicle emissions (roadways, loading bays, on-site parking), and to include standard MERV rated filters on fresh air intakes.

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Noise Impacts from surrounding industries has been reviewed. Impacts from the surrounding industries are predicted to meet the MECP Class 1 guidelines. An MECP **Type E** noise warning clause is recommended for all units in the development due to the general noise from the surrounding industries and commercial properties. Warning clause text can be found in **Appendix A**.

The potential for transportation noise impacts on the development have also been reviewed. Upgraded glazing is not predicted to be required. Mandatory installation of AC, and various warning clauses are required to address transportation noise. Warning clause text can be found in **Appendix A**.

With the inclusion of the above noted warning clause and recommendations, the requirements of MECP Guideline D-6 are met. As the applicable policies and guidelines are met, the Project site is:

- Unlikely to result in increased risk of complaint and nuisance claims;
- Unlikely to result in operational constraints for the major facilities;
- Unlikely to result in constraints on major facilities to reasonably expand, intensify or introduce changes to their operations.

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# 1. INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR), was retained by Branthaven Development to conduct an environmental air and noise quality study for the proposed Oakwood development located in Niagara Falls, Ontario (“Project site”).

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The addition of “sensitive” land uses within the Project site, including residential, requires an assessment of land use compatibility with the surrounding proposed, and existing, employment land uses.

This assessment has considered:

- Industrial air quality, odour, and dust emissions;
- Transportation-related air pollution;
- Industrial/ commercial noise; and
- Transportation-related noise.

In this assessment, SLR has reviewed the surrounding industrial land uses and major facilities in the area with respect to the following guidelines:

- The Provincial Policy Statement;
- Ministry of the Environment, Conservation and Parks (“MECP”) Guidelines D-1, and D-6;
- Ontario Regulation 419/05: *Air Pollution – Local Air Quality* and its associated air quality standards and assessment requirements; and
- The MECP draft policies on odour impacts and assessment;
- MECP Publication NPC-300 noise guidelines for industrial and transportation, and
- City of Niagara Falls Noise Control By-law 2004-105 as amended.

This report identifies and evaluates options to achieve land use compatibility through appropriate design, buffering and/or separation distances between the proposed sensitive land uses, including residential uses, and nearby employment areas and/or major facilities.

## 2. DESCRIPTION OF PROJECT SITE AND SURROUNDINGS

### 2.1 PROJECT SITE

The Project site is located south of the intersection of Oakwood Drive and McLeod Road and immediately north of a car dealership located at 7818 Oakwood Drive (currently occupied by Cardinal Kia) in Niagara Falls. The Project site is currently vacant of any buildings or operations. The Project site and context plan can be seen in **Figure 1**.

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## 2.2 CITY OF NIAGARA FALLS OFFICIAL PLAN

The Project site and lands to the north are designated Major Commercial. To the east the lands are designated Tourist Commercial. To the south, the lands are designated Industrial. To the west is Oakwood Drive and the QEW. Beyond the QEW the lands are designated Major Commercial. An excerpt from the OP Map can be seen in the attached **Figure 2**.

## 2.3 CITY OF NIAGARA FALLS ZONING BY LAW 79-200 (1)

The Project site and lands to the north are zoned Planned Shopping Centre Commercial (SC). To the south, the lands are zoned Prestige Industrial (PI). To the west is Oakwood Drive and the QEW. Beyond the QEW the lands are zoned SC. To the east the lands are zoned Tourist Commercial (TC). The Project site is identified on the City of Niagara Falls area zoning map in **Figure 3**.

## 2.4 PROPOSED DEVELOPMENT

The proposed development is planned to include 2-storey and 3-storey townhouses combining for a total of 236 units, and associated surface parking. A portion of the townhouses are planned to accommodate secondary units. A copy of the concept site plan is provided in **Figure 4**.

## 2.5 SURROUNDINGS

The project site is currently not occupied. To the north the land use is comprised of a series of multi tenant commercial uses that include grocery store (Bulk Barn), retail stores (various), big box retail (Walmart), and gas station (Petro-Canada). To the east, Niagara Region operates a sewage pumping station. Beyond the pumping station is the Hydro Canal and low density residential homes. To the south is Cardinal Kia, an automotive vehicle dealership. To the west is the QEW. Beyond the QEW is Niagara Square Shopping Mall which is comprised of a series of multi tenant commercial uses.

# 3. ASSESSMENT FRAMEWORK

The intent of this report is to undertake an assessment of land use compatibility between the Project site and surrounding proposed, and existing, employment land uses. This report identifies and evaluates options to support compatibility between the sensitive, employment and/or major facility land uses through design, buffering and/or creation of separation distances.

The requirements of the Ontario planning regime are organized such that generic policy is informed by specific policy, guidance, and legislation, as follows:

- The Ontario Planning Act, Section 2.1 – sets the ground rules for land use planning in Ontario, whereby planning decisions have regard to matters of provincial interest including orderly development, public health, and safety; then
- The Provincial Policy Statement (“PPS”) sets out provincial land use and development goals – seeking to ensure adjacent land uses are compatible from a health and safety perspective and are appropriately buffered; then
- The Provincial Growth Plan, Section 2.2.5 – builds on the PPS to establish a unique land use planning framework for the Greater Golden Horseshoe, where the development of sensitive land uses will avoid, or where avoidance is not possible, minimize and mitigate adverse impacts on industrial, manufacturing, or other uses that are particularly vulnerable to encroachment; then
- The MECP D-series of guidelines set out methods to determine if compatibility assessments are

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required (Areas of Influence, Recommended Minimum Separation Distances, and the need for additional studies); then

- MECP and Municipal regulations, policies, standards, and guidelines set out the requirements of additional air quality, noise and vibration studies and the applicable policies, standards, guidelines and objectives to ensure that adverse effects do not occur.

### **3.1 ONTARIO PLANNING ACT**

The Ontario Planning Act is “provincial legislation that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them. The purpose of the Act is to:

- provide for planning processes that are fair by making them open, accessible, timely and efficient
- promote sustainable economic development in a healthy natural environment within a provincial policy framework
- provide for a land use planning system led by provincial policy
- integrate matters of provincial interest into provincial and municipal planning decisions by requiring that all decisions be consistent with the Provincial Policy Statement and conform/not conflict with provincial plans
- encourage co-operation and coordination among various interests
- recognize the decision-making authority and accountability of municipal councils in planning”

Section 2.1 of the Ontario Planning Act describes how approval authorities and Tribunals must have regard to matters of provincial interest including orderly development, public health, and safety.

### **3.2 PROVINCIAL POLICY STATEMENT**

The PPS “provides policy direction on matters of provincial interest related to land use planning and development. As a key part of the Ontario policy-led planning system, the Provincial Policy Statement sets the policy foundation for regulating the development and use of land. It also supports the provincial goal to enhance the quality of life for all Ontarians.”

The PPS is a generic document, providing a consolidated statement of the government policies on land use planning and is issued under section 3 of the Planning Act. Municipalities are the primary implementers of the PPS through policies in their local official plans, zoning by-laws and other planning related decisions, such as the City of Vaughan Official Plan. The current 2020 PPS came into effect on May 1, 2020. Policy direction concerning land use compatibility is provided in Section 1.2.6 of the PPS.

From the current 2020 version of the PPS:

#### **“1.2.6 Land Use Compatibility**

1.2.6.1 Major facilities and sensitive land uses shall be planned and developed to avoid, or if avoidance is not possible, minimize and mitigate any potential adverse effects from odour, noise and other contaminants, minimize risk to public health and safety, and to ensure the long-term operational and economic viability of major facilities in accordance with provincial guidelines, standards and procedures.

1.2.6.2 Where avoidance is not possible in accordance with policy 1.2.6.1, planning authorities shall protect the long-term viability of existing or planned industrial, manufacturing or other uses that are vulnerable to encroachment by ensuring that the planning and development of proposed adjacent sensitive land uses are only permitted if the following are

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demonstrated in accordance with provincial guidelines, standards and procedures:

- a) there is an identified need for the proposed use;
- b) alternative locations for the proposed use have been evaluated and there are no reasonable alternative locations;
- c) adverse effects to the proposed sensitive land use are minimized and mitigated; and
- d) potential impacts to industrial, manufacturing, or other uses are minimized and mitigated.”

The goals of the PPS are implemented through Municipal and Provincial policies, as discussed below. Provided the Municipal and Provincial policies, guidelines, standards, and procedures are met, the requirements of the PPS will be met.

### **3.3 D-SERIES OF GUIDELINES**

The D-series of guidelines were developed by the MECP in 1995 as a means to assess Recommended Minimum Separation Distances and other control measures for land use planning proposals in an effort to prevent or minimize ‘adverse effects’ from the encroachment of incompatible land uses where a facility either exists or is proposed. D-series guidelines address sources including sewage treatment (Guideline D-2), gas and oil pipelines (Guideline D3), landfills (Guideline D-4), water services (Guideline D-5) and industries (Guideline D-6).

For this project, the applicable guideline is D-6 - *Compatibility between Industrial Facilities and Sensitive Land Uses*.

Adverse effect is a term defined in the Environmental Protection Act and “means one or more of

- impairment of the quality of the natural environment for any use that can be made of it,
- injury or damage to property or to plant or animal life,
- harm or material discomfort to any person,
- an adverse effect on the health of any person,
- impairment of the safety of any person,
- rendering any property or plant or animal life unfit for human use,
- loss of enjoyment of normal use of property, and
- interference with the normal conduct of business”.

#### **3.3.1 GUIDELINE D-6 REQUIREMENTS**

The guideline specifically addresses air quality emissions including odour, dust, noise, and litter. To minimize the potential to cause an ‘adverse effect’, Areas of Influence and Recommended Minimum Separation Distances are included within the guidelines. The Areas of Influence and Recommended Minimum Separation Distances from the guidelines are provided in the table below.

**Table 1: Guideline D-6 – Potential Areas of Influence and Recommended Minimum Separation Distances for Industrial Land Uses**

Industry Classification	Area of Influence	Recommended Minimum Separation Distance
Class I – Light Industrial	70 m	20 m
Class II – Medium Industrial	300 m	70 m
Class III – Heavy Industrial	1000 m	300 m

Industrial categorization criteria are supplied in Guideline D-6-2, and are shown in the following table:

**Table 2: Guideline D-6 - Industrial Categorization Criteria**

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class I Light Industry	<ul style="list-style-type: none"> <li>Noise: Sound not audible off-property</li> <li>Dust: Infrequent and not intense</li> <li>Odour: Infrequent and not intense</li> <li>Vibration: No ground-borne vibration on plant property</li> </ul>	<ul style="list-style-type: none"> <li>No outside storage</li> <li>Small-scale plant or scale is irrelevant in relation to all other criteria for this Class</li> </ul>	<ul style="list-style-type: none"> <li>Self-contained plant or building which produces/stores a packaged product</li> <li>Low probability of fugitive emissions</li> </ul>	<ul style="list-style-type: none"> <li>Daytime operations only</li> <li>Infrequent movement of products and/ or heavy trucks</li> </ul>	<ul style="list-style-type: none"> <li>Electronics manufacturing and repair</li> <li>Furniture repair and refinishing</li> <li>Beverage bottling</li> <li>Auto parts supply</li> <li>Packaging and crafting services</li> <li>Distribution of dairy products</li> <li>Laundry and linen supply</li> </ul>
Class II Medium Industry	<ul style="list-style-type: none"> <li>Noise: Sound occasionally heard off-property</li> <li>Dust: Frequent and occasionally intense</li> <li>Odour: Frequent and occasionally intense</li> <li>Vibration: Possible ground-borne vibration, but cannot be perceived off-property</li> </ul>	<ul style="list-style-type: none"> <li>Outside storage permitted</li> <li>Medium level of production allowed</li> </ul>	<ul style="list-style-type: none"> <li>Open process</li> <li>Periodic outputs of minor annoyance</li> <li>Low probability of fugitive emissions</li> </ul>	<ul style="list-style-type: none"> <li>Shift operations permitted</li> <li>Frequent movements of products and/ or heavy trucks with the majority of movements during daytime hours</li> </ul>	<ul style="list-style-type: none"> <li>Magazine printing</li> <li>Paint spray booths</li> <li>Metal command</li> <li>Electrical production</li> <li>Manufacturing of dairy products</li> <li>Dry cleaning services</li> <li>Feed packing plants</li> </ul>
Class III Heavy Industry	<ul style="list-style-type: none"> <li>Noise: Sound frequently audible off property</li> <li>Dust: Persistent and/ or intense</li> <li>Odour: Persistent and/ or intense</li> <li>Vibration: Ground-borne vibration can frequently be perceived off-property</li> </ul>	<ul style="list-style-type: none"> <li>Outside storage of raw and finished products</li> <li>Large production levels</li> </ul>	<ul style="list-style-type: none"> <li>Open process</li> <li>Frequent outputs of major annoyances</li> <li>High probability of fugitive emissions</li> </ul>	<ul style="list-style-type: none"> <li>Continuous movement of products and employees</li> <li>Daily shift operations permitted</li> </ul>	<ul style="list-style-type: none"> <li>Paint and varnish manufacturing</li> <li>Organic chemical manufacturing</li> <li>Breweries</li> <li>Solvent recovery plants</li> <li>Soaps and detergent manufacturing</li> <li>Metal refining and manufacturing</li> </ul>

### 3.3.2 REQUIREMENTS FOR ASSESSMENTS

Guideline D-6 requires that studies be conducted to assess air quality where sensitive land uses are proposed within the potential Area of Influence of an industrial facility. This report is intended to fulfill this requirement.

The D-series guidelines references previous versions of the air quality regulation (Regulation 346) and noise guidelines (Publications NPC-205 and LU-131). However, the D-Series of guidelines are still active, still represent current MECP policy and are specifically referenced in numerous other current MECP policies. In applying the D-series guidelines, the current policies, regulations, standards, and guidelines have been used (e.g., Regulation 419).

### 3.3.3 REQUIREMENTS FOR RECOMMENDED MINIMUM SEPARATION DISTANCES

Guideline D-6 also *recommends* that no sensitive land use be placed within the Recommended Minimum Separation Distance. However, it should be noted that this is a recommendation, only. Section 4.10 of the guideline allows for development within the Recommended Minimum Separation Distance, in cases of redevelopment, infilling, and transitions to mixed use, provided that the appropriate studies are conducted and that the relevant air quality guidelines are met.

## 4. NEARBY INDUSTRIES

The Guideline D-6 Separation distances from the Project site are shown in **Figure 5**. SLR personnel conducted a site visit to the area on March 10, 2022. Local industries within 1 km of the Project site were inventoried. The lands surrounding the Project site are generally comprised of commercial, and employment uses.

In Ontario, facilities that emit significant amounts of contaminants to the environment are required to obtain and maintain an Environmental Compliance Approval (“ECA”) from the MECP or submit an Environmental Activity and Sector Registry (“EASR”). ECAs/ EASRs within 1 km of the Site were obtained from the MECP’s *Access Environment* website.

A complete detailed table of the identified industries is provided in **Appendix B**. From these, the subset of industries within their applicable Area of Influence with respect to the Project site are listed in **Table 3**. The location of the industries relative to the Project site is illustrated on **Figure 5**.

**Table 3: Identified Industries Within 1000 m of Proposed Development**

Facility	Type of Operation	Environmental Compliance Approval No.	Industry Class	Area of Influence Dist (m)	Actual Distance to Site (m)	Additional Assessment Required?
Cardinal Kia	Automotive Refinishing	N/A	I	70	0	Yes
Niagara Falls Region	Backup Generators (Pumping Station)	0397-7NNHUF (2009) 1680-9XLNPD (2015)	I	70	0	Yes
SmartCentres Niagara Falls	Heating/Cooling System	R-003-2553621994 (2015)	I	70	25	Yes

The above noted Industries were identified inside their potential Area of Influence and, therefore, require additional discussion provided below.

All other industries are outside of their respective Guideline D-6 potential Area of Influence and are, therefore, anticipated to be compatible with the development from an air quality perspective.

## 4.1 CLASS III HEAVY INDUSTRIES

The area within 1 km of the Project site was reviewed. There are no Class III Heavy industries within 1 m of the site.

## 4.2 CLASS I LIGHT AND CLASS II MEDIUM INDUSTRIES

There are a number of Class I and Class II light and medium scale industries within 1000 m of the Project lands. A full listing of the industries is provided in **Appendix B**. The majority of industries lie outside their Potential Area of Influence and outside the Recommended Minimum Separation Distance. Therefore, these industries are anticipated to be compatible with the Project site. Furthermore, the Project site is not anticipated to limit the ability of these facilities to obtain/ maintain their required MECP permits and/or approvals.

As shown in **Figure 6** there are three Class I industries located within the 70 m Area of Influence of the Project site. These industries are:

- Cardinal Kia;
- Niagara Region Falls Sewage Pumping Station; and
- SmartCentres Niagara Falls.

The above three industries are further discussed below.

### 4.2.1.1 Cardinal Kia

<b>ADDRESS</b>	7818 Oakwood Drive
<b>CONTACTS:</b>	N/A
<b>DISTANCE TO PROJECT SITE:</b>	70 M
<b>D-6 CLASSIFICATION:</b>	I

Cardinal Kia is a car dealership located immediately south of the Project site. An on-line review of the facility services indicates that collision repair and automotive refinishing is undertaken at their Oakwood Drive location.

As suggested in the D-6 Industrial Categorization criteria, automotive repair shops are listed as a Class II facility partly due to the operation of spray-paint booths. However, given that the MECP has a specific Environmental and Activity Sector Registry (EASR) for this industry with specific operating condition requirements that limit emissions, auto-repair shops can now generally be considered Class I facilities. In addition, the paint types which are now used are less odorous (water- versus solvent-based). Auto-repair shops are regulated under Ontario Regulation 347/12: Regulations Under Part II.2 of the Act – Automotive Refinishing (under the Environmental Protection Act).

There are no MECP environmental permits available for the operations of Cardinal Kia on the [Access Environment](#) search directory.

Cardinal Kia is located within the 70 m Area of Influence of the Project site. Therefore, additional assessment is warranted and provided within other sections of this report.



#### 4.2.1.2 Niagara Region Sewage Pumping Station

<b>ADDRESS</b>	7606 Oakwood Drive
<b>CONTACTS:</b>	N/A
<b>DISTANCE TO PROJECT SITE:</b>	0 M
<b>D-6 CLASSIFICATION:</b>	I

The Niagara Region operates a high lift sewage pumping station adjacent to the east side of the Project Site. The facility operates under MECP permit number 1680-9XLNPD dated June 24, 2015. A copy of the MECP permit is provided in **Appendix B.01**.

Based on SLR experience with similar facilities, the following sources are expected to be operated/managed at the property:

- Standby diesel generator sets; and
- Passive venting of the pumping station operations.

The sewage treatment is not undertaken at this location. The operations are limited to pumping sewage from a lower elevation to a higher elevation.

On March 10, 2022, SLR personnel conducted a site visit to the area. Odour, visible dust, and noise from the facility was not observed.

Based on the size and nature of the above noted operations, the sewage pumping station is considered a Class I Light Industry under MECP Guideline D-6, with a 70 m Area of Influence and a Recommended Minimum Separation Distance of 20 m.

The Project site is located within the 70 m Area of Influence of the Project site. Therefore, additional assessment is warranted and provided within other sections of this report.

