Compatibility & Mitigation Study Air Quality, Dust, Odour, Noise & Vibration

Provincial Lands East and West of Trafalgar Road,
South of Highway 407, Town of Oakville
Infrastructure Ontario

SLR Project No: 241.30464.00000

April 2022

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Oakville, ON

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EXECUTIVE SUMMARY

SLR Consulting (Canada) Ltd. (SLR), was retained by GSP Group, on behalf of Infrastructure Ontario, to conduct environmental air quality, noise, and vibration studies for properties on the east and west side of Trafalgar Road, south of Highway 407 in Oakville, Ontario ("the Project"). This document is in support of an Official Plan Amendment (the "OPA") to permit residential uses along the Trafalgar corridor.

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 vibration; and
- Transportation-related noise and vibration.

The assessment has included a review of air quality, noise and vibration emissions from industrial facilities and surrounding future land uses in the area. A review was completed for the vacant lands and transportation sources in the immediate area, including the future land uses within the development itself.

The required mitigation measures are summarized in Appendix F. In addition, upgraded glazing is anticipated to be required for various buildings within the development to mitigate transportation noise. These measures can be secured as part of conditions for Project Site Plan Approval. With these physical mitigation measures and warning clauses adverse impacts from air quality contaminants, dust or odour, or noise are not anticipated.

Based on the Halton Region Land Use Compatibility Guidelines (LUCG), the development proposed is anticipated to be compatible with the surrounding land uses from an air quality and noise perspective. Emissions of dust, odour, or noise at the Project site are not anticipated. The Project site is not anticipated to limit surrounding existing, or future industries and their ability to obtain/ maintain their required Ministry of the Environment, Conservation & Parks (MECP) permits, or approvals.

Overall, from a compatibility perspective, the proposed development is considered to be feasible, with the ability of any air quality and noise emissions to be addressed with appropriate mitigation measures as determined by further studies at the time of future development applications.

1.0 INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR), was retained by GSP Group, on behalf of Infrastructure Ontario, to conduct environmental air quality, noise, and vibration studies for properties on the east and west side of Trafalgar Road, south of Highway 407 in Oakville, Ontario ("the Project"). This document is in support of an Official Plan Amendment (the "OPA") to permit residential uses along the Trafalgar corridor.

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 and vibration.

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

- The Provincial Policy Statement;
- The Provincial Growth Plan;
- The Ministry of the Environment, Conservation and Parks ("MECP") land use compatibility guideline (D-Series) including Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses (MECP 1995);
- MECP Publication NPC-300 noise guidelines for industrial and transportation;
- Ontario Regulation 419/05: Air Pollution – Local Air Quality and its associated air quality standards and assessment requirements;
- The MECP draft policies on odour impacts and assessment;
- The Halton Region Air Quality Guidelines, Regional Official Plan Guidelines; and
- The Halton Region Noise Abatement Guidelines, Regional Official Plan Guidelines.

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.

Recommended measures intended to mitigate negative impacts and adverse effects are provided.

Appendix F summarizes the potential mitigation measures and warning clause recommendations.

2.0 DESCRIPTION OF POTENTIAL FUTURE DEVELOPMENT AND SURROUNDINGS

2.1 Area Context

The Project Site is located within the Region of Halton, in north Oakville. Downtown Oakville is located approximately 8 km to the southeast, Mississauga City Centre is 12 km to the northeast, Milton is 10 km to the northwest, and downtown Burlington is 20 km to the southwest. The proposed Project Site has a total area of approximately 53 hectares. The Project Site is located to the east and west of Trafalgar Road, creating two separate parcels of land. The east parcel is approximately 22 hectares in size and the west parcel is approximately 20 hectares in size. The northern boundary is Highway 407 and the planned 407 Transitway.

The Project Site is generally flat and is currently used primarily for agricultural purposes.

2.2 Proposed Development

The proposed Project site development plan envisions the Trafalgar Lands becoming a complete community composed of a mix of residential, commercial and employment land uses. Figure 1 illustrates the location of the Project Site. The illustrative concept plan and site statistics of the proposed Project site development is attached in Appendix A.

2.3 Land Use Designations in Area

2.3.1 Town of Oakville Official Plan

The Project site is designated as Trafalgar Road Urban Core Area and Employment Area. To the north, the lands are designated as Trafalgar Road Urban Core Area, Transit Way and Employment Area. To the west and east the lands are designated Employment Area. To the south the lands are designated Trafalgar Road Urban Core Area and Employment Area.

Figure 2A illustrates official plan designations of the Project Site and surrounding lands from the North Oakville East Secondary Plan.

2.3.2 Zoning

2.3.2.1 Town of Oakville Zoning By-law 2009-189

The proposed Project site is zoned as Existing Development-(ED) in the North Oakville Zoning By-Law 2009-189. Refer to Figure 2B. On the Town of Oakville Interactive Maps, the ED classification is used interchangeably with FD (Future Development).

The lands adjacent to and beyond to the east and south are zoned as ED/FD. West of the Project site the lands are zoned ED/FD, Natural Heritage System (NHS), Light Employment (LE), General Urban (GU), Neighbourhood Centre (NC), Service Area-Employment (SA), and Park (P).

2.3.2.2 Town of Milton Zoning By-Law 144-2003

Lands to the north of the proposed development, north of Highway 407, are governed under Town of Milton Comprehensive Zoning By-Law 144-2003. Refer to Figure 2C. All lands to the north of the Project are zoned Agricultural (A1).