#### 4.2.1.3 SmartCentres Niagara Falls

<b>ADDRESS</b>	7481 Oakwood Drive
<b>CONTACTS:</b>	N/A
<b>DISTANCE TO PROJECT SITE:</b>	25 M
<b>D-6 CLASSIFICATION:</b>	I

Multiple commercial businesses operate in the commercial plaza located approximately 25 m north of the Project site. The Walmart is permitted to operate heating ventilation and cooling equipment (HVAC). The Walmart operates under MECP EASR number R-003-2553621994 dated December 8, 2015. A copy of the MECP permit is provided in **Appendix B.02**.

Based on the size and nature of the above noted operations, these businesses are considered Class I Light Industries under MECP Guideline D-6, with a 70 m Area of Influence and a Recommended Minimum Separation Distance of 20 m.

The commercial plaza is located within the 70 m Area of Influence of the Project site. Therefore, additional assessment is warranted and provided within other sections of this report.

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## 4.2.2 VACANT LOTS

Under Guideline D-6, the use of vacant buildings must be considered in land use compatibility studies. Lands surrounding the Project site are occupied. There are no vacant parcels of land surrounding the Project site.

If a new industrial operation were to relocate or construct a new facility, these new facilities would be required to obtain an approval from the MECP (either EASR or ECA). In accordance with the MECP permit, the facility would be required to meet the applicable guidelines of O. Reg 419/05 at the facility property line and to meet the applicable requirements of MECP NPC 300. As part of the permitting process, the facility would be required to meet applicable guidelines at existing and approved residential locations.

## 4.3 FUTURE USES

The proposed new buildings will include mechanical heating, ventilation, and air conditioning systems.

These systems will be designed to ensure that the applicable MECP air quality regulations, standards and guidelines are met off-site and at the building itself. If required (depending on the type and size of systems used), an MECP ECA or EASR will need to be obtained. This is no different from any other similar development.

Overall, adverse air quality emissions from new facility sources on the surroundings and on itself are not anticipated.

## 4.4 SUMMARY

From the list of industries identified in **Section 4**, three class I industries were identified to require further analysis, as a result of being within their potential Area of Influence:

- Cardinal Kia;
- Niagara Region Falls Sewage Pumping Station; and
- SmartCentres Niagara Falls.

Provided below are comments and findings related to the compatibility between the proposed development and the above noted identified industrial facilities.

# 5. AIR QUALITY, DUST AND ODOUR ASSESSMENT

## 5.1 INDUSTRIAL SOURCES

### 5.1.1 GUIDELINES AND REGULATIONS

As previously discussed, within Ontario, facilities which emit significant amounts of air emissions to the environment are required to obtain and maintain an ECA from the MECP or submit an EASR. Facilities with an ECA/EASR should already meet the MECP guidelines for air quality contaminants at their property line.

#### 5.1.1.1 Air Quality Contaminants

Under O.Reg. 419/05, a facility is required to meet prescribed standards for air quality emissions at their property boundary line and any location off-site. The MECP does not require industries to assess their emissions at elevated points off-site if a receptor does not exist at that location. While the introduction

of mid- and high-rise residential properties could trigger a facility to re-assess compliance at new receptor location, the introduction of new low-rise receptors does not introduce any new receptors, as the facility is already required to comply at grade-level at their property line.

### 5.1.1.2 Odour

There are a select few compounds that are provincially regulated from an odour perspective; however, there is no formal regulation with respect to mixed odours. Impacts from mixed odours produced by industrial facilities are generally only considered and regulated by the MECP in the presence of persistent complaints (ECO 2010).

The MECP assesses mixed odours, in Odour Units, following draft guidelines. One odour unit (1 OU) has been used as a default threshold. This is the concentration at which 50 % of the population will just detect an odour (but not necessarily identify/recognize or object to it). Recognition of an odour will typically occur between 3 and 5 odour units. The following factors may be considered:

- **Frequency** – How often the odour occurs. The MECP typically allows odours to exceed 1 OU with a 0.5 % frequency.
- **Intensity** – The strength of the odour, in odour units. 1 OU is often used in odour assessments in Ontario.
- **Duration** – How long the odour occurs.
- **Offensiveness** – How objectionable the odour is. The MECP may allow for a higher concentration of pleasant smells such as baking as opposed to off-putting smells such as rotting garbage or rancid meat.
- **Location** – Where the odour occurs. The MECP assesses odours where human activity is likely to occur.

The MECP has decided to apply odour-based standards to locations “where human activities regularly occur at a time when those activities regularly occur,” which is generally accepted to be places that would be considered sensitive such as residences and public meeting places. As a guide, the MECP has provided proposed clarification of human odour receptors, as shown in the following table:

**Table 4: Proposed Clarification of Human Receptors (MECP 2008)**

Receptor Category	Examples	Exposure Type	Type of Assessment
Permanent potential 24-hour sensitivity	Anywhere someone could sleep including any resident or house, motels, hospitals, senior citizen homes, campgrounds, farmhouse, etc.	Individual likely to receive multiple exposures	Considered sensitive 24 hours per day
Permanent daily hours but with definite periods of shutdown/closure	Schools, daycares, community centres, soccer fields, farmland, churches, bicycle paths, hiking areas, lakes, commercial or institutional facilities (with consideration of hours of operation such as night clubs, restaurants, etc.)	Individual could receive multiple exposures	Night-time or daytime exclusion only (consider all other hours)
Seasonal variations with clear restrictions on accessibility during the off season	Golf courses, amusement parks, ski hills, other clearly seasonal private property	Short term potential for exposure	Exclusions allowed for non-seasonal use

Receptor Category	Examples	Exposure Type	Type of Assessment
Transient	Open fields, roadways, easements, driveways, parking lots, pump houses	Very short-term potential for exposure, may not be a single resident exposed to multiple events	Generally, would not be included as human receptors unless otherwise specified.

Note that commercial facilities are considered to be odour sensitive points of reception, as well as community spaces and residences.

### 5.1.1.3 Dust

Ontario Regulation 419/05 also provides limits for dust, including limits for suspended particulates and dust fall. Under Reg. 419/05, these air quality limits must be met at the property line and all points beyond. This is not changed by the addition of sensitive uses within the Project site. That is to say, the existing property lines are already a point of reception for dust, and the limits must already be met at that location.

### 5.1.1.4 Cumulative Assessments

Cumulative impact assessments, examining the combined effects of individual industries, or the combined effects of industry and roadway emissions, are generally not required. Neither the PPS, the D-Series of guidelines, Regulation 419/05, or the current MECP odour assessment protocols require an assessment of cumulative impacts.

Which is not to say that such assessments are never warranted; rather, the need to do so is considered on a case-by-case basis, depending on the nature and intensity of the industrial operation(s), and the nature of the pollutants released. Based on the types of pollutants released by the industries in this area, cumulative effects assessments are not warranted.

## 5.1.2 LOCAL METEOROLOGY

Pre-processed Regional Meteorological data was obtained from the MECP website<sup>1</sup> to generate a wind rose. The surface wind data collected for Welland is from 1989 through 2018. The wind rose, as shown in **Figure 5**, represents the frequency of winds blowing from a certain wind direction. As can be seen in the wind rose, predominant winds are from the western and southwest quadrants, while winds from the north and southeast quadrants may be the least frequent.

## 5.1.3 SITE VISITS AND ODOUR AND DUST OBSERVATIONS

A Project site visit was conducted to the area on March 10, 2022, by SLR personnel to identify significant sources of air quality emissions and to identify any significant sources of odour or dust in the Project neighbourhood. During the Project site visit, the staff members observed existing industries from the sidewalks and other publicly accessible areas. Wind conditions during the site visit were noted as:

- March 10, 2022: southwesterly winds, 14 km/h, 5°C, 50% RH

No odours or fugitive dust emissions were detected at the Project site or the surroundings at the time of the site visit.

<sup>1</sup> <https://www.ontario.ca/page/map-regional-meteorological-and-terrain-data-air-dispersion-modelling>

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## 5.1.4 ASSESSMENT OF POTENTIAL AIR QUALITY IMPACTS

### 5.1.4.1 Cardinal Kia

As discussed in Section 4.2.1.1, Cardinal Kia is a car dealership. The facility is located immediately south of the Project site. An on-line review of the facility services indicates that collision repair and automotive refinishing is undertaken at their Oakwood Drive location.

There are no MECP environmental permits available for the operations of Cardinal Kia on the [Access Environment](#) search directory.

SLR staff contacted Cardinal Kia March 9, 2022 to confirm that the facility located on Oakwood drive does undertake collision repair services and operates a full body shop complete with painting operations.

Based on SLR experience, facilities similar to Cardinal Kia typically operate one paint spray booth with a facility-wide coating application rate under normal operations of <2 L/hr. This is the lowest application rate category within O. Reg 347/12<sup>2</sup> and has no required separation distance between the paint booth exhaust stack and the nearest property boundary.

No odours were detected along Oakwood Drive during the site visit. Based on a review of aerial photography of the Cardinal Kia, it appears that the automotive repair operations are completed in the rear of the dealership building. The overhead doors and potential source of paint application emissions has a separation distance of approximately 105 m. This separation distance is expected to be sufficient and in accordance with O. Reg 347/12, which requires facilities to maintain a certain separation distance to the property line based on the paint booth usage rate.

Given the anticipated low usage rate of paint at the facility and the fact that the operations are sufficiently separated from the Property site boundary, the Project site development is anticipated to be compatible with the Cardinal Kia facility from an air quality perspective.

Emissions of dust, and odour at the Project site are not anticipated. The Project site is not anticipated to limit the ability of Cardinal Kia to obtain or maintain required MECP permits and/or approvals. Therefore, additional analysis of emissions from the Cardinal Kia facility is not warranted.

### 5.1.4.2 Niagara Region Falls Sewage Pumping Station

As discussed in Section 4.2.1.2, the Niagara Region Falls operates a high lift sewage pumping station adjacent to the east side of the Project Site. The facility operates under MECP permit number 1680-9XLNPD dated June 24, 2015. A copy of the MECP permit is provided in **Appendix B.01**.

Based on SLR experience with similar facilities, the following sources are expected to be operated/managed at the property:

- Standby diesel generator set; and
- Passive venting of the pumping station operations.

Most sewage systems flow wastewater by gravity flow, where the sewage flows from a higher elevation down (by gravity) to a treatment plant located at a lower elevation. On occasion, the sewer system does not have enough “fall”. To remedy this situation, a sewage pumping station is used to pump or “lift” sewage from a low elevation to a higher elevation where it can once again travel by gravity flow to the

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<sup>2</sup> <https://www.ontario.ca/laws/regulation/120347>

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treatment plant. The Niagara Region Falls operations a “high lift” sewage treatment plant to the east of the Project site. In this facility, sewage flows by gravity into an underground storage vessel known as a “wet well”. From the wet well, the sewage is pumped to a higher elevation where it then flows by gravity to the sewage treatment plant. One or more wet wells and pumping systems may be present at the Oakwood station, but sewage treatment is not undertaken at this location. To ensure that the pumps remain operating at all times, backup power is supplied through the use of diesel generators when an electrical power failure occurs.

Based on the MECP Permit, observations completed during the site visit and a review of aerial photography, the facility operates the following air emission sources:

- Passive vents on the above ground diesel storage vessel
- one diesel generator stack; and
- wet well building ventilation including side wall louvers and roof top “whirlybird” turbine vents.

During typical operations of a pumping station, the wet wells are closed, and potential emissions are uncommon and infrequent. On occasion, the wet wells need to be opened, inspected and cleaned. During these operations, the potential exists for fugitive emissions of odour. These emissions are expected to be short term in nature and infrequent. Access to the wet wells is located internal to the buildings on the property. The potential source of fugitive emissions is through the side wall louvers and the roof top turbine vents.

The backup generators also have the potential to release air emissions from combustion of diesel fuel. The combustion emissions have the potential to create fugitive odour. These emissions are expected to be short-term, infrequent and limited to generator testing which is typically completed on a monthly basis. In the event of an emergency, the generator may operate for longer periods of time. A power failure is representative of an upset condition and does not represent the regular operations of the station.

On March 10, 2022, SLR personnel conducted a site visit to the area. Odour, visible dust, and noise from the facility was not observed.

A review of the Wind Frequency Distribution provided on **Figure 5** identifies that the predominant winds are from the western and southwest quadrants, while winds from the north and southeast quadrants may be the least frequent. Winds with the potential to direction fugitive emissions from the pumping station towards the Project site include winds from the east through to the south southeast. These winds are predicted to occur less than 12% of the time.

Properly maintained pumping stations have a low potential for fugitive emissions of odour because wet wells are fully enclosed with no direct venting to atmosphere. Pumping stations are commonly located near to sensitive land uses because the choice of location is determined primarily on the location of the “low point” in the sanitary sewer system.

It is expected that the Niagara Region operates the back up generator in compliance with the requirements of their ECA permit and properly operates and maintains the equipment as required by the MECP. The MECP determines compliance to be required at the property boundary, and any elevated receptor locations.

SLR understands that Niagara Region is currently undergoing Public Consultation related to siting a new wastewater treatment plant (WWTP) in South Niagara Falls. It is possible that the Oakwood pumping station maybe decommissioned subsequent to commissioning of the new WWTP.

The residential uses planned near to the pumping station are back lotted towards the station with a

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planned setback from the property boundary of 11 m. The closest potential side wall louver is approximately 20 m from the shared property boundary. The setback of the side wall louver from the Project site is at the Recommended Minimum Separation Distance for a Class I Light industry.

Based on the above information, the Project site development is anticipated to be compatible with the Niagara Region pumping station from an air quality perspective. Further, the Project site is not anticipated to limit the ability of Niagara Region to obtain or maintain required MECP permits or approvals.

However, it is recommended that the following warning clauses and measures be placed on units back lotted towards the pumping station:

- Purchasers/tenants are advised that due to the proximity of adjacent industries, dust and odours from these facilities may at times be perceptible.
- Mandatory air conditioning to allow for windows to remain closed if needed;
- Air intakes for building mechanical systems, central air conditioning units and heat recovery units shall be located in areas of least impact, on the lea-side of the building (west facade), facing away from the pumping station; and
- Air intakes for building mechanical systems, make-up air units, HVAC units, central air conditioning units and heat recovery units shall include space for the future installation of carbon and/or dust filters.

#### 5.1.4.3 Smart Centres Niagara Falls

Smart Centres Niagara Falls is a commercial plaza located approximately 25 m north of the Project site. Within the plaza, Walmart is permitted to operate heating ventilation and cooling equipment (HVAC). The Walmart operates under MECP EASR number R-003-2553621994 dated December 8, 2015. A copy of the MECP permit is provided in **Appendix B.02**.

Based on the size and nature of the operations, Smart Centres Niagara Falls is considered a Class I Light Industry under MECP Guideline D-6, with a 70 m potential Area of Influence and a Recommend Minimum Separation Distance of 20 m. The facility sources are located within the potential 70 m Area of Influence and beyond the Recommend Minimum Separation Distance of 20 m.

The MECP has a specific Environmental and Activity Sector Registry (EASR) for permitting of HVAC equipment. This permitting regime recognizes that air quality impacts from these sources are not anticipated to extend beyond the limits of the properties upon which they are operating.

It is expected that the permitted Walmart sources operate in compliance with the requirements of their EASR permit and properly operates and maintains the equipment as required by the MECP. The MECP determines compliance to be required at the property boundary, and any elevated receptor locations. The Project site has the potential to introduce new elevated sensitive receptor(s). Based on our experience, these HVAC facilities are not expected to have air quality emissions beyond the limits of the properties upon which they are operated.

Based on the above information, the Project site development is anticipated to be compatible with the Smart Centres Niagara Falls operations from an air quality perspective. Further, the Project site is not anticipated to limit the ability of Smart Centres Niagara Falls to obtain or maintain required MECP permits or approvals.

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## 5.2 TRANSPORTATION RELATED AIR POLLUTION

Transportation related air pollution (TRAP) is generally considered in background pollution levels, however, based on recent studies conducted by Toronto Public Health (TPH), some municipalities are starting to look more closely at TRAP and its impacts on new residential developments near major highways and roadways. The 2017 Toronto Public Health *'Avoiding the Trap' Technical Report – Land Use Planning at the Project site Level* and *"Operational and Behaviour strategies in Buildings"* document notes that TRAP is a major local contributor to air pollution in Toronto and can result in adverse health impacts for people residing near highways and roadways. Common mitigation strategies for TRAP include filtration, strategic intake/amenity location, HVAC system operational procedures (i.e. timing around rush hour), physical barriers and vegetation buffers.

### 5.2.1 ARTERIAL ROADWAYS

Major arterial roadways near to the Project site include Oakwood Drive and the Queen Elizabeth Way.

The Project site is located within a potential TRAP exposure zone of 500 m to the Queen Elizabeth Way. Detailed TRAP studies are not typically performed for sites outside of the Greater Toronto Area. Therefore, a detailed TRAP assessment was not completed for this Project site. However, a review of the site sensitive uses and incorporation of best management practices to address TRAP is recommended as the design progresses through the planning process.

It is recommended fresh air intakes on units facing the Queen Elizabeth Way be directed away from the Queen Elizabeth Way and Oakwood Drive. It is further recommended that fresh air intakes be placed in rooftop mechanical spaces, or at above-grade locations to provide separation distance from vehicle emissions (roadways, loading bays, on-site parking), and to include standard MERV rated filters on fresh air intakes.

## 5.3 SUMMARY OF AIR QUALITY, DUST AND ODOUR CONCLUSIONS AND RECOMMENDATIONS

The potential for air quality emissions at the Project site, including dust and odour, have been assessed.

Based on the review completed, the Project site development is anticipated to be compatible with the surrounding land uses from an air quality perspective. Emissions of dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit surrounding existing or future industries and the ability to obtain or maintain required MECP permits or approvals.

However, it is recommended that the following warning clauses and measures be placed on units back lotted towards the pumping station:

- Purchasers/tenants are advised that due to the proximity of adjacent industries, dust and odours from these facilities may at times be perceptible.
- Mandatory air conditioning to allow for windows to remain closed if needed;
- Air intakes for building mechanical systems, central air conditioning units and heat recovery units shall be located in areas of least impact, on the lea-side of the building (west facade), facing away from the pumping station; and
- Air intakes for building mechanical systems, make-up air units, HVAC units, central air conditioning units and heat recovery units shall include space for the future installation of carbon



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and/or dust filters.

It is further recommended that fresh air intakes on units facing the Queen Elizabeth Way be directed away from the Queen Elizabeth Way and Oakwood Drive. It is further recommended that fresh air intakes be placed in rooftop mechanical spaces, or at above-grade locations to provide separation distance from vehicle emissions (roadways, loading bays, on-site parking), and to include standard MERV rated filters on fresh air intakes.

## 6. NOISE ASSESSMENT

### 6.1 INDUSTRIAL (STATIONARY) SOURCES

#### 6.1.1 GUIDELINES

##### 6.1.1.1 MECP Publication NPC-300 Guidelines for Stationary Noise

The applicable MECP noise guidelines for new sensitive land uses adjacent to existing industrial commercial uses are provided in MECP Publication NPC-300. NPC-300 revokes and replaces the previous noise assessment guideline, Publication LU-131 and Publication NPC-205, which was previously used for assessing noise impacts as part of Certificates of Approval / Environmental Compliance Approvals granted by the MECP for industries.

The new guideline sets out noise limits for two main types of noise sources:

- Non-impulsive, “continuous” noise sources such as ventilation fans, mechanical equipment, and vehicles while moving within the property boundary of an industry. Continuous noise is measured using 1-hour average sound exposures ( $L_{eq}$  (1-hr) values), in dBA; and
- Impulsive noise, which is a “banging” type noise characterized by rapid rise time and decay. Impulsive noise is measured using a logarithmic mean (average) level ( $L_{LM}$ ) of the impulses in a one-hour period, in dBAI.

Furthermore, the guideline requires an assessment at, and provides separate guideline limits for:

- Outdoor points of reception (e.g., back yards, communal outdoor amenity areas); and
- Façade points of reception such as the plane of windows on the outdoor façade which connect onto noise sensitive spaces, such as living rooms, dens, eat-in kitchens, dining rooms and bedrooms.

The applicable noise limits at a point of reception are the higher of:

- The existing ambient sound level due to road traffic, or
- The exclusion limits set out in the guideline.

The following tables set out the exclusion limits from the guideline.

**Table 5: NPC-300 Exclusion Limits for Non-Impulsive Sounds ( $L_{eq}$  (1-hr), dBA)**

Time of Day	Class 1 Area	
	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception
7 am to 7 pm	50	50
7 pm to 11 pm	50	50
11 pm to 7 am	45	n/a

**Table 6: NPC-300 Exclusion Limits for Impulsive Sounds ( $L_{LLM}$ , dBAI)**

Time of Day	No. of Impulses in a 1-hour Period	Class 1 Area	
		Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception
7 am to 11 pm	9 or more	50	50
	7 to 8	55	55
	5 to 6	60	60
	4	65	65
	3	70	70
	2	75	75
	1	80	80
11 pm to 7 am	9 or more	45	n/a
	7 to 8	50	n/a
	5 to 6	55	n/a
	4	60	n/a
	3	65	n/a
	2	70	n/a
	1	75	n/a

**Notes:**

n/a Not Applicable. Outdoor points of reception are not considered to be noise sensitive during the overnight period.  
 - Area classifications are: Class 1 - Urban

The applicable guideline limits for infrequent events such as emergency generator set testing are +5 dB higher than the values above.

**6.1.2 APPLICATION OF THE NPC-300 GUIDELINES**

The stationary noise guidelines apply only to residential land uses and to noise-sensitive commercial and institutional uses, as defined in NPC-300 (e.g., schools, daycares, hotels). For the Project, the stationary noise guidelines only apply to the residential portions of the development, including:

- Individual residences;
- Communal indoor amenity areas; and
- Communal outdoor amenity areas.

All of the above have been considered as noise-sensitive points of reception in the analysis.

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### 6.1.2.1 Guideline Summary and Interpretation

The following presents a summary of the guidelines and settlements presented above.

- The applicable Ministry of the Environment noise guideline for assessing new residential development applications is Publication NPC-300.
- The Class 1 limits have been considered in this study as a conservative assessment.

### 6.1.3 SITE VISITS AND NOISE OBSERVATIONS

Site visits were conducted to the area on March 10, 2022. SLR personnel conducted a site visit to the area to identify significant sources of air quality emissions and to identify any significant sources of noise, vibration, odour or dust in the Project neighbourhood.

In general, industrial noise was not audible at or around the Project site. The general ambient environment surrounding the development lands are dominated by roadway noise during all periods of the day.

### 6.1.4 SOURCES OF INTEREST

Based on the information obtained from site visits and aerial photography, the significant sources of noise in the area of the Project site have been identified. Noise emission rates for the equipment/ activities were determined based by information from SLR's in-house database and engineering calculations. Modelled noise sources include:

**Cardinal Kia** – Maintenance Bay only operates during daytime hours, HVAC equipment is assumed to be operational during all times of day with reduced operation during nighttime hours.

- HVAC mechanical equipment; and
- Air tools operated in maintenance bays.

**Niagara Region Sewage Pumping Station** – Emergency equipment testing only occurs during daytime hours.

- 60kW Emergency Generator; and
- 1000kW Emergency Generator.

The region of Niagara operates two emergency generators at the pumping station adjacent to the Project site. Generator testing only occurs during daytime hours, and it is assumed that both generators at the facility are not tested simultaneously. The 60kW generator was assumed to meet the MECP standard of a 75 dBA sound pressure level at 7 meters and was assessed with the corresponding power level as a conservative assessment. A detailed model of the larger 1000kW generator and the building enclosing it was created. Noise escaping through the exhaust stack, intake louvres, and exhaust louvre was calculated based on American Gas Association (AGA) and ASHRAE noise emission estimates for diesel generators. Insertion losses of these sources was estimated based on standard engine exhaust silencer and a 12" acoustic louvres insertion losses.

**SmartCentre Niagara Falls** - HVAC equipment is assumed to be operational during all times of day with reduced operation during nighttime hours. Loading and unloading of trucks was assumed to only occur during daytime and evening hours.

- Idling trucks; and
- HVAC mechanical equipment.

Noise sources associated with the operations of the Walmart in the commercial plaza were not assessed as the Project site sits outside of the Walmart’s 70m area of influence. Additionally, impacts are not expected to exceed ambient roadway sound levels at the Project site.

There are no impulsive noise sources associated with the facilities of interest, and impulsive noise has not been considered further.

**Figure 7** shows the location of all modelled noise sources. Noise emission data used in the assessment can be found in **Appendix C**.

### 6.1.5 NOISE MODELLING AND RESULTS

Worst-case scenario noise levels from the surrounding commercial/ industrial operations were modelled using Cadna/A, a computerized version of the internationally recognized ISO 9613-2 noise propagation algorithms. This is the preferred noise modelling methodology of the MECP. The ISO 9613 equations account for:

- Source to receiver geometry;
- Distance attenuation;
- Atmospheric absorption;
- Reflections off of the ground and ground absorption;
- Reflections off of vertical walls; and
- Screening effects of buildings, terrain, and purpose-built noise barriers (noise walls, berms, etc.).

The following additional parameters were used in the modelling, which are consistent with providing a conservative (worst-case assessment of noise levels):

- Temperature: 10°C;
- Relative Humidity: 70%;
- Ground Absorption G: G=0.2 default global parameter, with some grassy areas having a ground; absorption of G=1 (absorptive);
- Reflection: An order of reflection of 1 was used (accounts for noise reflecting from walls);
- Wall Absorption Coefficients: Set to 0.37 (37 % of energy is absorbed, 63% reflected); and
- Terrain: Assumed to be flat.

Predicted façade sound levels for stationary noise are shown in **Figure 8a, 9a, and 9c**. Overall predicted sound levels are provided in the following tables:

**Table 7: Overall Sound Levels – Normal Operations**

Location	Maximum Predicted Level		Guideline Limit		Meets Guideline?
	Day	Night	Day	Night	
North Facades	48	45	50	45	Yes
East Facades	47	44	50	45	Yes
South Facades	49	25	50	45	Yes
West Facades	43	40	50	45	Yes

Notes: Sound levels are  $L_{eq}$  (1-hr) sound levels, in dBA

**Table 8: Overall Sound Levels – Emergency Equipment Testing**

Equipment	Worst-case Location	Maximum Predicted Level <sup>[1]</sup>		Guideline Limit		Meets Guideline?
		Day	Night	Day	Night	
NRSPS – 60 kW Emergency Generator	South-eastern townhouses	50	-	55	50	Yes
NRSPS – 1000kW Emergency Generator	South-eastern townhouses	55	-	55	50	Yes

Notes: [1] Sound levels are  $L_{eq}$  (1-hr) sound levels, in dBA.

[2] Niagara Region Sewage pumping station generators are assumed to be tested independently of one another.

The Class 1 sound level limits for stationary noise are met at all locations. Therefore, mitigation measures are not required.

### 6.1.5.1 Outdoor Living Areas

Two common outdoor amenity area are currently planned for the development. They are located at grade in the centre and the southeast corner of the development.

The predicted outdoor stationary amenity area sound levels for are shown in **Figures 8b, 9b, and 9d** as well as in the following tables:

**Table 9: Overall Sound Levels – Normal Operations**

Location	ID	Maximum Predicted Level		Guideline Limit		Meets Guideline?
		Day	Night	Day	Night	
Centre of Development	OLA 1	40	-	50	-	Yes
Southeast Corner	OLA 2	46	-	50	-	Yes

Notes: [1] Sound levels are  $L_{eq}$  (1-hr) sound levels, in dBA

**Table 10: Overall Sound Levels – Emergency Equipment Testing**

Equipment	Worst-case Location	Maximum Predicted Level <sup>[1]</sup>		Guideline Limit		Meets Guideline?
		Day	Night	Day	Night	
NRSPS – 60 kW Emergency Generator	Southeast Corner	50	-	55	-	Yes
NRSPS – 1000kW Emergency Generator	Southeast Corner	49	-	55	-	Yes

Notes: [1] Sound levels are  $L_{eq}$  (1-hr) sound levels, in dBA.

[2] Niagara Region Sewage pumping station generators are assumed to be tested independently of one another.

The Class 1 sound level limits for stationary noise are met at all locations, therefore mitigation is not required.

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## 6.1.6 MITIGATION MEASURES AND WARNING CLAUSES

As shown in the previous section, the applicable Class 1 noise guideline limits from worst-case predicted operations in the surrounding industrial uses are met. Based on the current study, additional noise mitigation measures are not required.

A **Type E** noise warning clause is recommended for all units. See **Appendix A** for warning clause details. The warning clauses should be included in documents registered on Title and included in all agreements of purchase and sale or lease and all rental agreements.

## 6.2 TRANSPORTATION NOISE IMPACTS

### 6.2.1 TRANSPORTATION NOISE SOURCES

Roadway noise sources of interest with the potential to have noise impacts at the proposed development include Oakwood Drive, Queen Elizabeth Way, and Montrose Road.

Sound exposure levels at the development have been predicted, and this information has been used to identify façade, ventilation, and warning clause requirements.

### 6.2.2 SURFACE TRANSPORTATION NOISE CRITERIA

#### 6.2.2.1 Noise Sensitive Developments

Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300 provides sound level criteria for noise sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. **Tables 11 to 14** below summarizes the applicable surface transportation (road and rail) criteria limits.

#### 6.2.2.2 Location Specific Criteria

**Table 11** summarizes criteria in terms of energy equivalent sound exposure ( $L_{eq}$ ) levels for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, sleeping areas have more stringent criteria than Living / Dining room space.

#### 6.2.2.3 Outdoor Amenity Areas

**Table 12** summarizes the noise mitigation requirements for communal outdoor amenity areas (“Outdoor Living Areas” or “OLAs”). This would include the ground level patios/backyards, balconies and raised terraces.

#### 6.2.2.4 Ventilation and Warning Clauses

**Table 13** summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite implementation of ventilation measures where required, if sound exposure levels exceed the guideline limits in **Table 11**, warning clauses advising future occupants of the potential excesses are required. Warning clauses also apply to OLAs.

**Table 11: MECP Publication NPC-300 Sound Level Criteria for Road and Rail Noise**

Type of Space	Time Period	Equivalent Sound Exposure Level - $L_{eq}$ (dBA)		Assessment Location
		Road	Rail <sup>[1]</sup>	
Outdoor Living Area (OLA)	Daytime (0700-2300h)	55	55	Outdoors <sup>[2]</sup>
Living / Dining Room	Daytime (0700-2300h)	45	40	Indoors <sup>[3]</sup>
	Night-time (2300-0700h)	45	40	Indoors <sup>[3]</sup>
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors <sup>[3]</sup>
	Night-time (2300-0700h)	40	35	Indoors <sup>[3]</sup>

**Notes:** [1] Whistle noise is excluded for OLA noise assessments and included for Living / Dining Room and Sleeping Quarter assessments.  
 [2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.  
 [3] An assessment of indoor noise levels is required only if the criteria in **Table 11** are exceeded.

**Table 12: MECP Publication NPC-300 Outdoor Living Area Mitigation Requirements**

Time Period	Equivalent Sound Level in Outdoor Living Area (dBA)	Ventilation Requirements
Daytime (0700-2300h)	≤ 55	<ul style="list-style-type: none"> <li>None</li> </ul>
	55 to 60 incl.	<ul style="list-style-type: none"> <li>Noise barrier <b>OR</b> Warning Clause A</li> </ul>
	> 60	<ul style="list-style-type: none"> <li>Noise barrier to reduce noise to 55 dBA <b>OR</b></li> <li>Noise barrier to reduce noise to 60 dBA and Warning Clause B</li> </ul>

**Table 13: MECP Publication NPC-300 Ventilation & Warning Clause Requirements**

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - $L_{eq}$ (dBA)		Ventilation and Warning Clause Requirements <sup>[2]</sup>
		Road	Rail <sup>[1]</sup>	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating /provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Night-time (2300-0700h)	51 to 60 incl.		Forced Air Heating/ provision to add air conditioning + Type C Warning Clause
> 60		Central Air Conditioning + Type D Warning Clause		

**Notes:** [1] Rail whistle noise is excluded.  
 [2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

### 6.2.2.5 Building Shell Requirements

**Table 14** provides sound level thresholds which if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the **Table 11** indoor sound criteria are met.

**Table 14: MECP Publication NPC-300 Building Component Requirements**

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - $L_{eq}$ (dBA)		Component Requirements
		Road	Rail <sup>[1]</sup>	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements <sup>[2]</sup>
	Night-time (2300-0700h)	> 60	> 55	

**Notes:** [1] Including whistle noise.  
 [2] Building component requirements are assessed separately for Road and Railway noise. The resultant sound isolation parameter is required to be combined to determine an overall acoustic parameter.

### 6.2.3 TRAFFIC DATA AND FUTURE PROJECTIONS

#### 6.2.3.1 Roadway Traffic Data

Future (2043) average annual daily traffic (AADT) volumes for the Queen Elizabeth Way were obtained through the MTO iCorridor portal. AADT volumes for Montrose Road were obtained from the Region of Niagara’s regional road open data set. As traffic volumes for Oakwood Drive could not be obtained, the region of Peel’s maximum capacity limits for a two-lane road were applied as a conservative assessment. Day/night splits and vehicle breakdowns are based off SLRs in house data, as well as historical projects in the region. Copies of applicable traffic data and calculations can be found in **Appendix C**. The following **Table 15** summarizes the road traffic volumes used in the analysis.

**Table 15: Summary of Road Traffic Data Used in the Transportation Analysis**

Roadway Link	Future 2043 Traffic Volumes (AADT)	% Day/ Night Volume Split <sup>[1]</sup>		Commercial Traffic Breakdown <sup>[2]</sup>		Vehicle Speed (km/h)
		Daytime	Night-time	% Medium Trucks	% Heavy Trucks	
Oakwood Drive	16,200	90	10	1	1	50
Queen Elizabeth Way	48,011	85	15	2	2	100
Montrose Road	8,859	90	10	2	2	50

**Notes:** [1] The standard Day/Night splits are based on SLR in house data.  
 [2] Commercial Traffic Breakdowns are based on SLR in house data.

### 6.2.4 TRANSPORTATION NOISE MODELLING

Future (2043) road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. Roadways were modelled as line sources of sound, with sound emission rates calculated using ORNAMENT algorithms, the road traffic noise model of the MECP. These predictions were validated and are equivalent to those made using the MECP’s ORNAMENT or STAMSON v5.04 road traffic noise models. A STAMSON validation file is provided in **Appendix C**.

Sound levels were predicted along the façades of the proposed development using the “building evaluation” feature of Cadna/A. This feature allows for noise levels to be predicted across the entire façade of a structure.



Based on a review of the surrounding topography, the lands immediately surrounding the development are considered to be essentially flat. No grade adjustment was applied in the noise modelling.

Ground absorption was assessed conservatively as reflective surfaces ( $G = 0$ ), as the conservative assessment of impacts.

## 6.2.5 FAÇADE SOUND LEVELS

Predicted worst-case façade sound levels are presented below in **Table 16**. The transportation façade sound levels at the development were predicted for daytime and nighttime are shown in **Figure 10a**.

**Table 16: Summary of Roadway Façade Sound Levels**

Location <sup>[1]</sup>	Roadway Sound Levels <sup>[2]</sup>	
	Leq Day (dBA)	Leq Night (dBA)
North Facades	64	59
East Facades	56	50
South Facades	66	61
West Facades	68	64

**Notes:** [1] Façade locations are shown in **Figure 10a**.

[2] The sound levels presented are for the worst-case exposed façade, in which totals may not correspond to the same location.

As the predicted sound levels are above 65 dBA during the daytime, and 60 dBA during the nighttime for townhouses along the south and west property line, an assessment of upgraded glazing is required.

## 6.2.6 OUTDOOR LIVING AREA SOUNDS LEVELS

**Table 17: Summary of Roadway Façade Sound Levels – OLA**

Location <sup>[1]</sup>	Roadway Sound Levels	
	Leq Day (dBA)	Leq Night (dBA)
OLA 1	56	N/A
OLA 2	58	N/A

**Notes:** [1] OLA locations are shown in **Figure 10b**.

## 6.3 FAÇADE REQUIREMENTS

### 6.3.1 GLAZING REQUIREMENTS

Based on the sound levels shown in **Table 16**, façade sound levels were predicted to exceed the above 65 dBA during daytime hours and above 60 dBA during nighttime hours at multiple locations in the development. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in **Table 11**.

Indoor sound levels and required façade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note BPN-56.

The following assumptions were considered for both buildings:

- 50% glazing for living room façades and 20% for bedroom façades.

- sleeping quarters were assumed to have a façade-to-floor area ratio of 100%;
- living/dining rooms were assumed to have a façade-to-floor area ratio of 50%;
- Amenity Areas façade-to-floor area ratios were calculated based on a single large open area; and
- non-glazing portion of wall was assumed to have a rating of STC 45 for all locations.

The acoustic requirements are provided below in **Table 18**, which is the STC rating taking into consideration roadway noise and the assumptions listed in the previous section.

The combined glazing and frame assembly must be designed to ensure the overall sound isolation performance for the entire window unit meets the sound isolation requirements. It is recommended window manufacturers test data be reviewed to confirm acoustical performance is met.

The glazing requirements above are approximated, based on the generic room, façade and glazing dimensions. Once detailed floor plans and façade plans become available, the glazing requirements should be re-assessed and reviewed by an Acoustical Consultant.

**Table 18: Façade Sound Transmission Class (STC) Requirements**

Location	Façade	Non-Glazing Component	Glazing Requirements <sup>[1]</sup>	
			Living Room	Bedroom
South Townhouses	South	45	OBC	OBC
West Townhouses	West	45	OBC	OBC

**Notes:** [1] OBC = Ontario Building Code, meeting a rating of STC 29

### 6.3.2 VENTILATION AND WARNING CLAUSE REQUIREMENTS

The requirements regarding warning clauses are summarized in **Table 13**. Based on the predicted façade sound levels, warning clauses are recommended to be included in agreements registered on Title for the residential units and included in all agreements of purchase and sale or lease, and all rental agreements.

Central Air Conditioning and a **Type D** Warning Clause is recommended for all affected units with façade sound levels that are above 65 dBA during daytime hours and or 60 dBA during night-time hours. This includes **the four sets of townhouses along the western property line**, Warning clause text can be found in **Appendix A**.

Forced air heating with provisions for future installation of central air conditioning, and a **Type C** warning clause, is recommended for all affected units with façade sound levels that are between 56 and 65 dBA during the daytime, or between 51 and 60 dBA during night-time hours. This includes **all units not listed above**, warning clause text can be found in **Appendix A**.

#### 6.3.2.1 Outdoor Living Area Requirements

##### Warning Clause Requirements

As sound levels are predicted between 55 dBA and 60 dBA within the outdoor amenity areas, a **Type A** warning clause is required. Warning clause text can be found in **Appendix A**.