3.0 ASSESSMENT FRAMEWORK

The intent of this report is to identify any existing and potential land use compatibility issues and to identify and evaluate options to achieve appropriate design, buffering and/or separation distances between the proposed sensitive land uses, including residential uses, and nearby Employment areas and/or major facilities. Recommended measures intended to eliminate or mitigate negative impacts and adverse effects are provided.

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 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 goals to ensure adjacent land uses are compatible from a health and safety perspective and are appropriately mitigated; 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 Halton Region Land Use Compatibility Guidelines ("LUCG") developed by the Region to "identify how land use compatibility issues may be addressed by municipalities during a development proposal…" The LUCG were developed by the Region in consideration of the Provincial D-Series of Guidelines, prepared by the Ontario Ministry of Environment, Conservation & Parks ("MECP"). These guidelines set out methods to determine if assessments are required (Areas of Influence, Recommended Minimum Separation Distances, and the need for additional studies); then
- MECP and Municipal regulations, policies, standards, and guidelines then 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; and
- 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 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. Policy direction concerning land use compatibility is provided in Section 1.2.6 of the PPS (2020).

> "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 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 Halton Region Regional Official Plan Guidelines: Land Use Compatibility Guidelines

The purpose of the Land Use Compatibility Guidelines developed by the Halton Region (LUCG) is to "identify how land use compatibility issues may be addressed by municipalities during a development proposal…" The LUCG were developed by Halton Region in consideration of the Provincial D-Series of Guidelines, prepared by the MECP in 1995 for planning guidance in evaluating land use compatibility. Section 2 of the LUCG identifies the relevant provincial guidelines and regulations which are to be considered in conducting air quality assessment in Ontario:

> *"The D-Series are used for development applications that require the re-designation (Official Plan Amendment) or rezoning of land uses (Zoning By-law amendment). The MOE's D-Series are only applicable when a:*
>
> - *New sensitive land use requires a land use amendment and is proposed to be located within the influence, or potential influence, area of an impacting use, such as an existing industrial land use; or when a*
> - *New industrial use requires a land use amendment and is proposed to be located near an existing sensitive residential use."*

Included in the Halton Region summary is a discussion of the "potential Areas of Influence" approach, as presented in the D-series of guidelines when assessing compatibility of industrial uses with more sensitive uses such as residences.

In preparing the LUCG, Halton Region has clarified an aspect concerning Recommended Minimum Separation Distances. In the LUCG, it is understood that Areas of Influence of various industrial processes will be site specific. Actual Areas of Influence are determined through appropriate studies allowing for industrial activities to be compatible with more sensitive land uses within the Area of Influence and within Recommended Minimum Separation Distances which are presented in Table 1. Appropriate studies can provide mitigation strategies, if required.

3.4 Halton Region Regional Official Plan Guidelines: Air Quality Guidelines

The Halton Region Air Quality Guidelines (AQG) were developed along with a number of other guidelines for land use planning which came out of the Halton Region Official Plan Amendment (ROPA 38). In general terms, the AQG recommends consideration of local industrial sources and transportation features when evaluating the siting of a residential land use.

The AQG acts as a summary document of the applicable guidelines for a particular undertaking.

> *"2.1 Under the Region's policy 143(12), any source emission studies may only be applicable when sensitive land uses (residential, natural heritage) are proposed with these 3 conditions present:*
>
> 1) *Within 30 m of a major arterial road or provincial highway or within 150 m of provincial freeway;*
> 2) *In proximity to an industrial use; and a*
> 3) *Utility use"*

SLR conducted a review of identified industrial uses and roadways/highways, as referred to in items 1) and 2) of Section 2.1, of the AQG listed above.

3.5 Town of Oakville By-Law 2010-035

The Town of Oakville By-law 2010-035 enacts measures to restrict the potential concentrations of air quality contaminants – especially of fine particulate matter from significant industrial operations – below the levels enforced by the provincial air quality guidelines (O.Reg. 419).

> *"(2) The purposes of this by-law are:*
>
> *a) To take measures, including collecting information, implementing regulatory controls and monitoring, to protect human health from fine particulate matter;*
> *b) To designate specified sources of major emissions of health-risk air pollutants as public nuisances; and…*
> *c) To reduce over time the levels of fine particulate matter in the ambient air of the Town."*

This by-law does not impose any additional assessment requirements on the proposed Project site. The restrictions placed on particulate matter emissions from any new industries which are considered for development in the future on the neighbouring lands will also be subject to this by-law. It is presumed this by-law will assist in reducing the likelihood of impacts on the proposed Project site development because of the existing industrial operations in the Town of Oakville.

3.6 D-Series of Guidelines

The D-series of guidelines on which the Halton Region LUCG are based 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 Guideline D-6 - Compatibility *between Industrial Facilities and Sensitive Land Uses*. The guidelines specifically address issues of air quality, odour, dust, noise, and litter.

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".

3.6.1 Guideline D-6 Requirements

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

Table 1: Guideline D-6 - Potential Influence Areas 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 **Table 2**.