---

## 6.4 STATIONARY SOURCE NOISE IMPACTS ON THE DEVELOPMENT ITSELF

At the time of this assessment, the proposed development's mechanical systems have not been sufficiently designed.

If common mechanical systems will be implemented as part of the proposed development, the impacts from all equipment should comply with the MECP Publication NPC-300 guideline limits. The mechanical equipment is to be included with proposed development; the potential impacts should be assessed as part of the final building design. The criteria can be met at all surrounding and on-site receptors by the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design. This can be confirmed at later stages of approval.

If individual air conditioning systems are to be implemented for each residential unit for the proposed site, the sound levels from each unit should meet MECP Publication NPC-216.

## 6.5 STATIONARY SOURCE NOISE IMPACTS ON SURROUNDING AREA

In terms of the noise environment of the area, it is expected that the project will have a negligible effect on the neighbouring properties.

The traffic related to the proposed development will be small relative to the existing traffic volumes within the area and is not of concern with respect to noise impact.

Other possible development noise sources with possible adverse impacts on the surrounding neighbourhood are the potential mechanical equipment (make up air units, cooling units, and parking garage vents). This equipment is required to meet MECP Publication NPC-300 requirements at the worst-case off-site noise sensitive receptors.

Off-site impacts are not anticipated given that the systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.

Regardless, potential impacts will be assessed as part of the final building design to ensure compliance. The criteria can be met at all surrounding and on-site receptors through the use of routine mitigation measures, including the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers) into the design.

It is recommended that the mechanical systems be reviewed by an Acoustical Consultant prior to final selection of equipment.

## 6.6 SUMMARY OF NOISE IMPACTS

- "Stationary" noise from the surrounding commercial and industrial facilities were assessed on the proposed development, as outlined in **Section 6.1**.
- Stationary noise impacts from the surrounding commercial noise are predicted to meet NPC-300 Class 1 guideline limits on all façades.
- A **Type E** noise warning clause is recommended, as outlined in **Section 6.1.6**, due to the general noise from the surrounding industries and commercial properties. Warning clauses are included in **Appendix A**.

- An assessment of transportation noise impacts from the surrounding roadways was completed. Based on a glazing analysis, upgraded glazing is not required within the development, as outlined in outlined in **Section 6.3.1**.
- As transportation noise impacts within the common outdoor amenity areas are expected to be between 55 dBA and 60 dBA, a **Type A** warning is recommended for all units as outlined in **Section 6.3.2**.
- Central Air Conditioning and a **Type D** Warning Clause is recommended for units **at the west property line**, as outlined in **Section 6.3.2**. Warning clauses are included in **Appendix A**.
- Forced air heating and the provision for air conditioning and a **Type C** Warning Clause are recommended for all units not listed above, as outlined in **Section 6.3.2**. Warning clauses are included in **Appendix A**.
- As the glazing analysis was completed based on generic room and window dimensions, the analysis should be revised once detailed floor and façade plans are available.
- As the mechanical systems for the proposed development have not been designed at the time of this assessment, the acoustical design should be reviewed by an Acoustical Consultant as part of the final building design.

## 7. VIBRATION ASSESSMENT

### 7.1 INDUSTRIAL (STATIONARY) SOURCES

There are no existing or proposed significant industrial vibration sources within 75 m of the Project, such as large stamping presses or forges. Any future industries which may use significant vibration sources will be able to incorporate vibration isolation into their design. Under applicable MECP guidelines, a detailed vibration assessment is not required. Adverse impacts from industrial vibration are not anticipated.

### 7.2 TRANSPORTATION SOURCES

There is no rail corridor within 300 m of the Subject Site. Under applicable CN, CP, Metrolinx, TTC and MECP guidelines, a detailed vibration assessment is not required. Adverse impacts from transportation vibration are not anticipated.

### 7.3 SUMMARY OF VIBRATION CONCLUSIONS AND RECOMMENDATIONS

The potential for vibration impacts on the Site have been assessed. Based on the setback distances to industry and transportation sources:

- Adverse vibration impacts from industrial facilities are not anticipated at the Site. The requirements of MECP Guideline D-6 are met.
- Adverse vibration impacts from transportation sources are not anticipated.

---

## 8. CONCLUSIONS

SLR was retained by Branthaven Development to conduct an environmental air and noise quality study for the proposed Project site.

This assessment considered:

- Industrial air quality, odour, and dust emissions;
- Transportation-related air pollution;
- Industrial/ commercial noise; and
- Transportation-related noise.

The assessment included a review of air quality and noise emissions from industrial facilities in the area.

Based on the review completed, the Project site development is anticipated to be compatible with the surrounding land uses from an air quality perspective. Emissions of dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit surrounding existing or future industries and the ability to obtain or maintain required MECP permits or approvals.

However, it is recommended that the Mitigation Measures and Warning Clauses located in **Appendix A** be placed on units back lotted towards the pumping station:

- Purchasers/tenants are advised that due to the proximity of adjacent industries, dust and odours from these facilities may at times be perceptible.
- Mandatory air conditioning to allow for windows to remain closed if needed;
- Air intakes for building mechanical systems, central air conditioning units and heat recovery units shall be located in areas of least impact, on the lea-side of the building (west facade), facing away from the pumping station; and
- Air intakes for building mechanical systems, make-up air units, HVAC units, central air conditioning units and heat recovery units shall include space for the future installation of carbon and/or dust filters.

It is further recommended that fresh air intakes on units facing the Queen Elizabeth Way be directed away from the Queen Elizabeth Way and Oakwood Drive. It is further recommended that fresh air intakes be placed in rooftop mechanical spaces, or at above-grade locations to provide separation distance from vehicle emissions (roadways, loading bays, on-site parking), and to include standard MERV rated filters on fresh air intakes.

Noise Impacts from surrounding industries has been reviewed. Impacts from the surrounding industries are predicted to meet the MECP Class 1 guidelines. An MECP **Type E** noise warning clause is recommended for all units in the development due to the general noise from the surrounding industries and commercial properties.

The potential for transportation noise impacts on the development have also been reviewed. Upgraded glazing is not predicted to be required. Mandatory installation of AC, and various warning clauses are required to address transportation noise.

With the inclusion of the above noted warning clause and recommendations, the requirements of MECP Guideline D-6 are met. As the applicable policies and guidelines are met, the Project site is:

- Unlikely to result in increased risk of complaint and nuisance claims;

- 
- Unlikely to result in operational constraints for the major facilities;
  - Unlikely to result in constraints on major facilities to reasonably expand, intensify or introduce changes to their operations.

---

## 9. REFERENCES

City of Niagara Falls: *Noise Control By-law 2004-105 as amended*

Environmental Commissioner of Ontario (ECO, 2010), *Review of Posted Decision: Developing an Odour Policy Framework*, April 2010.

National Research Council Canada (NRCC, 1985), Building Practice Note BPN 56: *Controlling Sound Transmission Into Buildings*

Ontario Ministry of the Environment, Conservation & Parks (MECP), 1989, *ORNAMENT Ontario Road Noise Analysis Method for Environment and Transportation – Technical Document*.

Ontario Ministry of the Environment, Conservation & Parks (MECP), 1993, Publication NPC-207: *Impulse Vibration in Residential Buildings (Draft)*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1995), Guideline D-1: *Land Use Compatibility*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1995), Guideline D-6: *Compatibility Between Industrial Facilities and Sensitive Land Uses*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 2008), *Technical Bulletin, Standards Development Branch, Methodology For Modelling Assessments Of Contaminants With 10-Minute Average Standards And Guidelines Under O. Reg. 419/05*, April 2008.

Ontario Ministry of the Environment, Conservation & Parks (MECP), 2013, Publication NPC-300: *Environmental Noise Guideline: Stationery and Transportation Sources – Approval and Planning*

Ontario Ministry of Municipal Affairs and Housing (MMAH, 2020). *Provincial Policy Statement*.

Ontario Regulation 419/01 – *Local Air Quality*.

Railway Association of Canada/ Federation of Canadian Municipalities (RAC/ FCM), 2013, *Guidelines for New Development in Proximity to Railway Operations*

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## 10. STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for Branthaven Development hereafter referred to as the “Client”. It is intended for the sole and exclusive use of the Client. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. Other than by the Client and by the City of Niagara Falls in its role as a land use planning authority, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

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## Figures

### **Oakwood Drive, Niagara Falls**

D-6 Compatibility & Mitigation Study

SLR Project No.: 241.30441.00000

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for 2-sided printing purposes



Aerial Photography from Google Earth

**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

SITE AND CONTEXT PLAN

True North



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Date: July 22, 2022 Rev 0.0

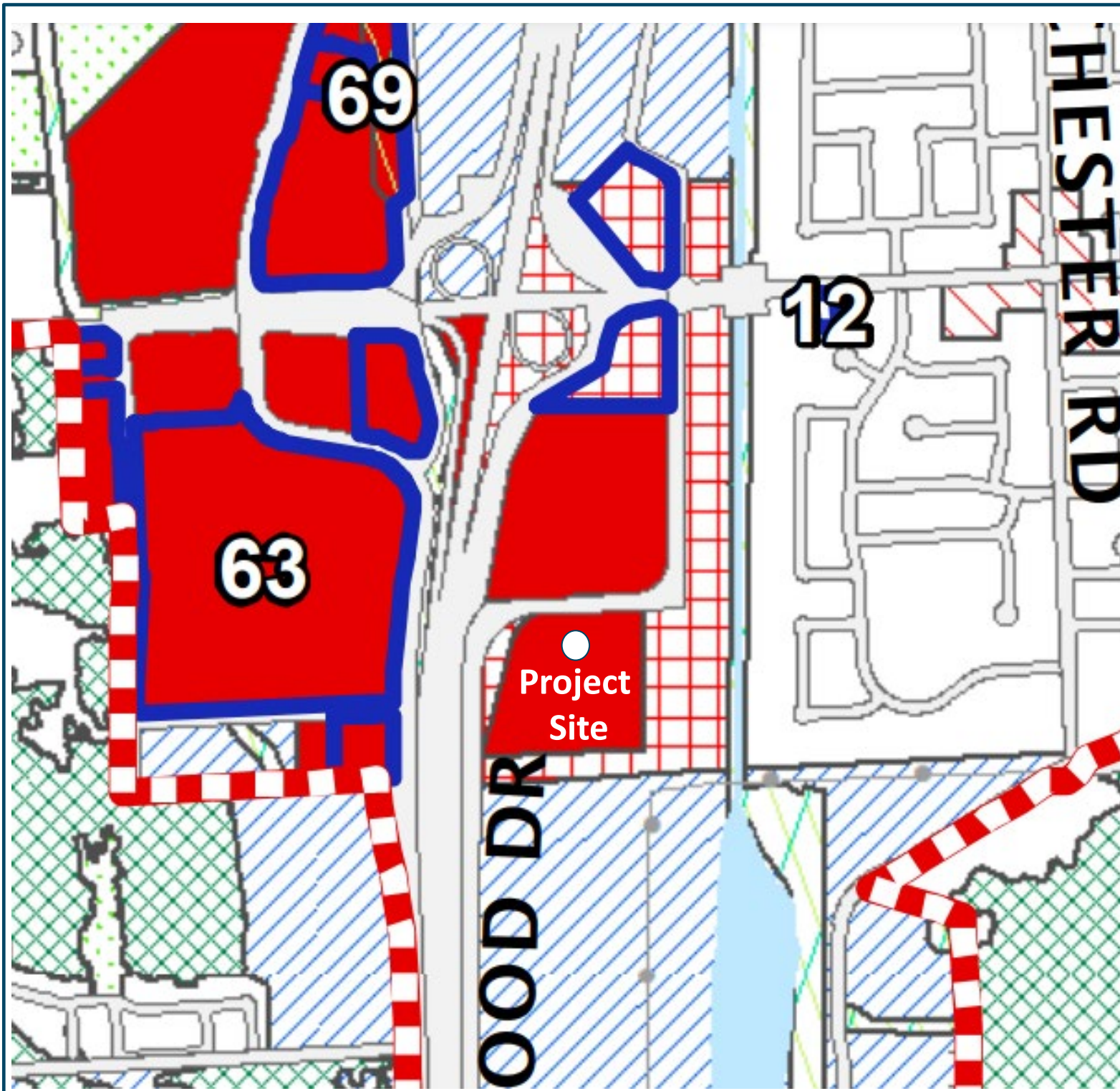
Project No. 241.30441.00000

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Figure No.

**1**





**Legend**

-  Environmental Conservation Area
-  Environmental Protection Area
-  Extractive Industrial
-  Good General Agriculture
-  Industrial
-  Major Commercial
-  Minor Commercial
-  Niagara Escarpment Plan Area
-  Open Space
-  Parkway Residential
-  Residential
-  Resort Commercial
-  Theme Park Marineland
-  Tourist Commercial
-  Intake Protection Zone IPZ-1
-  Secondary Plan Area
-  Special Policy Area
-  Urban Area Boundary

True North



**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

EXCERPT FROM OFFICIAL PLAN MAP

<https://niagarafalls.ca/pdf/planning/official-plan/schedule-a-future-land-use-plan.pdf>

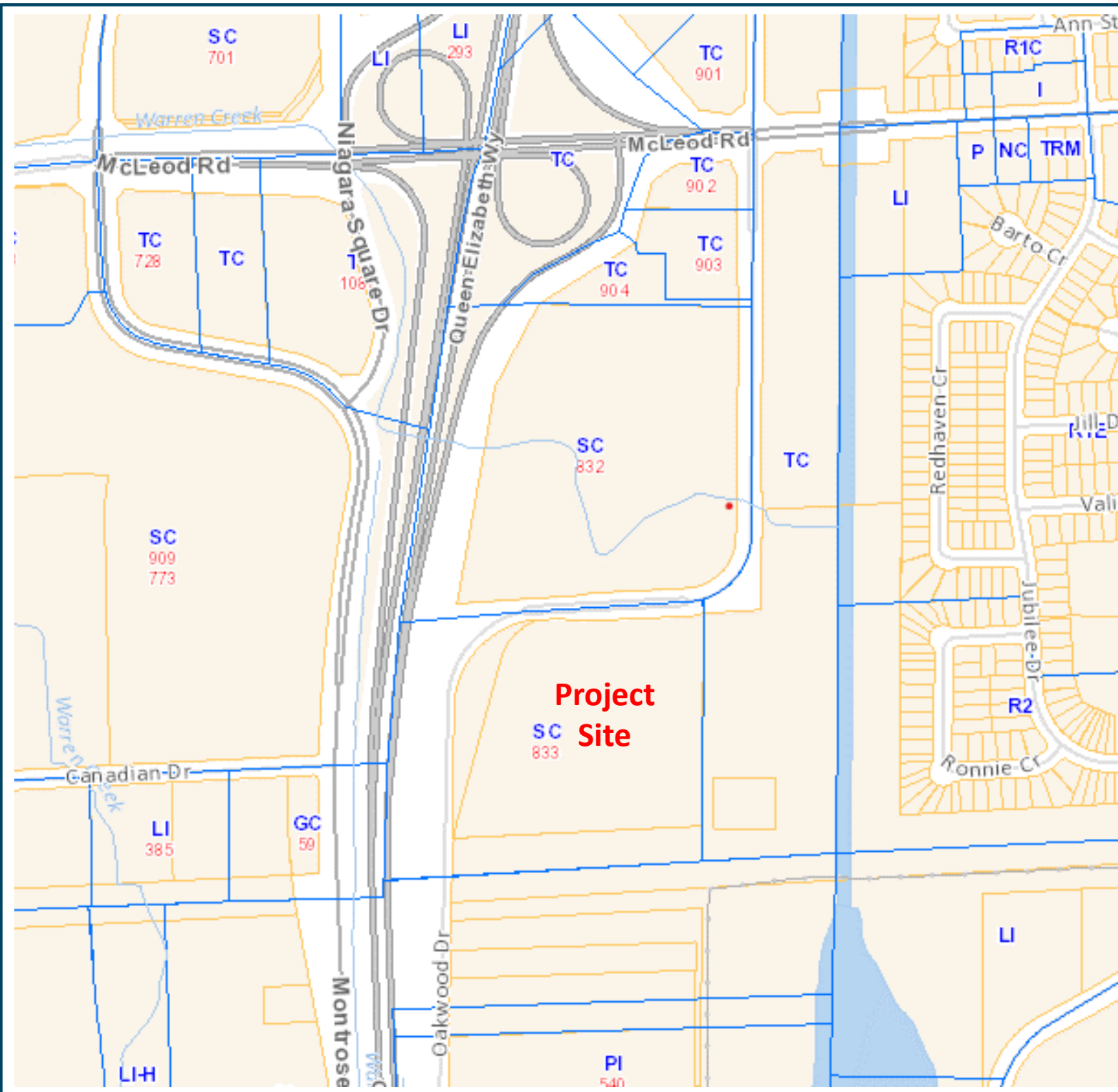
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Date: July 22, 2022 Rev 0.0 Figure No.

Project No. 241.30441.00000

**2**





True North



**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

AREA ZONING MAP

[https://map.niagarafalls.ca/Viewer/Index.html?viewer=LandRegulation&unWorkflow=Turn\\_on\\_Zoning\\_Layers](https://map.niagarafalls.ca/Viewer/Index.html?viewer=LandRegulation&unWorkflow=Turn_on_Zoning_Layers)

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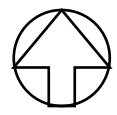
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**3**





True North



**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

SITE CONCEPT PLAN

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Date: July 22, 2022	Rev 0.0	Figure No.
Project No. 241.30441.00000		<b>4</b>

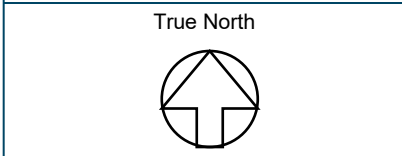




Aerial Photography from Google Earth

- Facility with MECP Permit (ECA/EASR)
- Facility without MECP Permit (ECA/EASR)
- 20 m Separation
- 70 m Separation
- 300 m Separation
- 1000 m Separation

1. Regional Sewage Pumping Station (Class I)
2. Cardinal Kia (Class I)
3. Wild Bills Auto Repair (Class I)
4. Walmart (Class I)
5. Niagara Square



**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

GUIDELINE D-6 SEPARATION DISTANCES – 1000 M

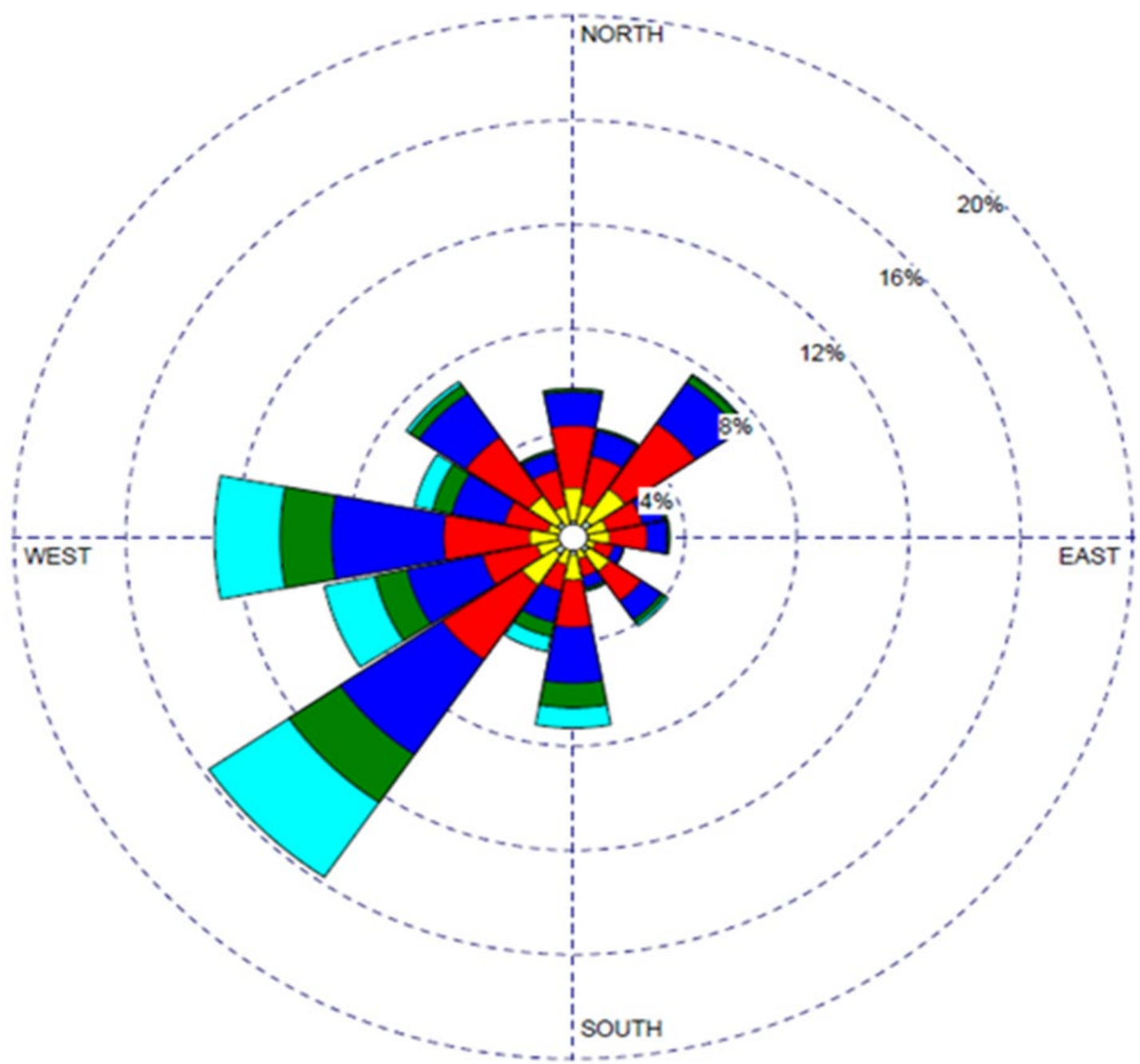
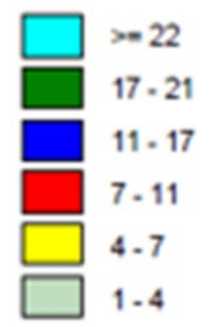
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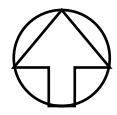
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(Knots)



True North



BRANTHAVEN DEVELOPMENT

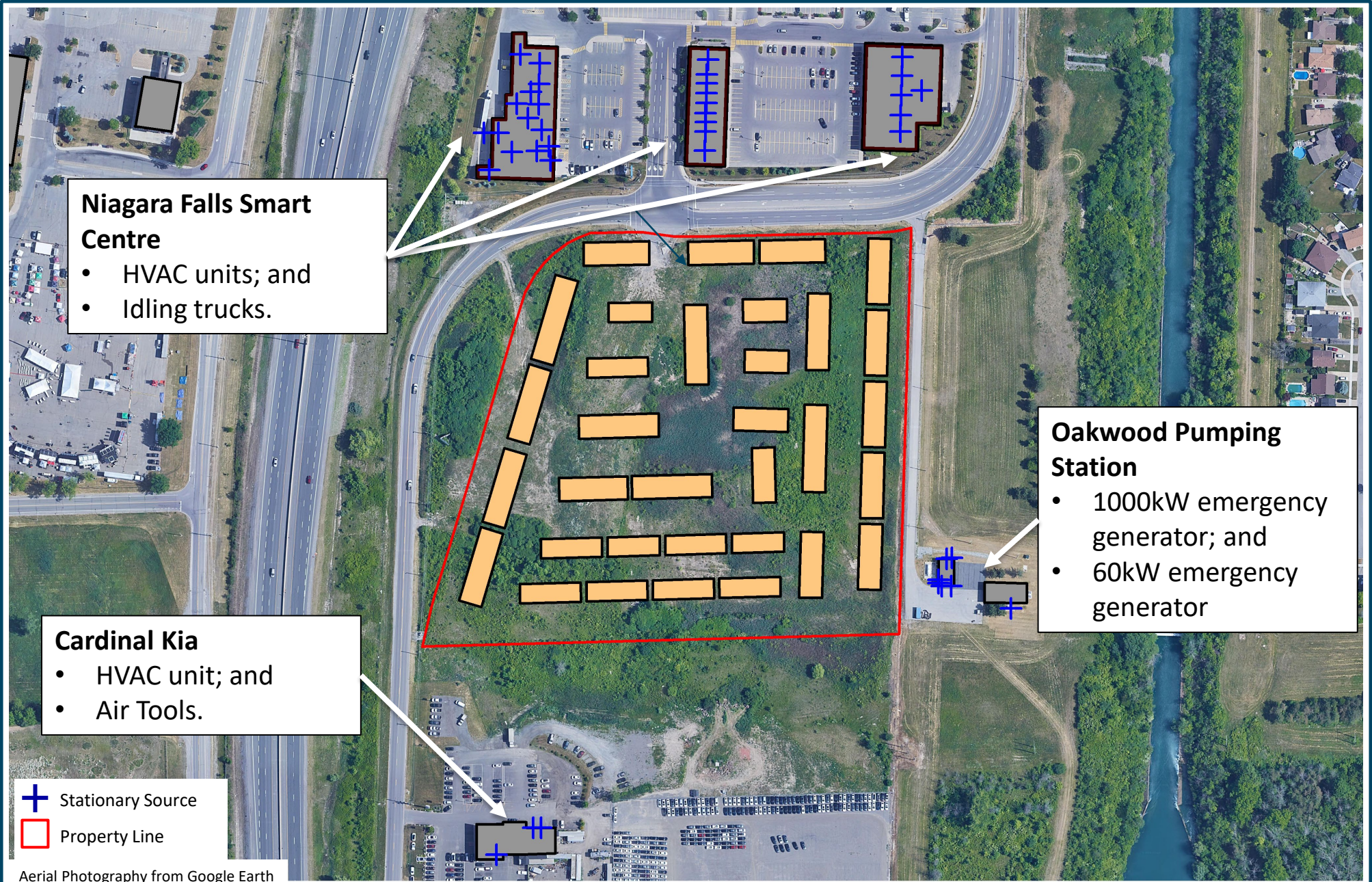
OAKWOOD DRIVE - NIAGARA FALLS

WIND FREQUENCY DISTRIBUTION DIAGRAM (WIND ROSE)  
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Date: July 22, 2022	Rev 0.0	Figure No.
Project No. 241.30441.00000		<b>6</b>







**Niagara Falls Smart Centre**



- HVAC units; and
- Idling trucks.

**Cardinal Kia**

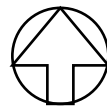
- HVAC unit; and
- Air Tools.

**Oakwood Pumping Station**

- 1000kW emergency generator; and
- 60kW emergency generator

 Stationary Source  
 Property Line

Aerial Photography from Google Earth

<b>BRANTHAVEN DEVELOPMENT</b>		True North 	Scale: 1:4000		METRES
OAKWOOD DRIVE - NIAGARA FALLS			Date: July 22, 2022	Rev 0.0	Figure No. <b>7</b>
MODELLED STATIONARY NOISE SOURCES			Project No. 241.30441.00000		





**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED STATIONARY NOISE IMPACTS – NORMAL OPERATIONS

True North



Scale: 1:3250

Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No. **8a**





- + Stationary Source
- Property Line

**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED STATIONARY NOISE IMPACTS – NORMAL OPERATIONS - OLA

True North



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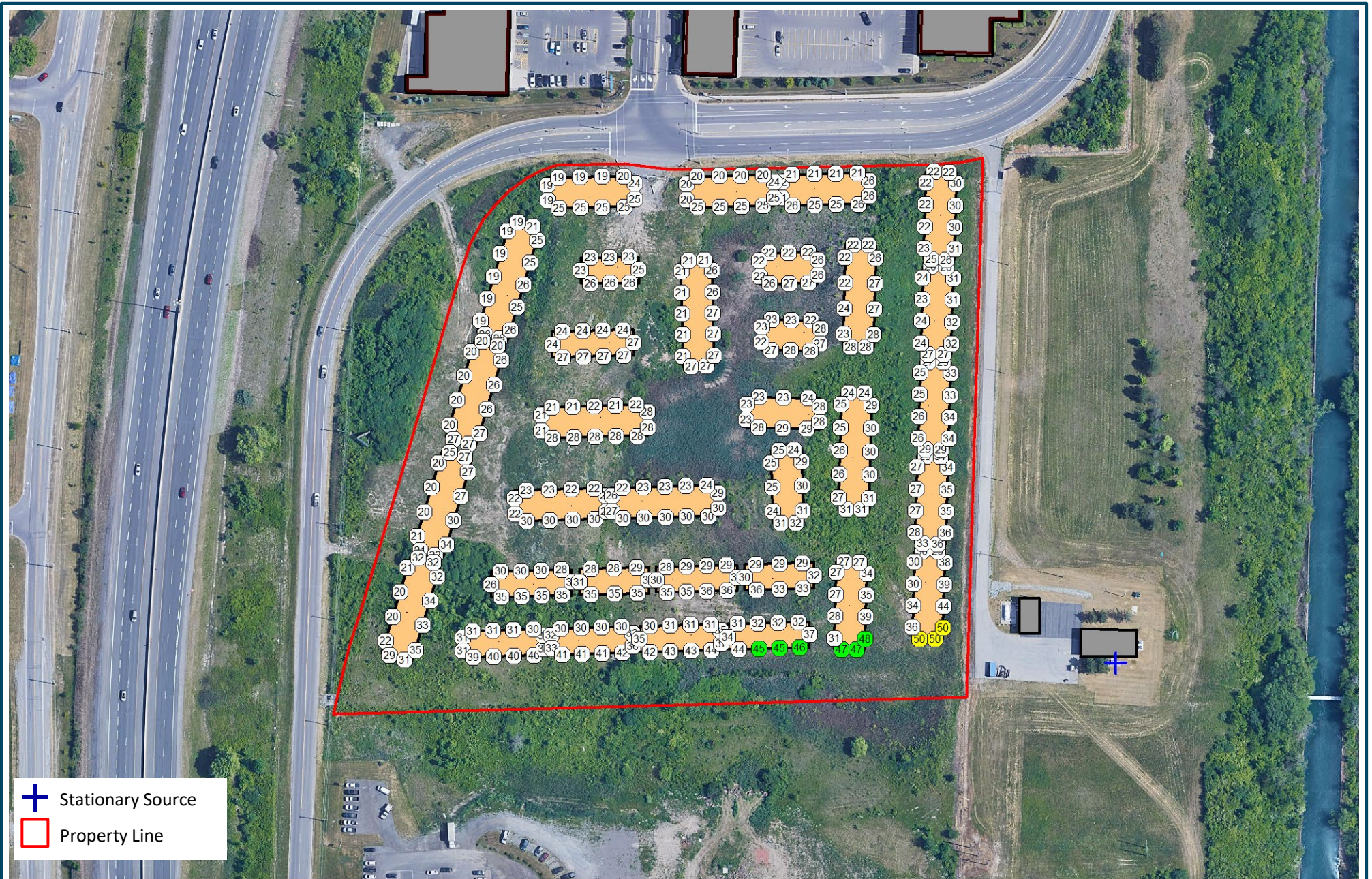
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Project No. 241.30441.00000

METRES

Figure No.  
**8b**





 Stationary Source  
 Property Line

**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED STATIONARY NOISE IMPACTS – EMERGENCY EQUIPMENT TESTING – OAKWOOD PUMPING STATION – 60KW GENERATOR

True North



Scale: 1:3000

Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No. **9a**





- + Stationary Source
- Property Line

**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED STATIONARY NOISE IMPACTS – EMERGENCY EQUIPMENT TESTING – OAKWOOD PUMPING STATION – 60KW GENERATOR - OLA

True North



Scale: 1:3000

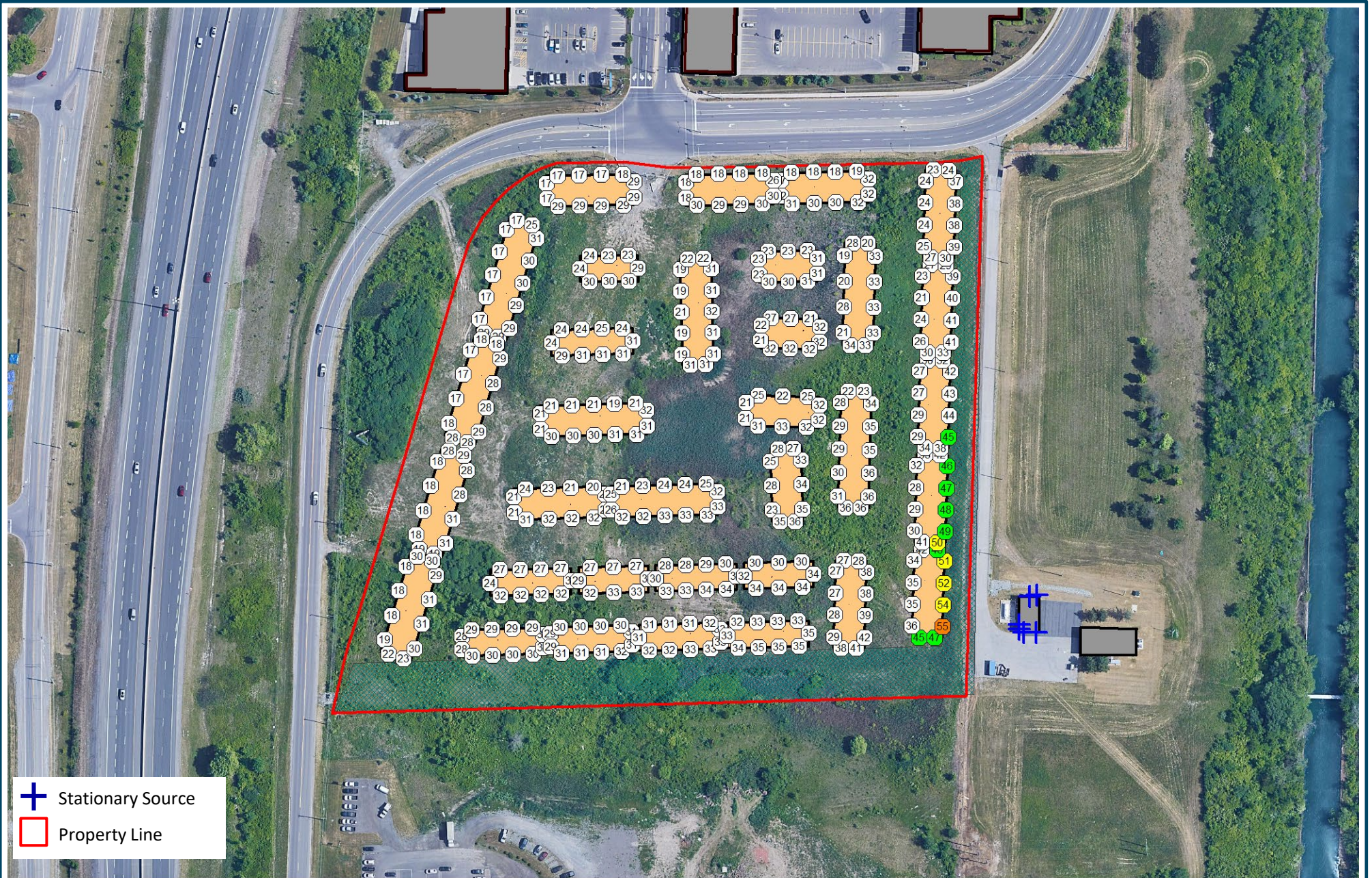
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METRES

Figure No. **9b**





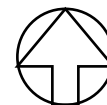
 Stationary Source  
 Property Line

**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED STATIONARY NOISE IMPACTS – EMERGENCY EQUIPMENT TESTING – OAKWOOD PUMPING STATION – 1000KW GENERATOR

True North



Scale: 1:3000

Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No.

**9c**



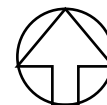


**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED STATIONARY NOISE IMPACTS – EMERGENCY EQUIPMENT TESTING – OAKWOOD PUMPING STATION – 1000KW GENERATOR - OLA