Table 2: Guideline D-6 - Industrial Categorization Criteria

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class I Light Industry	• Noise: Sound not audible off-property • Dust: Infrequent and not intense • Odour: Infrequent and not intense • Vibration: No ground-borne vibration on plant property	• No outside storage • Small-scale plant or scale is irrelevant in relation to all other criteria for this Class	• Self-contained plant or building which produces/ stores a packaged product • Low probability of fugitive emissions	• Daytime operations only • Infrequent movement of products and/ or heavy trucks	• Electronics manufacturing and repair • Furniture repair and refinishing • Beverage bottling • Auto parts supply • Packaging and crafting services • Distribution of dairy products • Laundry and linen supply
Class II Medium Industry	• Noise: Sound occasionally heard off-property • Dust: Frequent and occasionally intense • Odour: Frequent and occasionally intense • Vibration: Possible ground-borne vibration, but cannot be perceived off-property	• Outside storage permitted • Medium level of production allowed	• Open process • Periodic outputs of minor annoyance • Low probability of fugitive emissions	• Shift operations permitted • Frequent movements of products and/ or heavy trucks with the majority of movements during daytime hours	• Magazine printing • Paint spray booths • Metal command • Electrical production • Manufacturing of dairy products • Dry cleaning services • Feed packing plants
Class III Heavy Industry	• Noise: Sound frequently audible off property • Dust: Persistent and/ or intense • Odour: Persistent and/ or intense • Vibration: Ground-borne vibration can frequently be perceived off-property	• Outside storage of raw and finished products • Large production levels	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions	• Continuous movement of products and employees • Daily shift operations permitted	• Paint and varnish manufacturing • Organic chemical manufacturing • Breweries • Solvent recovery plants • Soaps and detergent manufacturing • Metal refining and manufacturing

3.6.2 Requirements for Assessments

Guideline D-6 requires that studies be conducted to assess impacts 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 reference 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 recognized, and 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, Publication NPC-300).

3.6.3 Requirements for 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.

4.0 NEARBY INDUSTRIES AND ENGAGEMENT

Local industries within 1 km of the ProjectSite were inventoried. As there are no significant industrial developments in the vicinity of the proposed development, the land use compatibility assessment as required by the Halton Region will focus on transportation sources in the immediate area. More information on the nearest industries is provided in the following subsections.

Additional comments with respect to air quality and noise are provided in Section 5.1 and Section 6.1.

4.1 Ren's Pets Oakville

ADDRESS	4002 TRAFALGAR ROAD
DISTANCE TO PROJECT:	60 m
D-6 CLASSIFICATION:	Class I Light Industry

Ren's Pets Oakville is a pet supply store that is open Monday through Friday from 9:00AM to 8:00PM, Saturdays from 9:00AM to 6:00PM, and Sundays from 10:00AM to 5:00PM. Potential air quality and noise source of interest associated with the facility include HVAC equipment and occasional vehicle movements from customer vehicles and delivery trucks. Based on the D-6 guidelines, it would be considered a Class I light industry, with a 70 m Area of Influence.

Despite being within the 70 m Area of Influence, air quality and noise sources associated with the facility are considered to be minor, and adverse impacts at the Project site are not anticipated.

4.2 Petrie's Quality Topsoil Ltd. (Class III)

ADDRESS	4321 SIXTH LINE
DISTANCE TO PROJECT:	630 m
D-6 CLASSIFICATION:	Class III Heavy Industry

Petrie's Quality Topsoil Ltd. is a landscaping business with posted operating hours of Monday to Friday, 8:00AM to 4:00PM, and Saturdays from 8:00AM to 2:00PM. A search of the MECP Access Environment website[1] did not identify an Environmental Compliance of Approval (ECAs) or an Environmental Activity Sector Registration (EASR) for their operations. Potential air quality and noise sources of interest associated with the facility include vehicle movements, and equipment associated with movement/transfer of topsoil and other aggregate materials. The equipment may include excavators, front-end loaders, trucks, and mobile screening machinery.

Based on the size and nature of the facility operations, Petrie's Quality Topsoil site is considered a Class III heavy industry, with a Recommended Minimum Separation Distance of 300 m and a potential Area of Influence of 1000 m. The Project site is within the Potential Area of Influence, but outside the Recommended Minimum Separation Distance.

Given the facility is within the Potential Area of Influence, further discussion regarding potential for air emissions from the facility is provided within the context of this report.

4.3 Vacant Lots

Under Guideline D-6, the use of vacant buildings and lands must be considered in land use compatibility studies. Vacant lands surrounding the development include LE, SA, NHS and P.

4.3.1 Light Employment/Service Area - Employment lands

The lands to the west of the Project site are designated in the North Oakville East Secondary Plan as Employment Area. Under Town of Oakville Zoning By-Law 2009-189 the lands are zoned FD. Approximately 200 m to the west of the Project site, the lands are currently zoned LE, and NHS.

Table 3: Town of Oakville Zoning By-Law 2009-189 LE Permitted Uses and Associated D-6 Classification

ZONING USE	TYPE OF OPERATION	INDUSTRY CLASS	AREA OF INFLUENCE DISTANCE (M)	RECOMMENDED MINIMUM SEPARATION DISTANCE (M)
Light Industrial	Classification depends on intensity. Given surrounding land uses expected to be a Class I industry. MECP Permits required for emissions to atmosphere	I	70	20
Information Processing	Self-contained minimal air/noise emissions	I	70	20
Call Centres	Self-contained minimal air/noise emissions	I	70	20

[1] https://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/GoSearch.action

ZONING USE	TYPE OF OPERATION	INDUSTRY CLASS	AREA OF INFLUENCE DISTANCE (M)	RECOMMENDED MINIMUM SEPARATION DISTANCE (M)
Research and Development	Classification depends on intensity. Given surrounding land uses expected to be a Class I industry. MECP Permits required for emissions to atmosphere	I	70	20

Based on a review of the above table, LE employment uses have the following characteristics:

- Outputs: Sound, not audible off-property; low potential for fugitive emissions of dust or odour;
- Scale: limited outside storage;
- Process: Self-contained within buildings; and
- Operations/ Intensity: Infrequent movements of equipment and personnel.