True North



Scale: 1:3000

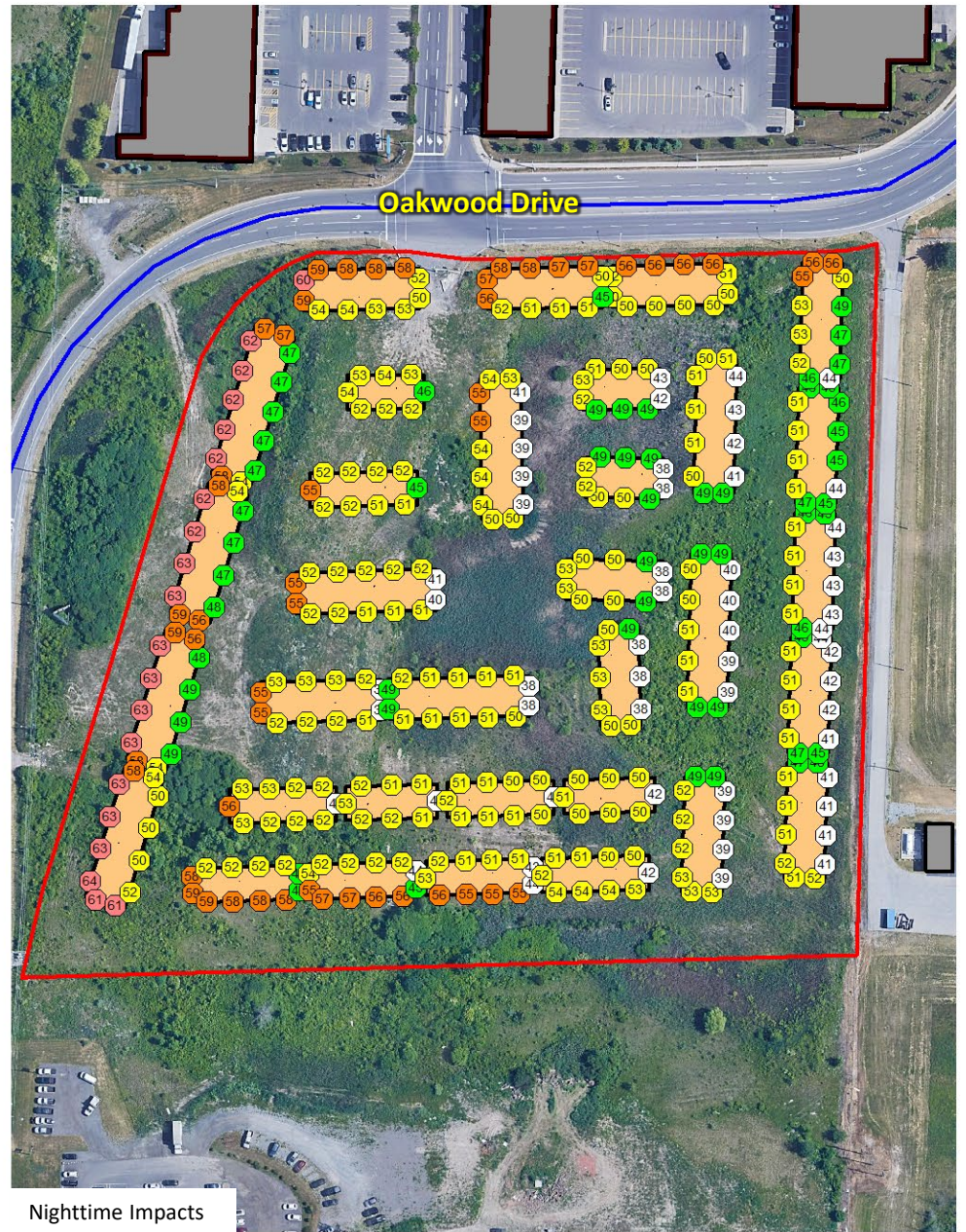
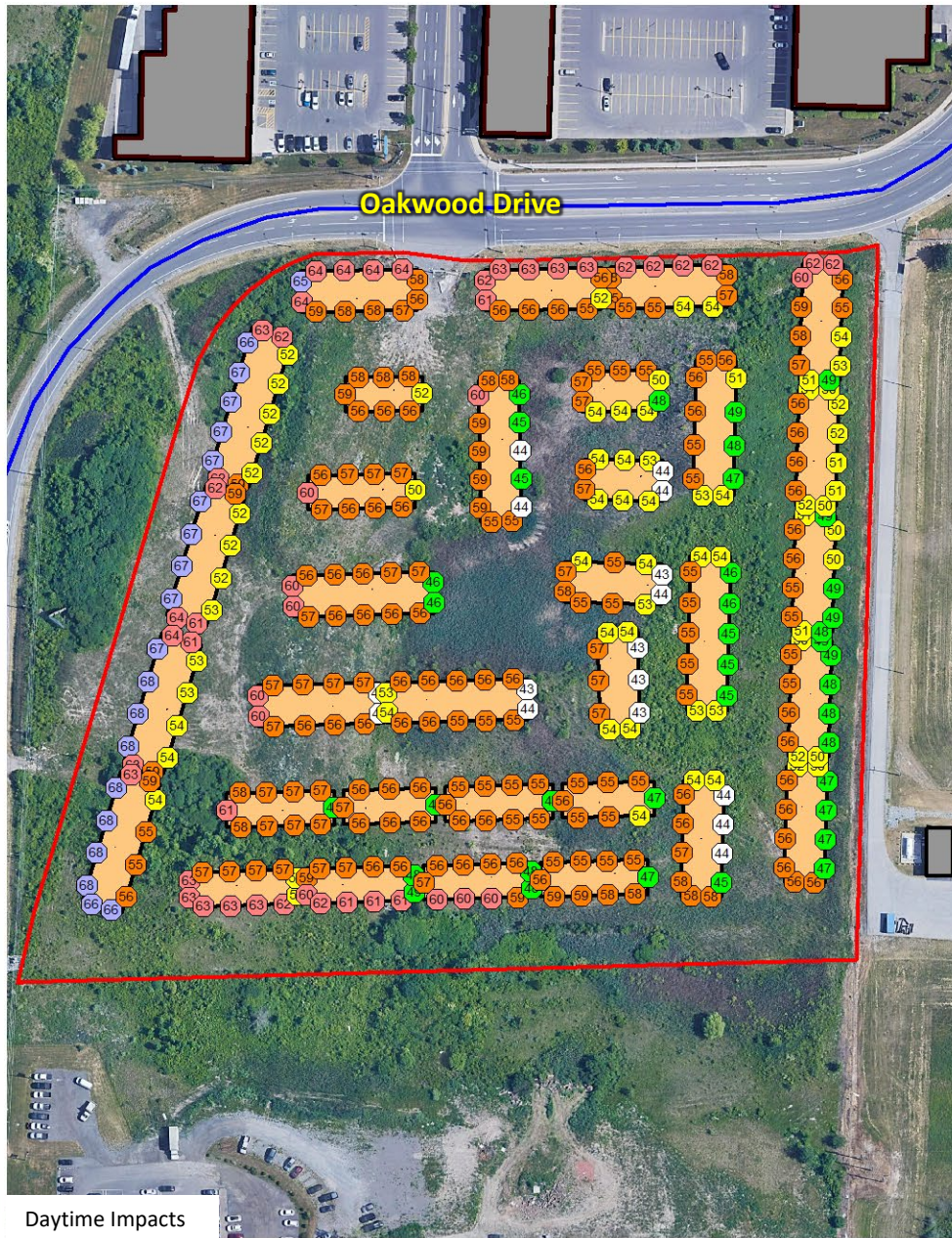
Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No. **9d**





**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED TRANSPORTATION NOISE IMPACTS

True North



Scale: 1:3250

Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No.  
**10a**







**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

MODELLED TRANSPORTATION NOISE IMPACTS - OLA

True North



Scale: 1:3250

Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No.  
**10b**





**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS  
 CADNAA VS. STAMSON VALIDATION

True North



Scale: 1:3250

Date: July 22, 2022 Rev 0.0

Project No. 241.30441.00000

METRES

Figure No.  
**D.1**



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# Appendix A Mitigation and Warning Clause Summary

**Oakwood Drive, Niagara Falls**

D-6 Compatibility & Mitigation Study

SLR Project No.: 241.30441.00000

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## SUMMARY OF MITIGATION MEASURES AND WARNING CLAUSES

### Warning Clauses

Warning Clauses may be used individually or in combination. The following Warning Clauses should be included in agreements registered on Title for the residential units, and included in all agreements of purchase and sale or lease, and all rental agreements:

#### *Industrial Sources*

##### ***MECP Type E Warning Clause - All units***

“Purchasers/tenants are advised that due to the proximity of adjacent industries, noise from these facilities may at times be audible.”

##### ***Air Quality, Odour, Dust Emissions (Units ### to ###)***

“Purchasers/tenants are advised that due to the proximity of adjacent industries, dust and odours from these facilities may at times be perceptible.”

#### *Transportation Sources (Roadway)*

##### ***MECP Type A Warning Clause – All units***

“Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing roadway traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment.”

##### ***MECP Type D Warning Clause – Four townhouses along the western property line***

“This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment.”

##### ***MECP Type C Warning Clause – All Units not requiring a Type D Warning Clause***

“This dwelling unit has been designed with the provision for adding central air conditioning at the occupant’s discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment.”

## Receptor-Based Physical Mitigation Measures

### *Ventilation System Design*

#### ***Mandatory Air Conditioning (Units ### to ###)***

The above listed units should be designed with central air conditioning systems, will allow windows and exterior doors to remain closed.

#### ***Air Intake Locations (Units ### to ###)***

All air intakes for building mechanical systems, central air conditioning units and heat recovery units shall be located in areas of least impact, on the lea-side of the building (west facade), facing away from the pumping station to the east of the development, or behind a significant intervening building or structure.

#### ***Provisions for Carbon/ Dust Filters (Units ### to ###)***

All air intakes for building mechanical systems, make-up air units, HVAC units, central air conditioning units and heat recovery units shall include space for the future installation of carbon and/or dust filters. The filtration system is to be designed to supply the space with 100% odour filtered air drawn from outside the building envelope.

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# Appendix B Industrial Information

**Oakwood Drive, Niagara Falls**

D-6 Compatibility & Mitigation Study

SLR Project No.: 241.30441.00000

MECP Guideline D-6									
Name	Address	Description	MECP ECA or EASR No. (Date)	Class	Area of Influence	Recommended Separation Distance	Actual Distance	Within Area of Influence?	Within Recommended Separation Distance?
Cardinal Kia	7818 Oakwood Drive	Automotive Refinishing	N/A	I	70	20	0	Yes	Yes
Region of Niagara Falls	7606 Oakwood Drive	Backup Generator (Pumping Station)	0397-7NNHUF (2009) 1680-9XLNPD (2015)	I	70	20	0	Yes	Yes
Walmart	7481 Oakwood Drive	Heating/Cooling System	R-003-2553621994 (2015)	I	70	20	25	Yes	-
Niagara Square	7555 Montrose Road	Heating/Cooling System	N/A	I	70	20	137	-	-
Cogeco Cable Canada	7170 McLeod Road	Backup Generators	R-002-1493111585 (2015)	I	70	20	455	-	-
Hail Enterprises Ltd. (Pin Oak Automotive)	7361 Pin Oak Drive	Automotive Refinishing	2138-8K7R3A (2011)	I	70	20	695	-	-
Royal Carstar Collision	7361 Pin Oak Drive	Automotive Refinishing	7356-63CLT6 (2004)	I	70	20	695	-	-
Wild Bills Auto Repair (Canstanin Saruc)	7868 Oakwood Drive	Automotive Refinishing	R-001-3110412945 (2018)	I	70	20	160	-	-
City of Niagara Falls	7036 McLeod Road	Backup Generator (Fire Station)	2244-8KTPPV (2011)	I	70	20	630	-	-
City of Niagara Falls	8108 Kalar Road South of Brown Road	Backup Generator (Pumping Station)	1793-77FJMA (2007)	I	70	20	965	-	-
Niagara Protective Coatings	7071 Oakwood Drive	Coatings Manufacturing	2937-8Z6J87 (2012)	II	300	70	680	-	-
Laurcoat Inc.	8100 Dorchester Road Building B	Powder Coating	5650-8S6LVJ (2012)	II	300	70	595	-	-
CYRO Canada	8100 Dorchester Road	Dust Collector System	4622-4LRL63 (2000)	II	300	70	595	-	-
City of Niagara Falls	82089 Kalar Road	Transit Maintenance Centre	7474-AEUHRP (2016)	II	300	70	905	-	-



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 **Appendix B.01**  
**Oakwood Pumping Station**  
**MECP Permits**

**Oakwood Drive, Niagara Falls**  
D-6 Compatibility & Mitigation Study  
SLR Project No.: 241.30441.00000

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Ministry of the Environment and Climate Change  
Ministère de l'Environnement et de l'Action en matière de changement  
climatique

**AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL**

NUMBER 1680-9XLNPD  
Issue Date: June 24, 2015

The Regional Municipality of Niagara  
3501 Schmon Parkway  
Post Office Box, No. 1042  
Thorold, Ontario  
L2V 4T7

Site Location: Niagara Falls Southside High Lift Sewage Pumping Station  
7606 Oakwood Drive  
City of Niagara Falls, Regional Municipality Of Niagara

*You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:*

one (1) standby diesel generator set, having a rating of 1000 kilowatts, to provide power for the facility during emergency situations;

all in accordance with the following:

1. Environmental Compliance Approval Application submitted by the Regional Municipality of Niagara, dated April 1, 2014 and signed by Kathleen Hum, Project Manager; and the supporting information, including the Emission Summary and Dispersion Modelling Report and Acoustic Assessment Report prepared by WSP, dated April 2014 and signed by Bhuwan M. Prasad, P.Eng.; and
2. Application for a Certificate of Approval (Air), and all supporting information signed by Derk Ali, P.Eng., Manager of Engineering, Regional Municipality of Niagara, and dated August 28, 2000.

*For the purpose of this environmental compliance approval, the following definitions apply:*

1. "Approval" means this Environmental Compliance Approval, including the application and supporting documentation listed above;
2. "Company" means The Regional Municipality of Niagara, that is responsible for the construction or operation of the Facility and includes any successors and assigns;
3. "District Manager" means the District Manager of the appropriate local district office of the Ministry where the Facility is geographically located;
4. "EPA" means the Environmental Protection Act, R.S.O. 1990, c.E.19, as amended;
5. "Equipment" means equipment described in the Company's application, this Approval and in the supporting documentation submitted with the application, to the extent approved by this Approval;
6. "Facility" means the entire operation located on the property where the Equipment is located;
7. "Manual" means a document or set of documents that provide written instructions to staff of the

Company;

8. "Ministry" means the Ministry of the Government of Ontario responsible for the EPA and includes all officials, employees or other persons acting on its behalf;

9. "Publication NPC-300" means the Ministry Publication NPC-300, "Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning", August 2013, as amended.

*You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:*

## TERMS AND CONDITIONS

### **GENERAL**

1. Except as otherwise provided by these Conditions, the Company shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Approval, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Approval.

2. Where there is a conflict between a provision of any submitted document referred to in this Approval and the Conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

### **OPERATION AND MAINTENANCE**

3. The Company shall restrict the periodic testing of the one (1) Generator Set to the daytime period from 7 a.m. to 7 p.m.

4. The Company shall ensure that:

(1) the periodic testing of the one (1) Generator Set is carried out as follows:

(a) the one (1) Generator Set shall be tested at a reduced load of 30%.

5. The Company shall ensure that the Equipment is properly operated and maintained at all times. The Company shall:

(1) prepare, not later than three (3) months after the date of this Approval or the date of commissioning of the Equipment, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:

(a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;

(b) emergency procedures;

(c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;

(d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual.

## **PERFORMANCE**

6. The Company shall, at all times, ensure that the noise emissions from the Facility comply with the limits set out in Ministry Publication NPC-300.

## **RECORD RETENTION**

7. The Company shall retain, for a minimum of two (2) years from the date of their creation, all records and information related to or resulting from the recording activities required by this Approval, and make these records available for review by staff of the Ministry upon request. The Company shall retain:

(1) all records on the maintenance, repair and inspection of the Equipment; and

(2) all records of any environmental complaints; including:

(a) a description, time and date of each incident to which the complaint relates;

(b) wind direction at the time of the incident to which the complaint relates; and

(c) a description of the measures taken to address the cause of the incident to which the complaint relates and to prevent a similar occurrence in the future.

## **NOTIFICATION OF COMPLAINTS**

8. The Company shall notify the District Manager, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

(1) a description of the nature of the complaint; and

(2) the time and date of the incident to which the complaint relates.

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

2. Condition No. 3 is included to ensure that the operation of the one (1) Generator Set, excluding emergency situations, is not extended beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Equipment.

3. Condition No. 4 is included to ensure that the emissions of nitrogen oxide will not result in an adverse effect at a receptor.

2. Condition No. 5 is included to emphasize that the Equipment must be maintained and operated

according to a procedure that will result in compliance with the EPA, the regulations, and this Approval.

3. Condition No. 6 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Equipment.

4. Condition No. 7 is included to require the Company to keep records and to provide information to staff of the Ministry so that compliance with the EPA, the regulations, and this Approval can be verified.

5. Condition No. 8 is included to require the Company to notify staff of the Ministry so as to assist the Ministry with the review of the site's compliance.

**Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 6614-4QUKM7 issued on November 17, 2000**

*In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:*

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.*

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, Suite 1500  
Toronto, Ontario  
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of the Environmental Protection Act  
Ministry of the Environment and Climate Change  
135 St. Clair Avenue West, 1st Floor  
Toronto, Ontario  
M4V 1P5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can**

be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or  
[www.ert.gov.on.ca](http://www.ert.gov.on.ca)

*The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.*

DATED AT TORONTO this 24th day of June, 2015

Gregory Zimmer, P.Eng.  
Director  
appointed for the purposes of Part II.1 of  
the *Environmental Protection Act*

NS/  
c: District Manager, MOECC Niagara Office  
Bhuwan M. Prasad, P. Eng., WSP Canada Inc.



**CERTIFICATE OF APPROVAL**

**AIR**

NUMBER 0397-7NNHUF

Issue Date: February 5, 2009

The Regional Municipality of Niagara  
2201 St. Davids Rd  
Post Office Box, No. 1042  
Thorold, Ontario  
L2V 4T7

Site Location: Oakwood Drive Pumping Station  
Oakwood Dr  
Niagara Falls City, Regional Municipality of Niagara, Ontario

*You have applied in accordance with Section 9 of the Environmental Protection Act for approval of:*

- one (1) standby diesel generator set, having a rating of 60 kilowatts, to provide power for the Oakwood Drive Pumping Station during emergency situations;

all in accordance with the Application for Approval (Air & Noise) dated November 18, 2008, and signed by Anthony Cimino, (Project Manager), The Regional Municipality of Niagara, and all supporting information associated with the application including additional information provided by AECOM, dated November, 2008, and signed by Douglas McLaren, P.Eng .

*For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:*

- (1) "Act" means the *Environmental Protection Act*;
- (2) "Certificate" means this Certificate of Approval issued in accordance with Section 9 of the Act;
- (3) "Equipment" means the diesel generator set described in the Owner's application, this Certificate and in the supporting documentation submitted with the application, to the extent approved by this Certificate;
- (4) "Manual" means a document or a set of documents that provide written instructions to staff of the Owner;
- (5) "Ministry" means the Ontario Ministry of the Environment;
- (6) "Owner" means The Regional Municipality of Niagara, and includes its successors and assignees;
- (7) "Publication NPC-205" means Ministry Publication NPC-205, Sound Level Limits for Stationary Sources in Class 1 & 2 Areas (Urban), October, 1995; and
- (8) "Publication NPC-232" means Ministry Publication NPC-232, Sound Level Limits for Stationary Sources in Class 3 Areas (Rural), October, 1995.

*You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:*

TERMS AND CONDITIONS

**GENERAL**



## CONTENT COPY OF ORIGINAL

1. Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Equipment in accordance with the description given in this Certificate, application for approval of the Equipment and the submitted supporting documents and plans and specifications as listed in this Certificate.
2. Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

### **PERFORMANCE**

3. The Owner shall ensure that the noise emissions from the Equipment comply with the limits set out in Publication NPC-205 or NPC-232, as applicable.

### **OPERATION AND MAINTENANCE**

4. The Owner shall restrict the periodic testing of the Equipment to the daytime hours from 10:00 am to 4:00 pm.
5. The Owner shall:
  - (1) set up a markers 7 meters along the longest side of the enclosure, measured parallel to the municipal easement boundary, for the duration of testing of the Equipment.
  - (2) ensure that no persons are present in the area bounded by the markers mentioned in (1) for the duration of testing of the Equipment.
6. The Owner shall ensure that the Equipment is properly operated and maintained at all times. The Owner shall:
  - (1) prepare, not later than three (3) months after the date of this Certificate or the date of commissioning of the Equipment, and update, as necessary, a Manual outlining the operating procedures and a maintenance program for the Equipment, including:
    - (a) routine operating and maintenance procedures in accordance with good engineering practices and as recommended by the Equipment suppliers;
    - (b) emergency procedures;
    - (c) procedures for any record keeping activities relating to operation and maintenance of the Equipment;
    - (d) all appropriate measures to minimize noise and odorous emissions from all potential sources;

(2) implement the recommendations of the Manual; and

(3) retain, for a minimum of two (2) years from the date of their creation, all records on the maintenance, repair and inspection of the Equipment, and make these records available for review by staff of the Ministry upon request.

*The reasons for the imposition of these terms and conditions are as follows:*

1. Condition Nos. 1 and 2 are imposed to ensure that the Equipment is built and operated in the manner in which it was described for review and upon which approval was granted. These conditions are also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition No. 3 is included to provide the minimum performance requirement considered necessary to prevent an adverse effect resulting from the operation of the Equipment.
3. Condition No. 4 is included to ensure that the proposed operation, excluding emergency situations, is not extended

CONTENT COPY OF ORIGINAL

beyond specific daytime hours to prevent an adverse effect resulting from the operation of the Equipment.

4. Condition No. 5 is included to ensure that emissions in the building downwash cavity do not have an adverse effect.

5. Condition No. 6 is included to emphasize that the Equipment must be maintained and operated according to a procedure that will result in compliance with the Act, the regulations and this Certificate. In addition the Owner is required to keep records and provide information to staff of the Ministry so that compliance with the Act, the regulations and this Certificate can be verified.

*In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:*

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

*The Notice should also include:*

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

*And the Notice should be signed and dated by the appellant.*

*This Notice must be served upon:*

The Secretary\*  
Environmental Review Tribunal  
655 Bay Street, 15th Floor  
Toronto, Ontario  
M5G 1E5

AND

The Director  
Section 9, *Environmental Protection Act*  
Ministry of the Environment  
2 St. Clair Avenue West, Floor 12A  
Toronto, Ontario  
M4V 1L5

**\* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at:  
Tel: (416) 314-4600, Fax: (416) 314-4506 or [www.ert.gov.on.ca](http://www.ert.gov.on.ca)**

*The above noted works are approved under Section 9 of the Environmental Protection Act.*

DATED AT TORONTO this 5th day of February, 2009

Zafar Bhatti, P.Eng.  
Director  
Section 9, *Environmental Protection Act*

TL/  
c: District Manager, MOE Niagara District Office  
Douglas McLaren, AECOM



# Appendix B.02 Walmart MECP Permit

**Oakwood Drive, Niagara Falls**

D-6 Compatibility & Mitigation Study

SLR Project No.: 241.30441.00000

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Ministry of the Environment and Climate Change  
Operations Division

## Confirmation of Registration

**Registration Number:R-003-2553621994**

**Version Number: 001**

**Date Registration Filed:Dec 08, 2015 14:46:22 PM**

Dear Sir/Madam,

WAL-MART CANADA CORP/LA COMPAGNIE  
1940 ARGENTIA RD  
MISSISSAUGA ON L5N 1P9

You have registered, in accordance with Section 20.21(1)(a) of the *Environmental Protection Act*, the use, operation, construction, alteration, extension or replacement of aHeating System located at:

7481 OAKWOOD Drive NIAGARA FALLS ON L2E 6S5

Please note that the Heating System is subject to the applicable provisions of O.Reg 245/11 and O. Reg. 346/12. Environmental Protection Act.

The activity related information provided during the registration process is included as part of the confirmation of registration as schedule 'A'

Dated on Dec 08, 2015

Director  
Environmental Approvals Branch  
Ministry of the Environment and Climate Change  
135 St. Clair W,1st Floor  
Toronto ON M4V 1P5

Any questions related to this registration and the Environmental Activity and the Sector Registry should be directed to:

Ministry of the Environment and Climate Change  
Customer Service Representative  
Environmental Approvals Access and Service Integration Branch

Phone:(416) 314-8001

Toll free: 1-800-461-6090

# Schedule 'A'

## Part 3 . Activity Information

### 3.1 Registration Information

This form is to be used to register the use, operation, construction, alteration, extension, or replacement of the heating system. Please confirm that you will be engaging in one or more of these activities.  Yes  No

### 3.2 Activity Design-Related Information

(a) Is the heating system used to produce or supply heat to the interior of a building or structure for one or more of the following:  Yes  No

- the comfort of occupants;
- the maintenance of a building or structure;
- the provision of a suitable temperature for materials, plant or animal life; or
- heating hot water for domestic purposes?

(b) Does the heating system include one or more combustion units?  Yes  No

(c) Is the thermal input rating of each combustion unit that is part of the heating system 10.5 million kilojoules per hour or less?  Yes  No

(d) Is the total thermal input rating of all of the combustion units in the heating system greater than 1.58 million kilojoules per hour?  Yes  No

(e) Does the heating system use only one or both of the following as fuel:  Yes  No

- natural gas; or
- propane?

(f) Is the wastewater from the heating system, if any:  Yes  No

- transferred to a waste management system that is subject to an Environmental Compliance Approval or is registered in the Environmental Activity and Sector Registry;
- discharged to a sewage works that is subject to an Environmental Compliance Approval; or
- discharged to a municipal sanitary sewer?

### 3.3 Environmental Activity and Sector Registration Exemptions

(a) Is the heating system comprised of a ground source heat pump as defined in Ontario Regulation 98/12 (Ground Source Heat Pumps) made under the Environmental Protection Act?  Yes  No

(b) Is the heating system associated with a building or structure that contains one or more dwellings and is used by the occupants of not more than three dwellings in the building or structure?  Yes  No

(c) Is the heating system used in agriculture?  Yes  No

(d) Does the heating system provide heat used in an industrial or manufacturing process?  Yes  No

(e) Does the heating system derive its heat from an industrial or manufacturing process?  Yes  No

(f) Is the heating system used at the site of a building or structure, for:  Yes  No

- the construction;
- alteration;
- demolition;
- drilling; or
- blasting of the building or structure?

(g) Is the heating system used during an outdoor entertainment, artistic or sporting event, including an outdoor festival, fair, parade, fireworks display, art show, air show or car show, but not including a race of horses, dogs or motorized or non-motorized vehicles or boats?  Yes  No

(h) Is the heating system used solely to mitigate the effects of an emergency declared to exist under the Emergency Management and Civil Protection Act?  Yes  No

(i) Is the heating system part of a large municipal residential system or a small municipal residential system, as those systems are defined in Ontario Regulation 170/03 (Drinking Water Systems) made under the Safe Drinking Water Act, 2002?  Yes  No

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 **Appendix C**  
**Stationary Noise Modelling Inputs**

**Oakwood Drive, Niagara Falls**

D-6 Compatibility & Mitigation Study  
SLR Project No.: 241.30441.00000

**Table C.1: Summary of Noise Source Sound Power Levels**

Source Description	Maximum Sound Power Levels (1/1 Octave Band Levels)									Total PWL (dBA/dBAI)	Notes
	32	63	125	250	500	1000	2000	4000	8000		
	(dB/dBI)	(dB/dBI)	(dB/dBI)	(dB/dBI)	(dB/dBI)	(dB/dBI)	(dB/dBI)	(dB/dBI)	(dB/dBI)		
Rooftop HVAC (5-ton)	77	80	81	81	80	78	74	70	64	83	- based on SLR historical data - Assumed to operate continuously during daytime/evening -50% duty cycling applied during nighttime hours.
Rooftop HVAC (10-ton)	80	83	84	84	83	81	77	73	67	86	- based on SLR historical data - Assumed to operate continuously during daytime/evening -50% duty cycling applied during nighttime hours.
Rooftop HVAC (15-ton)	87	90	91	91	90	88	84	80	74	93	- based on SLR historical data - Assumed to operate continuously during daytime/evening -50% duty cycling applied during nighttime hours.
Rooftop HVAC (30-ton)	90	93	94	94	93	91	87	83	77	96	- based on SLR historical data - Assumed to operate continuously during daytime/evening -50% duty cycling applied during nighttime hours.
Idling Heavy Truck	98	101	101	97	96	96	92	84	78	100	- based on SLR historical data - Assumed to operate 30 minutes per hour during daytime and evening, with no operation during nighttime hours
KIA Pneumatic Tools		85	90	83	87	86	93	92	92	98	- based on SLR historical data - Assumed to operate 60 minutes per hour during daytime, with no operation during evening or nighttime hours
60 kW Generator (75 dBA @ 7m)		79	88	89	91	92	94	91	83	100	- based on MECP 75 dBA at 7m guideline - Assumed to operate 60 minutes per hour during daytime, with no operation during evening or nighttime hours -Testing assumed to be conducted independantly of 1000kW Generator
1000kW Genset Exhaust Louvre	0	99	100	95	91	84	79	82	82	94	- Calculated based on AGA and ASHRAE standards - Assumed to operate 60 minutes per hour during daytime, with no operation during evening or nighttime hours -Testing assumed to be conducted independantly of 60kW Generator -12" Acoustic louvre assumed
1000kW Genset Intake Louvre	0	98	99	94	91	84	78	82	82	93	- Calculated based on AGA and ASHRAE standards - Assumed to operate 60 minutes per hour during daytime, with no operation during evening or nighttime hours -Testing assumed to be conducted independantly of 60kW Generator -12" Acoustic louvre assumed
1000kW Genset Exhaust Stack	0	117	103	101	96	100	94	84	76	103	- Calculated based on AGA and ASHRAE standards - Assumed to operate 60 minutes per hour during daytime, with no operation during evening or nighttime hours -Testing assumed to be conducted independantly of 60kW Generator -Typical engine exhaust silencer assumed



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# Appendix D

## Traffic Volumes and Calculations

**Oakwood Drive, Niagara Falls**

D-6 Compatibility & Mitigation Study  
SLR Project No.: 241.30441.0000

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**BPN 56 Calculation Procedure - Required Glazing STC Rating (Fixed Veneer)**

ROADWAY

Receptor ID	Source Description	Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
		Façade Sound Level: (dBA)	Required Indoor Sound Level: (dBA)	Glazing as % of Wall Area	Exposed Wall Height (m)	Exposed Wall Length (m)	Room Depth (m)	Room Absorption:	Incident Sound Angle: (deg)	Spectrum type:	Assumed Veneer STC (STC)	Component Category:	Component Category:	Required Glazing STC (STC)

**DAYTIME**

Living Room	3_RL_TH	3 Storey RL TH - East Façade	68	45	50%	3.0	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	25
	3_RL_TH	3 Storey RL TH - South Façade	66	45	50%	3.0	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	23
Bedroom	3_RL_TH	3 Storey RL TH - East Façade	68	45	20%	3.0	3.0	3.0	Very Absorptive	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
	3_RL_TH	3 Storey RL TH - South Façade	66	45	20%	3.0	3.0	3.0	Very Absorptive	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20

**NIGHTTIME**

Living Room	3_RL_TH	3 Storey RL TH - East Façade	63	45	50%	3.0	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20
	3_RL_TH	3 Storey RL TH - South Façade	61	45	50%	3.0	3.0	6.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	18
Bedroom	3_RL_TH	3 Storey RL TH - East Façade	63	40	20%	3.0	3.0	3.0	Very Absorptive	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	22
	3_RL_TH	3 Storey RL TH - South Façade	61	40	20%	3.0	3.0	3.0	Very Absorptive	0 - 90	D. mixed road traffic, distant aircraft	45	D. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	20

**Summary of Required Composite Window STCs**

	Location	Non-Glazing Veneer	Road		Total	
			Day	Ngt	Max	Max
Living Rooms	3 Storey RL TH - East Facade	45	25	20	25	OBC (25)
	3 Storey RL TH - South Facade	45	23	18	23	OBC (23)
Bedrooms	3 Storey RL TH - East Facade	45	22	22	22	OBC (22)
	3 Storey RL TH - South Facade	45	20	20	20	OBC (20)

_id	Station/...	Reg_Rd...	From_St	To_St	Length_...	Count_...	AADT	SAI
389	619949	98	REG. RD. 98 (Kalar Rd.)	Cardinal Drive	1.9	2018	5400	6
388	619948	98	Morrison Street (int. # 0...	King's Hwy 420	1.6	2018	13200	1
351	610704	98	REG. RD. 98 (Niagara S...	Canadian Drive	0.4	2018	5400	5
350	610703	98	McLeod Road	REG. RD. 98 (Niagara Sq. Dr.)	0.4	2018	4800	5
349	610702	98	REG. RD. 101 (Mountai...	REG. RD. 98 (Montrose Rd.)	0.2	2018	6900	7
338	610591	20	Kalar Road	REG. RD. 98 (Montrose Rd.)	2	2018	23400	2
337	610590	57	Kalar Road	REG. RD. 98 (Montrose Rd.)	1	2018	22700	2
330	610579	98	Canadian Drive	REG. RD. 63 (Chippawa Cre...	1.3	2018	6700	6
321	610557	98	REG. RD. 57 (Thorold S...	Morrison Street (int. # 098M...	0.4	2018	15400	1
296	610509	98	REG. RD. 98 (Forkes Rd.)	Highway 3	6.1	2018	1200	1
295	610508	98	REG. RD. 98 (Schill Rd.)	REG. RD. 98 (Wilhelm Rd.)	0.8	2018	1000	9
294	610507	98	REG. RD. 25 (Netherby ...	REG. RD. 98 (Forks Rd.)	1.6	2018	1000	1
293	610506	98	REG. RD. 47 (Lyons Cre...	REG. RD. 27 (Schisler Rd.)	2.6	2018	9900	9
292	610504	98	Cardinal Drive	REG. RD. 57 (Thorold Stone...	0.7	2018	3300	3
291	610503	101	REG. RD. 98 (Kalar Rd.)	Q.E.W. (int. # 101QEN)	0.6	2018	12100	1
189	610306	20	REG. RD. 98 (Montrose ...	Dorchester Road	1	2018	23000	2
127	610187	25	REG. RD. 525 (Townline...	REG. RD. 98 (Montrose Rd.)	3.1	2018	6900	7
122	610179	27	REG. RD. 84 (Moyer Rd.)	REG. RD. 98 (Montrose Rd.)	5.1	2018	7100	8
121	610177	98	REG. RD. 27 (Schisler ...	REG. RD. 25 (Netherby Rd.)	4.8	2018	4100	0
119	610174	25	REG. RD. 98 (Montrose ...	REG. RD. 116 (Sodom Rd.)	5.5	2018	5100	5
115	610167	47	REG. RD. 98 (Montrose ...	REG. RD. 102 (Stanley Ave.)	4.8	2018	9000	9
114	610164	98	REG. RD. 63 (Chippawa...	REG. RD. 47 (Lyons Creek ...	2.1	2018	6400	6

Filename: Oakwood.te                      Time Period: 16 hours  
Description:

Road data, segment # 1: Oakwood

-----  
Car traffic volume : 14288 veh/TimePeriod  
Medium truck volume : 146 veh/TimePeriod  
Heavy truck volume : 146 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Oakwood

-----  
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 : 44.00 m  
Receiver height           : 1.50 m  
Topography                : 1            (Flat/gentle slope; no barrier)  
Reference angle           : 0.00

↑

Road data, segment # 2: QEW NB

-----  
Car traffic volume : 19589 veh/TimePeriod  
Medium truck volume : 408 veh/TimePeriod  
Heavy truck volume : 408 veh/TimePeriod  
Posted speed limit : 100 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: QEW NB

-----  
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 : 148.00 m  
Receiver height           : 1.50 m  
Topography                : 1            (Flat/gentle slope; no barrier)  
Reference angle           : 0.00

↑

Road data, segment # 3: QEW SB

```

-----
Car traffic volume : 19589 veh/TimePeriod
Medium truck volume : 408 veh/TimePeriod
Heavy truck volume : 408 veh/TimePeriod
Posted speed limit : 100 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

Data for Segment # 3: QEW SB

```

-----
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 : 125.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

↑

Road data, segment # 4: Montrose

```

-----
Car traffic volume : 7654 veh/TimePeriod
Medium truck volume : 159 veh/TimePeriod
Heavy truck volume : 159 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

```

Data for Segment # 4: Montrose

```

-----
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 : 200.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

```

↑

Results segment # 1: Oakwood

Source height = 1.00 m

ROAD (0.00 + 59.46 + 0.00) = 59.46 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	64.14	0.00	-4.67	0.00	0.00	0.00	0.00	59.46

-----  
Segment Leq : 59.46 dBA

↑  
Results segment # 2: QEW NB  
-----

Source height = 1.19 m

ROAD (0.00 + 63.90 + 0.00) = 63.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	73.84	0.00	-9.94	0.00	0.00	0.00	0.00	63.90

-----

Segment Leq : 63.90 dBA

↑  
Results segment # 3: QEW SB  
-----

Source height = 1.19 m

ROAD (0.00 + 64.64 + 0.00) = 64.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	73.84	0.00	-9.21	0.00	0.00	0.00	0.00	64.64

-----

Segment Leq : 64.64 dBA

↑  
Results segment # 4: Montrose  
-----

Source height = 1.19 m

ROAD (0.00 + 51.81 + 0.00) = 51.81 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.06	0.00	-11.25	0.00	0.00	0.00	0.00	51.81

-----

Segment Leq : 51.81 dBA

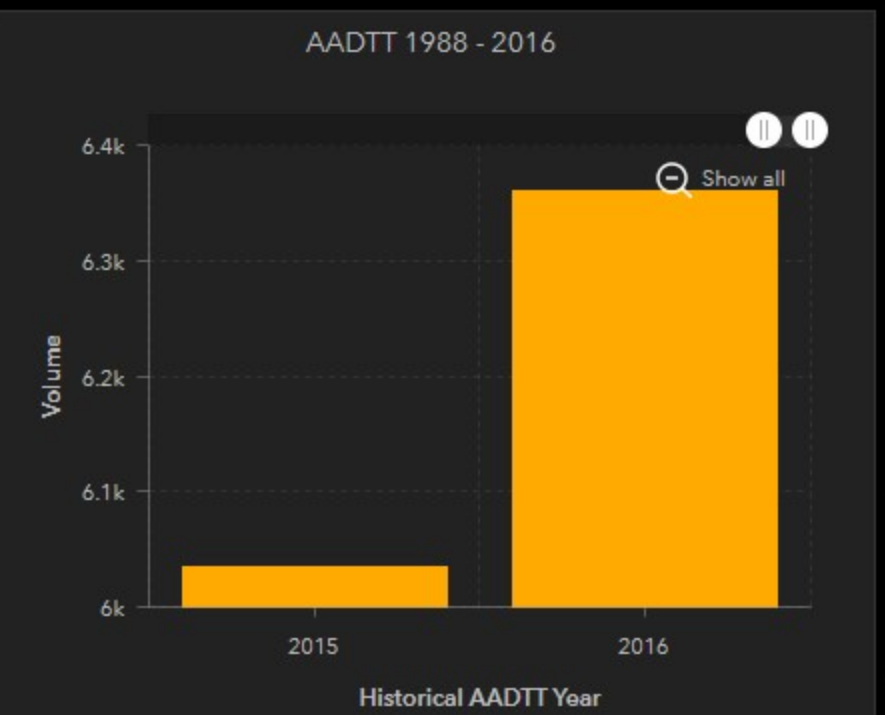
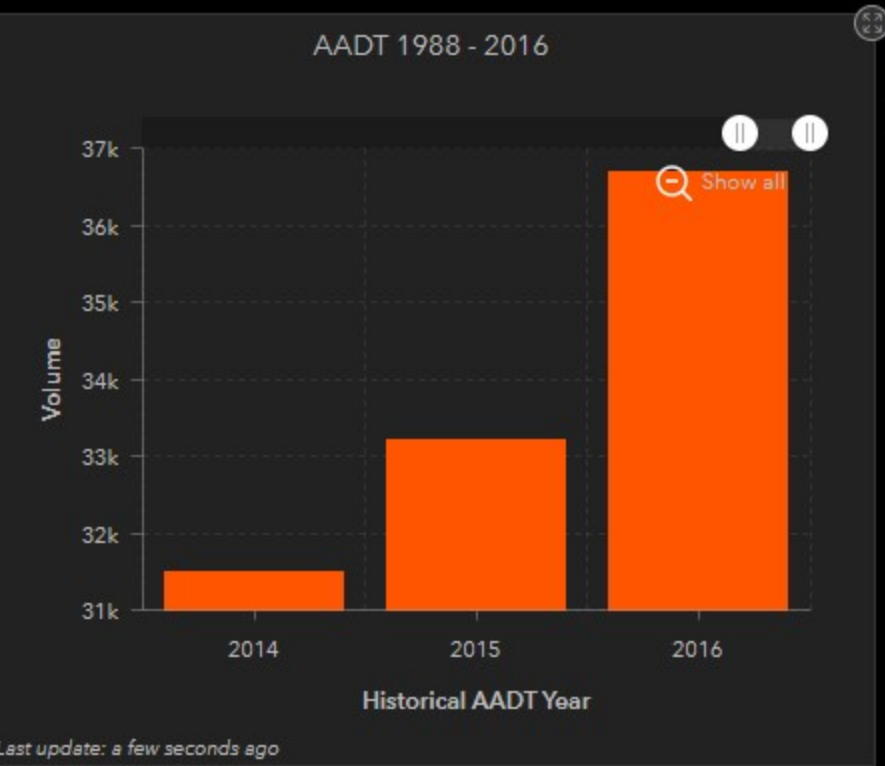
Total Leq All Segments: 68.06 dBA

↑



TOTAL Leq FROM ALL SOURCES: 68.06





Zoom to Pan Select

Search Home Layers Full Screen

#### Historical AADT/DJMA Historiques

AADT04	28,700
AADT05	29,300
AADT06	29,800
AADT07	30,300
AADT08	30,800
AADT09	31,400
AADT10	31,900
AADT11	27,700
AADT12	28,500
AADT13	29,000
AADT14	31,500
AADT15	33,200
AADT16	36,700



**GENERAL GUIDELINES FOR THE  
PREPARATION OF ACOUSTICAL REPORTS IN  
THE REGION OF PEEL**

November 2012

Updated August 2020

GENERAL GUIDELINES FOR THE PREPARATION  
OF ACOUSTICAL REPORTS IN THE REGION OF PEEL

- 1.0 The Ministry of the Environment discontinued its review and clearance functions relating to acoustical reports of Regional and local roads within Peel in 1987 and this function has been delegated directly to the Region of Peel and to the pertinent Area Municipality.