Based on the above employment characteristics, existing surrounding sensitive land uses, size, and nature of the possible employment land uses, the majority of the possible uses are considered a Class I Light Industry, with a 70 m potential Area of Influence and a Recommended Minimum Separation Distance of 20 m.

If industry were to start operations in the Area of Influence of the Project site, they would be required to be compatible with the existing sensitive land uses that includes the NHS, P and mixed commercial/residential uses with elevated sensitive residential uses.

Further, if a future industrial operation were to relocate or be constructed on these lands, environmental studies would be required as part of planning/development processes, and may also be required to obtain approvals 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.

5.0 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 emissions at their property line.

5.1.1.1 Air Quality Emissions

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

Surface wind data was obtained to generate a wind rose from data collected at the Pearson International Airport in Toronto from 1986 through 2015, as shown in Figure 4. As can be seen in the wind rose, predominant winds are from the west and northwestern quadrants, while winds from the northeast and southeast quadrants may be the least frequent.

5.1.3 Assessment of Potential Air Quality Impacts

5.1.3.1 Petrie's Quality Topsoil Ltd.

Petrie's Quality Topsoil Ltd. is an aggregate and landscaping material supply company. The site has large excavation and material moving equipment with the potential to generate noise and air emissions.

A search of the MECP Access Environment website[2] did not identify an Environmental Compliance of Approval (ECAs) or an Environmental Activity Sector Registration (EASR) for their operations. Potential air

[2] https://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/GoSearch.action

quality and noise sources of interest associated with the facility include vehicle movements, and equipment associated with movement/transfer of topsoil and other aggregate materials. The equipment may include excavators, front-end loaders, trucks, and mobile screening machinery.

Based on the size and nature of the facility operations, Petrie's site is considered a Class III heavy industry, with a Recommended Minimum Separation Distance of 300 m and a Potential Area of Influence of 1000 m.

Based on a review of the wind frequency distribution diagram illustrated in **Figure 4**, potential winds come from the west direction towards the Project site less than 18% of the time. The facility does not operate during the winter months, which reduces this frequency.

There are existing residential homes located northwest of the facility, on Lower Base Line West. These existing sensitive receptors are approximately 680 m from Petrie's Quality Topsoil facility and, therefore, are in closer proximity to the facility, then the Project site. If the applicable air quality standards and guidelines from the facility operations are met at the existing residences, it is expected they will be met at the Project site.

The Project site is located within the 1000 m Area of Influence of Petries's however it is outside the 300 m Recommended Minimum Separation Distance. The Project site is separated from Petrie's by approximately 650 m. The Project Site is further separated from Petrie's by the operations of Highway 407 and the associated elevated vegetation buffer.

Given the large intervening distance, the vegetation buffer, and Highway 407 between the facility and the Project, adverse air quality emissions from the Petrie's operations are not anticipated at the Project Site.

5.1.3.2 Development Employment Lands

As part of the development, land on the east side are designated in the North Oakville East Secondary Plan as Employment Area. These lands are zoned as FD.

If industry were to start operations in the Area of Influence of the Project site, they would be required to be compatible with the existing sensitive land uses that includes the Trafalgar Road Urban Core Area which may include mixed commercial/residential uses with elevated sensitive residential uses.

Further, if a future industrial operation were to relocate or be constructed on these lands, environmental studies would be required as part of planning/development processes, and may also be required to obtain approvals 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.

5.2 Transportation Related Air Pollution

5.2.1 Halton Region Regional Official Plan Guidelines: Air Quality Guidelines

The Halton Region Air Quality Guidelines (AQG) were developed along with a number of other guidelines for land use planning which came out of the Regional Official Plan Amendment (ROPA 38). In general terms, the AQG recommends consideration of local industrial sources and transportation features when evaluating the siting of a residential land use.

The AQG acts as a summary document of the applicable guidelines for a particular undertaking.

"2.1 Under the Region's policy 143(12), any source emission studies may only be applicable when sensitive land uses (residential, natural heritage) are proposed with these 3 conditions present:

1) *Within 30 m of a major arterial road or provincial highway or within 150 m of provincial freeway;*
2) *In proximity to an industrial use; and a*
3) *Utility use"*

SLR conducted a review of identified industrial uses and roadways/highways, as referred to in items 1) and 2) of Section 2.1 listed above, as well as the rail line.

5.2.2 Evaluation Method

Considering the above referenced policies and guidelines, the evaluation methodology laid out in the Halton Region Land Use Compatibility Guidelines is followed in this assessment. This methodology, as described in section 3.2.1 is as follows:

Step 1. Determine the nature of the development. If the development is not a sensitive land use or industrial, transportation or utility source no further assessment is required.

Considering the proposed development plan, a majority of the development (e.g. single unit detached homes, townhomes, mixed-use features with residential uses) will be considered sensitive receptors.

Step 2. Identify potential land use compatibility conflicts. If the proposed development does not fall within potential Areas of Influence of existing sources, no further assessment is required. Since there are no industrial facilities in the vicinity only the following potential conflicting feature was identified and reviewed in the study. Any new industrial facilities that may be built in the Project site would be subject to air quality guidelines in Ontario and applicable municipal guidelines and policies.

i) In regard to transportation facilities, section 2.1 of the AQG provides that

"2.1) Under the Region's policy 143(12), any source emission studies may only be applicable when sensitive land uses (residential, natural heritage) are proposed…(i) Within 30 m of a major arterial road or provincial highway or within 150 m of provincial freeway…;"

To address section (2.1), the following transportation facilities were identified as being within the specified distances:

- Highway 407
- Trafalgar Road
- William Halton Parkway
- Burnhamthorpe Road

Given the above, where in some cases the potential for land-use compatibility conflicts was identified involving existing or proposed off-site uses, it is appropriate to move to Steps 3 and 4 below:

Step 3. Carry out studies to determine actual land use compatibility conflicts. If proposed development does not fall within actual areas of influence of existing sources, no further assessment is required.