In 1996, the Ministry of the Environment further discontinued its review and clearance functions concerning acoustical reports relating to provincial highways, railways, aircraft and major industrial noise sources, and also delegated this responsibility to the Region of Peel and the pertinent Area Municipality.

The Region of Peel and its constituent Area Municipalities require the applicants of all residential plans of subdivision, rezoning and site plans adjacent to major noise sources in the Region to engage the services of a qualified acoustical specialist (hereafter referred to as the Acoustical consultant) to prepare an acoustical report to be signed and submitted by a professional engineer which will recommend noise control measures to meet the sound level objectives of the Region of Peel, the Area Municipality and the Ministry of the Environment.

- 1.2 Generally, an acoustical report for a plan of subdivision is required only prior to final approval of the plan to clear the conditions of draft approval. However, when it is anticipated that projected noise levels between 7 am and 11 pm will exceed 65 dBA, an acoustical feasibility report will be required prior to draft approval to determine whether the design proposed and layout of the lots will allow the required sound level objectives to be achieved.
- 1.3 Notwithstanding policy 1.2 above, an acoustical feasibility report will be required prior to draft approval for any residential subdivision plan abutting a Provincial or Regional road except in cases where a master acoustical feasibility study has been approved for the area.
- 1.4 The acoustical report must describe the plan of subdivision or the site and its relationship to the major roads and all other major noise sources including industrial, aircraft and rail noise, which may affect future occupants of the subdivision. The report must also identify all future noise sources in consultation with the area municipality and the Region of Peel.
- 1.5 Aircraft and freeway noise shall be considered in accordance with Regional and Municipal Official Plan Policies and the Ministry of Municipal Affairs and Housing s aircraft and freeway noise guidelines.

- 1.6 All other noise sources including industrial activity shall be considered in accordance with the Ministry of Environment criteria and procedures.
- 1.7 The report shall give details of prediction techniques used to determine noise levels (road, rail, aircraft) including all adjustments.
- 2.0 NOISE PREDICTION AND DESIGN CRITERIA
- 2.1 Sound Level Limits
- 2.1.1 The road traffic noise study will be based on the following criteria for sound level limits adopted by the Region of Peel, its constituent municipalities, and the Ministry of the Environment.
- 2.1.2 Outdoor Living Area  
(7am-11pm) Leq (16 hr) = 55dBA
- 2.1.3 Outside Bedroom Window  
(11pm-7am) Leq (8 hr) = 50dBA
- 2.1.4 Indoor (bedrooms, hospitals)  
(11pm-7am) Leq (8 hr) =40 dBA
- 2.1.5 Indoor (living rooms, hotels, private offices, reading rooms)  
(7am-11pm) Leq (16 hr) =45 dBA
- 2.1.6 Indoor (general offices, shops)  
(7am-11pm) Leq (16 hr) =50 dBA
- 2.2 Traffic Noise Predictions
- 2.2.1 With respect to road traffic predictions, only analytical techniques of current methods as approved by the Ministry of the Environment are accepted.
- 2.2.2 Traffic Volumes on arterial roads in the Urban Area (used in predicting noise level calculations) must be based on ultimate lane configuration and posted speed limit with level of service D unless otherwise directed, as set out in the table below:

Lanes	Future Traffic Volume	Medium Truck %	Heavy Truck %
2	16,200	Truck percentages are determined from actual counts, where available.	
4	32,400		
6	48,100		

- 2.2.3. Requests for traffic data must be provided to the Region of Peel in writing.
- 2.2.4. All traffic data sources must be identified in the report.
- 2.2.5. Predicted noise level calculations must be included in the report for both daytime (7am-11pm) and night time (11pm-7am) periods.
- 2.2.6. If manual calculations are used, the report must contain the fully completed MOE Traffic Noise Prediction Work Sheet for all sections calculated. If an acceptable computer model is utilized, sample copies of all sections calculated must be included.
- 2.2.7. The report must detail information on all adjustments, where applicable.
- 2.2.8. Where there is more than one source impacting the site, the calculations for each source and the combined noise level calculations must be included.
- 2.2.9. For industrial, aircraft and rail sound predictions, the Ministry of the Environment standard procedures should be employed with the report detailing the method of calculation or measurement.

### 2.3 Noise Barrier Calculations

- 2.3.1 In addition to noise level calculations, acoustical barrier calculations must also be included in the report and accompanied by a table of comparative barrier heights and barrier cross section drawings, which must comply with the following criteria:
  - a) The comparative barrier heights table must demonstrate attenuation under alternative heights including the sound level objective and the report's recommended level
  - b) Typical and/or worst case cross sections (and additional cross sections as may be necessary) at a vertical and horizontal scale of 1 to 1000 must be provided to clearly illustrate the proposed berm and wall configuration in relation to the future grade at the house based on the proposed Lot Grading Plan. (Existing and proposed future grades at the site must be indicated).

- c) Height of receiver to be used is 1.5 metres above the ground at a point located 3.0 metres from the rear wall of the dwelling unit.
- d) Barrier wall (i.e., fence) shall generally not exceed 2.0 metres in height unless approved by the area municipality in consultation with the appropriate road authority. Consideration may be given to fence heights up to a maximum of 2.4 metres.
- e) A minimum of 6.0 metres depth of rear yard as measured from rear face of the building which contains no slope in excess of 2% will be required by the Region of Peel unless otherwise specified as follows:
  - a. In Brampton, any sloped portion in excess of 2% shall not occupy more than 1/3 of the overall depth of the rear yard.
- f) A maximum berm slope of 4:1 on the right of way side will be required on all local and Regional roads within the Region of Peel unless otherwise specified below. Slopes steeper than 3:1 may be tolerated on the lot side of the earthwork (berm) by the use of retaining walls, etc provided that the Area Municipality is satisfied from a drainage and landscaping standpoint. Back to front drainage should be provided for wherever possible.
  - a. In Mississauga, 3:1 berm slopes on the street side will be permitted.
  - b. In Brampton, 3:1 berm slopes on the street side will be permitted as an option if the developer agrees to full planting with low maintenance cover.
- g) In cases where the attenuation facility is interrupted, barrier returns or parallel screens are required and the detailed design of the treatment in cases will have to be incorporated into the acoustical report.
- h) Barrier walls should generally be located no further than 0.3 metres from the rear lot line or as specified by the Area Municipality. Barrier walls will be located on the private homeowner's side of the lot line.
- i) Boulevard slopes (between berms and the edge of the pavement) will preferably be 2%-4%.
- j) The combined height of berm and barrier over 4 metres will be considered in very exceptional situations. 4 metre barrier height will generally be calculated (in standard situations) from the centre line of the pavement. In non-standard or extreme the barrier heights will be considered on an individual basis. The area municipality shall be consulted on local height restrictions. (The maximum barrier height is generally to be measured from a line joining the centre line of the pavement to the ground level at the rear of the dwelling unit, except in non-standard situations.)

2.3.2. Information on acoustical barriers, berms, berm/wall combinations must include location and height of barriers relative to a fixed point, usually the centreline of the road. Unless otherwise agreed to, no portion of a berm may extend onto a municipal road right of way.

- 2.3.3. Type and surface density (minimum of 4lbs/sqft) of barrier fence should be specified.
- 2.3.4. The report shall be required to prove to the satisfaction of the Region of Peel, the Area Municipality and the Ministry of the Environment that the noise level in outdoor living areas after applying attenuation measures is the lowest level aesthetically, technically, administratively practical. To this end, the reports shall continue to provide a table of comparative barrier heights and show the height required to attenuate sounds to the Ministry of the Environment standards. The sound level objective is 55 dBA.

The report must show that the analysis has been done to meet the planning objectives of the municipality and that every effort has been made to achieve the 55 dBA sound level at a minimum, line of sight from receiver to source must be broken in all cases.

The report will provide an explanation in circumstances where the recommended barrier heights and other attenuation measures will result in the Ministry of Environment guidelines not being met.

(Note: It is preferable, that where possible, residential developments be designed such that the need for barrier type attenuation features, to control outdoor noise levels, is minimized.)

#### 2.4 Other Noise Control Measures for Outdoor Living Areas

- 2.4.1 Alternative measures (site planning, service road, special type or location of acoustical barriers, etc) should be discussed with the Region and the Areas municipality in advance to receive their acceptance in principle.
- 2.4.2 Front yard attenuation (i.e., outdoor living areas in the front yard) area not an acceptable form of noise attenuation for reversed frontage lots.

#### 2.5 Noise Attenuation for Indoor Living Areas

- 2.5.1 Central air conditioning is required when the night time noise level is 60 dBA or greater at a bedroom window or when the day time noise level exceeds 65 dBA at the exterior face of a living room. A warning clause note to this effect is to be included in the reports and in the Subdivision Agreement for registration on title.
- 2.5.2 For central air conditions requirements, traffic volumes may be based on a 10 year projection from the estimated date of occupancy of the affected dwellings.



- 2.5.3 If central air conditioning is required, a noise insensitive location or other appropriate means of noise attenuation of the air cooled condenser unit should be stipulated in the report and in the Subdivision Agreement. If a heat pump is installed, the location of the outdoor unit should be specified as well. The location and installation of the outdoor air conditioning device should comply with sound level limits of provincial policies and with any other criteria specified by the municipality.
- 2.5.4 If the nighttime outdoor noise level is above 50 dBA and below 60 dBA forced air heating is to be installed with provision for central air conditioning. A warning clause note to this effect is to be included in the report and in the Subdivision Agreement for registration on title. (See wording in 2.6).
- 2.5.5 When the night time outdoor noise level at the bedroom window is 60 dBA or greater, door specifications, outer wall specifications and required window glazing shall be provided. All recommendations shall be based on ultimate traffic volumes and the report shall distinguish between those dwellings where the standard requirements of the Ontario building Code will provide adequate indoor attenuation and those locations where additional measures are required.
- 2.5.6 Noise reports will not be required for industrial/commercial/office developments. In lieu of requiring a noise report the following building component requirements will be imposed as a condition to development:

Prior to the issuance of building permits for Blocks (\_\_\_), an acoustical consultant shall certify on the building plans submitted for application approval to the Building Department that the building design for the office and retail areas include double glaze noon-opening windows, brick veneer or its acoustical equivalent, and air conditioning system and a suspended acoustical type ceiling.

## 2.6 Warning Clauses

- 2.6.1 The following minimum wording is to be used in the Subdivision Agreement and in all Offers of Purchase and Sale for the specific lots when noise levels are not being attenuated and the levels exceed the Municipality's and the Ministry of the Environment's noise criteria, but not by more than 5 dBA:

Purchasers are advised that noise levels due to increasing road (rail) (air) traffic may continue to be of concern, occasionally interfering with some activities of the dwelling occupants.

- 2.6.2 When noise attenuation measures have been instituted on the site, and resultant noise levels still exceed the Municipality's and the Ministry of Environment's noise criteria by 5 dBA or less, the

following wording is to be used in the Subdivision Agreement and in all Offers of Purchase and Sale for the specific lots:

Purchasers are advised that despite the inclusion of noise control features in this development area and within the building units, noise levels from increasing road (rail) (air) traffic may continue to be of concern, occasionally interfering with some activities of the dwelling occupants as the noise level exceeds the Municipality's and the Ministry of the Environment's noise criteria.

- 2.6.3 If the Municipality accepts a noise attenuation solution where the resultant noise level exceeds the Municipality's and the Ministry of Environment's criteria by more than 5dBA, the warning clause in paragraphs 2.6.1 and 2.6.2 must be reworded by replacing the word may with will or as directed by the Area Municipality.
- 2.6.4 When forced air heating with provision for central air conditioning is to be installed the following additional paragraph is to be added to the warning clause in 2.6.2:

This dwelling unit was fitted with a forced air heating system and the ducting, etc sized to accommodate a central air conditioning unit. Air conditioning may be installed at the owner's option and cost.

- 2.6.5 Where mandatory air conditioning is to be installed, the following additional paragraph is to be added to the warning clause in 2.6.2:

"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the municipality and provincial policies"

- 2.6.6 Where berms and/or barriers are being installed on the site the following additional paragraph is to be added to the warning clause in 2.6.2:

That the acoustical berm and/or barrier as installed, shall be maintained, repaired or replaced by the owner. Any maintenance, repair or replacement shall be with the same material, or to the same standards, and having the same colour and appearance of the original.

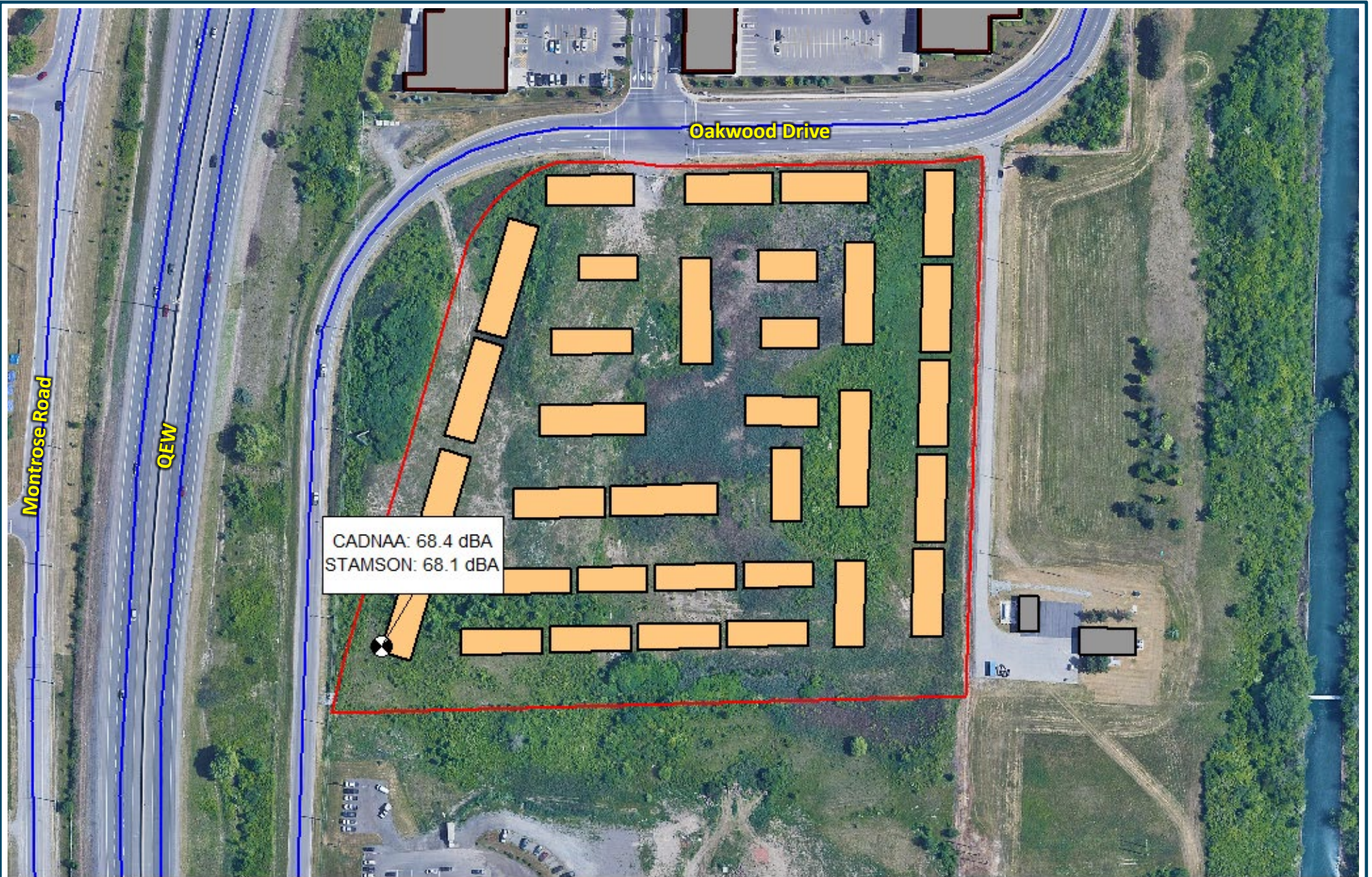
### 3.0 REPORT FORMAT AND SUBMISSION REQUIREMENTS

- 3.1 While the technique or techniques used, the data, calculations, and resulting recommendations are the sole responsibility of the consultant,

it is appropriate that a reasonable standard report format be utilized to minimize processing delay and facilitate the formulation of requirements to be incorporated within the development agreement.

3.1.1 In order to expedite processing and approval, the following format should be used for submission within the Region of Peel:

- a) cover page to clearly identify the Regional and local municipality's file number, the applicant's name and the name of the development if known.
- b) Introduction to identify noise sources and sources of data utilized. This should include a brief description of on site conditions together with analytical techniques used. Listing of criteria for sound level limits would be appropriate as well as alternative methods considered for noise mitigation.
- c) Analysis procedures for on site conditions before barrier to include sample calculations and work sheets for typical and worst case situations. Summary table to include all predicted noise levels with locations identified.
- d) Analysis procedures for on site conditions after barrier to utilize the same typical and worst case situations together with a table of alternative barrier heights. Cross sections of berm barrier configuration to be included for typical and worst case samples.
- e) A table illustrating all recommended attenuation measures including building component specifications to be provided with a sketch illustrating affected lots.
- f) A plan of the affected lots which clearly depicts all information including existing and/or proposed:
  - a. Property boundaries
  - b. Building and/or building envelopes
  - c. Noise walls, berms and sidewalks
  - d. Sample receiver locations with cross sections keyed in
  - e. Other relevant site features



**BRANTHAVEN DEVELOPMENT**

OAKWOOD DRIVE - NIAGARA FALLS

CADNAA VS. STAMSON VALIDATION

True North



Scale: 1:3250

Date: April 28, 2022

Rev 0.0

Project No. 241.30441.00000

METRES

Figure No.

**D.1**