This requirement is addressed in the Assessment of Land Use Compatibility section of the report.

Step 4. Assess potential approaches to mitigation.

This requirement is addressed in the Assessment of Land Use Compatibility section of the report.

5.2.3 Ambient Air Quality

A review of MECP and NAPS ambient monitoring stations in Ontario was undertaken to identify the monitoring stations that are in close proximity to the proposed Trafalgar Lands development area; and that are representative of background air quality concentrations in the area. Figure 3 shows the locations of the selected monitoring stations relative to the Project site location.

The nearest station and applicable background air emission concentrations considered in this assessment include:

- Oakville (ID: 44017), Address: Eighth Line, Glenashton Dr., Halton Res. Year: 2013-2017, Pollutants: NOx, NO_2, $PM_{2.5}$

PM_{10} is not measured in Ontario; therefore, background concentrations were estimated by applying a $PM_{2.5}/PM_{10}$ ratio of 0.54 (Lall et al., 2004). Toronto West is the only station within Toronto that monitors CO. Formaldehyde, Acrolein, and Acetaldehyde are not monitored in the Toronto area in the currently available datasets. The 90th percentile ambient concentrations are provided in Table 5. These concentrations were added to maximum modelled concentrations to estimate cumulative air quality concentrations at the proposed development site.

Table 5: Ambient Background 90th Percentile Concentrations

Parameter	Averaging Period	90th Percentile Ambient Concentration (µg/m^3)	Monitoring Station
NO_x	1-hr	45	Oakville (44017)
	24-hr	40	Oakville (44017)
NO_2	1-hr	49	Oakville (44017)
	Annual	18	Oakville (44017)
$PM_{2.5}$	24-hr	14	Oakville (44017)
	Annual	8	Oakville (44017)
PM_{10}	24-hr	26	Oakville (44017)

Notes: [1] For annual averages, the maximum annual average over 5 years of background data were used rather than the 90th percentile of the 5 values

5.2.4 Assessment of Land Use Compatibility with Transportation Sources

A review of the land uses surrounding the proposed development was undertaken. The surrounding land uses which were identified as requiring further assessment are summarized in

Table 6.

Table 6: Land Use Features Considered for Further Study

Type	Feature	Reason for Consideration in Study
Roadways	Highway 407	Residential features in the proposed development are within 150 m of Highway 407 which is a provincial freeway, and a future Bus Rapid Transit corridor. Halton Region AQG recommends a study be completed
	Trafalgar Road	Residential features in the proposed development are within 30 m of Trafalgar Road which is a provincial highway/arterial road. Halton Region AQG recommends a study be completed
	William Halton Parkway	Residential features in the proposed development are within 30 m of William Halton Parkway which is a provincial highway/arterial road. Halton Region AQG recommends a study be completed
	Burnhamthorpe Road	Residential features in the proposed development are within 30 m of Burhamthorpe Road which is a provincial highway/arterial road. Halton Region AQG recommends a study be completed

5.2.4.1 Roadway Assessment

This assessment was conducted following common practices for air quality modelling in Ontario and following the Ontario Air Dispersion Modelling Guideline (MECP, 2017). AERMOD dispersion modelling was conducted to predict worst-case air quality concentrations from roadway emissions at the proposed Trafalgar Lands development maximum modelled concentrations were combined with the 90th percentile measured background concentrations. These combined concentrations were compared against applicable guidelines for the various parameters and averaging periods. Details regarding the modelling assessment are provided below.

5.2.4.2 Road Traffic Data

Road traffic data were obtained from the following sources:

- Traffic data in the form of intersection turning movement counts during peak hours for local City roads were obtained from Paradigm Transportation Solutions Limited and Halton Region.
- Ultimate annual average daily traffic (AADT) volumes for Trafalgar Road and William Halton Parkway, and truck percentages for William Halton Parkway, were obtained from the Halton Region Infrastructure Planning & Policy Department.
- Data for Highway 407 were based on in-house estimations of 12,000/lane for both the 2031 and 2041 year with no growth in volume expected. Medium and Heavy Duty Vehicle percentages were estimated to be 6%/6%.

Traffic volume data were also obtained for the future 407 Transitway and Trafalgar Road Bus Rapid Transit (BRT) projects in proximity to the proposed Project site. Highway 407 Transitway bus volumes were obtained from the report prepared by Arcadis for the Ontario Ministry of Transportation entitled "Appendix J – Air Quality Impact Assessment – Highway 407 Transitway: West of Brant Street to West of Hurontario Street, June 2020". Bus volumes for the BRT were obtained from the Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study – Traffic Noise Impact Study by AECOM (April 2015). The Air Quality Assessment did not include emissions from the 407 Transitway as it was

deemed not to be a major roadway based on the low volume of traffic. The transitway runs parallel with Highway 407, which is the dominating source of emissions for the study area.

The road traffic data were processed to provide Annual Average Daily Traffic (AADT) volumes, truck percentages, and other required information. Traffic volumes from 2031B scenario was selected for its higher volume to provide a more conservative result. Ultimate AADT was used for 2041 to maintain parity with the noise report. Due to lack of a complete 24-hour vehicle distribution count for the Project site, the USEPA suburban hourly distribution was used.

Table 7: Traffic Volumes for Assessment Area

Roadway Section	Northbound/Eastbound AADT	Southbound/Wesbound AADT	Medium Duty Vehicle (MDV) %	Heavy Duty Vehicle (HDV) %	Vehicle Speed
2031 Scenario B					
Highway 407	48,000	48,000	6.0%	6.0%	100
Trafalgar Road	24,372	16,792	1.0%	5.0%	80
William Halton Parkway	7,431	16,191	1.0%	1.0%	60
Burnhamthorpe Road	4,713	5,825	1.0%	1.0%	60
2041 Ultimate AADT					
Highway 407	48,000	48,000	6.0%	6.0%	100
Trafalgar Road[1]	25,000	25,000	5.1%	3.0%	80
William Halton Parkway	17,500	17,500	4.0%	2.0%	60
Burnhamthorpe Road	6,067	7,567	1.0%	1.0%	60
407 Transitway	232	232	100.0%	0.0%	100

Notes: [1] The Ultimate AADT volume for Trafalgar Road is 50,000 vehicles based on information provided by Halton Region. Refer to Appendix B. For the Air Quality assessment, the overall medium truck % was adjusted to account for the BRT volume of 600 buses (300 northbound, 300 southbound), while maintaining the Ultimate AADT volume of 50,000 vehicles.

5.2.4.3 Motor Vehicle Emission Rates

The US EPA Motor Vehicle Emission Simulator (MOVES) model provides estimates of current and future emission rates from motor vehicles based on a variety of factors such as local meteorology, vehicle fleet composition and speed. MOVES 2014b, released in December 2018, is the US EPA tool for estimating vehicle emissions resulting from the combustion of fuel, brake and tire wear, fuel evaporation, permeation, and refuelling leaks. The MOVES model is based on "an analysis of millions of emission test results and considerable advances in the Agency understanding of vehicle emissions and accounts for changes in emissions due to proposed standards and regulations". For this project, MOVES was used to estimate vehicle emissions based on vehicle type, road type, model year, and vehicle speed. Emission rates were estimated for the year 2031 and 2041, for various medium/heavy duty vehicle percentages (provided in Table 7). Vehicle age is based on historical hourly vehicle distribution for the local area.

The emission rates for each modelled vehicle speed and associated truck percentages (road segment dependent, as outlined in Table 7) are shown in Table 8 – Table 10. Emission rates are provided in grams per vehicle mile travelled (g/VMT).

Table 8: MOVES Emission Rates by Parameter (g/VMT) for 100 km/hr Segments

Pollutant	2031	2041
Oxides of Nitrogen	0.143	0.121
Nitrogen Dioxide	0.040	0.037
Total PM_{10}	0.089	0.089
Total $PM_{2.5}$	0.023	0.023

Emissions estimated for medium/heavy-duty vehicle percentages of 6/6%; lower heavy-duty vehicle percentage would result in lower emissions.

Table 9: MOVES Emission Rates by Parameter (g/VMT) for 80 km/hr Segments

Pollutant	2031	2041
Oxides of Nitrogen	0.120	0.087
Nitrogen Dioxide	0.032	0.023
Total PM_{10}	0.097	0.096
Total $PM_{2.5}$	0.025	0.024

Emissions averaged for medium/heavy-duty vehicle percentage of 1/5% in 2031 and 5.1/3.0 in 2041.

Table 10: MOVES Emission Rates by Parameter (g/VMT) for 60 km/hr Segments

Pollutant	2031	2041
Oxides of Nitrogen	0.121	0.102
Nitrogen Dioxide	0.035	0.032
Total PM_{10}	0.126	0.125
Total $PM_{2.5}$	0.029	0.028

Emissions averaged for medium/heavy-duty vehicle percentages of 1/1%

A large portion of highway particulate matter emissions are generated from dust/debris on the pavement which is re-suspended by vehicles travelling on the highway. These emissions are estimated using empirically derived values presented by the US EPA in their AP-42 report, Chapter 13.2.1.3. The emission factors for re-suspended PM were estimated in accordance with this document and were added to the predicted MOVES particulate emission rates to estimate total emissions of particulates. The particulate emission rates are shown in **Table 11.**

Table 11: Re-Suspended Particulate Matter Emission Factors

AADT	Particle Size Multiplier, K ($PM_{2.5}/PM_{10}$)	Silt Loading (g/m^2)	Weight (Tons)	Emission (g/VMT)	
				$PM_{2.5}$	PM_{10}
>10,000 (limited access)	0.25/1.0	0.0015	3	0.018	0.07
>10,000	0.25/1.0	0.03	3	0.03	0.13
5000-10000	0.25/1.0	0.06	3	0.06	0.25

5.2.4.4 Air Dispersion Modelling

Air dispersion modelling was conducted using the MECP approved version of the US EPA AERMOD Model, version 19191. The highway was modelled utilizing volume line sources and following US EPA guidance for plume width, plume height and release height. Vehicle emissions were modelled utilizing MOVES

emission rates for all arterial roadways within approximately 300 m of the Project site, including Highway 407, Trafalgar Road, William Halton Parkway and Burnhamthorpe Road. Variable emissions by hour of day were modelled to account for changes in traffic volumes throughout the day.

For assessment against the NO_2 CAAQS criteria, the ozone limiting method (OLM) was applied in AERMOD to account for the conversion of Nitrogen Oxide (NO) to NO_2 through reaction with background ozone (O_3). Background ozone concentrations from the Oakville monitoring station were used in the model. US EPA recommended values of 0.9 and 0.1 for equilibrium NO_2/NO_x ratio and default in-stack NO_2/NO_x, respectively, were applied utilizing the OLM option in AERMOD to predict NO_2 concentrations from the highway and roadways.

5.2.5 Modelling Results

Maximum model results were combined with the 90th percentile background concentrations to determine the predicted cumulative air emissions throughout the area of the Project site. These predicted ground-level concentrations were compared against the applicable standards and guidelines. The maximum predicted concentrations from highways and arterial roads in the vicinity of the Project site for each air emission parameter were assessed. For all parameters, maximum predicted concentrations occur near Highway 407, specifically on the northern/western edge of the Project site. The concentration decreases heading south/east towards the proposed Project site. For comparison of predicted results against the CAAQS thresholds, maximum model results have been added to background concentrations, rather than 98th percentile values in accordance with the NO_2 1-hour and $PM_{2.5}$ 24-hour standards. This is conservative in comparison to the guideline requirements. The CAAQS are federally regulated standards and the NO_2 CAAQS comes into effect in 2025.

Figures 5 through to 8, present the concentration contours for NO_2 for 1-hour and annual averaging periods, for the 2031 and 2041 emission scenarios. The background concentrations considered in this assessment are already 60% and 76% of the hourly and annual NO_2 CAAQS values, respectively. The predicted NO_x emissions meet the Ontario AAQC for both a 1-hour and 24- hour averaging periods. The predicted model results demonstrate that air emissions from the highway decrease significantly with increased distance.

As with NO_2, $PM_{2.5}$ and PM_{10} concentrations are highest in the localized area of Highway 407. Generally, in the area of the proposed Project site, the concentrations meet the standards with the exception of annual $PM_{2.5}$. However, it is also important to note that for annual $PM_{2.5}$, the background concentrations account for 96% of the standard prior to adding in the modelled emissions. Figure 9 through Figure 14 present the concentration contours for $PM_{2.5}$ And PM_{10} for their respective averaging periods, for the 2031 and 2041 emission scenarios.

5.2.6 Summary of Air Quality, Dust and Odour Conclusions and Recommendations

The potential for air quality emissions was assessed for the area surrounding the proposed Project site development, with respect to industrial and transportation emission sources.

The Project site is anticipated to be compatible with the surrounding existing and potential industrial land uses from an air quality perspective. In addition, adverse emissions of noise, dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit the ability of surrounding industries to obtain or maintain required MECP permits or approvals.

Under the Halton LUCG, major 400 series highways and arterial roads must be assessed in the air quality assessment. All applicable highways and roadways were assessed in dispersion modelling. Exceedances of

NO_2 and $PM_{2.5}$ standards were predicted, however, the exceedances were primarily limited to the immediate vicinity of Highway 407 (north side), within 100m. Concentrations within the development area are predicted to be within the applicable standards.

6.0 ENVIRONMENTAL NOISE ASSESSMENT

6.1 Industrial (Stationary) Source Noise

6.1.1 Discussion of Stationary Sources

SLR has reviewed aerial imagery of the proposed development site and surrounding area, to assess potential stationary source noises in the vicinity of the Project. The Town of Oakville – North Oakville Master Plan (Appendix 7.3) and the Town of Oakville Zoning By-Law 2009-189 were also reviewed to determine the existing and future planned land use designations for the area. An excerpt from the North Oakville Master Plan is provided in Figure 2 for reference.

There are currently no significant stationary noise sources existing in proximity to the development that are expected to result in adverse impacts at the Project site. A discussion of nearby stationary sources is provided in the following subsections.

6.1.1.1 Ren's Pets Oakville (Class I)

Potential sources of noise associated with the Ren's Pet's Oakville facility include HVAC equipment and occasional vehicle movements from customer vehicles and delivery trucks.

Due to the high ambient sound levels during daytime/evening hours along Trafalgar Road/Burnhamthorpe Road East, and no significant noise sources associated with the facility (outdoor forklift activity), adverse noise impacts at the Project site are not anticipated. Therefore, the facility has not been considered further in this assessment.

6.1.1.2 Petrie's Quality Topsoil Ltd. (Class III)

Petrie's Quality Topsoil Ltd. Is a landscaping business with posted operating hours during daytime hours only (i.e., 0700h to 1900h). Potential sources of noise associated with the facility include vehicle movements, and equipment associated with movement/transfer of topsoil and other aggregate materials such as excavators, front-end loaders, trucks, and mobile screening machinery.

Based on previous SLR experience with similar facilities and noise sources, it is expected that daytime MECP NPC-300 Class I sound level limits are met at distances of approximately 400 m from the operating equipment with intervening ground consisting of grassy lands. During night-time hours, the sound level limits are met at distances of approximately 500 m or more from operating equipment. In both cases, the operating scenarios assumed continuous operation of a mobile screen, excavator, and loader for a full hour.

Therefore, due to the large separation distance between the nearest potential noise source locations at the facility and the Project (i.e., greater than 600 m), and the high ambient sound levels due to road traffic along intervening Highway 407, adverse noise impacts are not anticipated at the proposed development.

6.1.2 Proposed Development Site

The proposed Project site are currently vacant and zoned as 'Existing Development'/'Future Development' (ED/FD) according to the Town of Oakville Zoning By-Law 2009-189. Based on the North Oakville Official Plan, the lands are designated as Trafalgar Road Urban Core Area. Within the proposed development site itself, the concept plan indicates lands are intended for residential uses, employment uses, or mixed uses (i.e., residential and employment/retail/commercial uses combined).

As the concept plan for the proposed development includes high density residential developments (podiums/towers) within the Project site, there is the potential for noise impacts from the commercial/retail/employment-related land uses located below or adjacent to the residential buildings.

Future Employment Area facilities within the Project site, including commercial and retail uses, will need to comply with the sound level limits in NPC-300. Should General Employment be considered for the Project site to the east, Light Employment lands should be considered as a buffer. In general, Light employment land noise impacts are not anticipated to be a concern for the development, and can be addressed through building design, equipment layout, equipment selection and inclusion of noise controls (if needed). With the inclusion of a Light Employment buffer, General industrial lands are expected to be sufficiently controlled with building design, equipment layout, equipment selection and inclusion of noise controls (if needed).

6.2 Transportation Noise Sources

Transportation sources of interest with the potential to produce noise at the Project site include road traffic along Trafalgar Road, William Halton Parkway, Highway 407, and Burnhamthorpe Road East.

In addition to the current existing roadways, future transit-related projects have the potential to introduce additional transportation noise sources in proximity to the Project. These include:

- The Highway 407 Transitway; and
- The Trafalgar Road Bus Rapid Transit (BRT) Route.

Road traffic noise from these sources has been predicted, and this information has been used to determine preliminary façade, ventilation, and warning clause requirements for the proposed development.

There are no railways or airports in proximity to the Project; therefore, rail and aircraft noise has not been considered further in the assessment.

6.2.1 Surface Transportation Noise Criteria

6.2.1.1 Ministry of Environment Publication NPC-300

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. Table 12 to Table 16 summarize the applicable surface transportation (road) criteria limits.

Location Specific Criteria

Table 12 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 Quarters have more stringent criteria than Living/Dining Room spaces.

Outdoor Amenity Areas

Table 13 summarizes the noise mitigation requirements for communal outdoor amenity areas ("Outdoor Living Areas" or "OLAs") for road traffic.

Table 12: MECP Publication NPC-300 Sound Level Criteria for Road Traffic

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

Notes: [1] An assessment of indoor noise levels is required only if the criteria in **Table 15** are exceeded.

Table 13: MECP Publication NPC-300 Outdoor Living Area Mitigation Requirements

Time Period	Equivalent Sound Level in Outdoor Living Area (dBA)	Mitigation Requirements
Daytime (0700-2300h)	≤ 55	• None
	56 to 60 incl.	• Noise barrier **OR** Warning Clause A
	> 60	• Noise barrier to reduce noise to 55 dBA **OR** • Noise barrier to reduce noise to 60 dBA and Warning Clause B

Ventilation and Warning Clauses

Table 14 summarizes requirements for ventilation where windows would potentially 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 12, warning clauses advising future occupants of the potential excesses are required. Warning clauses also apply to Outdoor Living Areas.

Table 14: 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
		Road	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.	Type A Warning Clause
Plane of	Daytime (0700-2300h)	≤ 55	None

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)	Ventilation and Warning Clause Requirements
		Road	
Window		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

Building Shell Requirements

Table 15 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 applicable indoor sound criteria are met.

Table 15: MECP Publication NPC-300 Building Component Requirements

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

Supplementary Criteria

MECP Publication NPC-300 provides sound level criteria for land uses and developments not normally considered to be noise sensitive. This includes educational facilities, places of worship and office spaces. The sound level limits in Table 16 are provided as good practice design objectives.

Table 16: MECP Supplementary Sound Level Criteria

Type of Space	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)	Assessment Location [1]
		Road	
General offices, reception areas, retail stores, etc.	Daytime (0700-2300h)	50	Indoors
Hospitals, schools, nursing/retirement homes, day care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime (0700-2300h)	45	Indoors

Notes: [1] An assessment of indoor noise levels is required only if the criteria in Table 15 are exceeded.

6.2.1.2 Halton Region Guidelines

The Halton Region guidelines include the Noise Abatement Guidelines – Regional Official Plan Guidelines and the Land Use Compatibility Guidelines – Regional Official Plan Guidelines, both dated June 18, 2014.

In general, the Halton Region guidelines are consistent with the MECP NPC-300 guidelines, with the exception of the barrier assessment requirements. Differences include the requirement to consider mature-state-of-development traffic volumes for regional roads in the mitigation analysis, and the noise barrier height limitations (3.5 m maximum and 2.4 m minimum).

6.2.2 Traffic Data and Predicted Sound Levels

6.2.2.1 Roadway Traffic Data

Regional Roads and Trafalgar Road Bus Rapid Transit (BRT)

Ultimate annual average daily traffic (AADT) volumes for Trafalgar Road and William Halton Parkway, and truck percentages for William Halton Parkway, were obtained from the Halton Region Infrastructure Planning & Policy Department. For Trafalgar Road, truck percentages and the day/night split were also obtained from Halton Region in the form of a 24-hour ATR between Burnhamthorpe Road and Highway 407 from May, 2021.

For the Trafalgar Road BRT, estimates of bus volumes were obtained from the report entitled "Halton Region – Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study – Traffic Noise Impact Study" by AECOM, dated April 2015. The assessment in the report considered 600 buses per day along the Trafalgar Road BRT route, which was applied in this analysis. Based on correspondence with Halton Region, the most likely near-future scenario along Trafalgar Road will include 6 total lanes of traffic, with 2 outer HOV lanes that will accommodate buses. For the analysis, Trafalgar Road was therefore split into 4 separate segments. The two inner segments were considered to account for 82% of northbound plus southbound traffic along Trafalgar Road (41,000 AADT), and the HOV lanes accounting for the remaining 18% (9,000 AADT), based on volumes and ratios in the Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study – Traffic Noise Impact Study by AECOM (April 2015). All 600 buses were included in the HOV lanes, with the balance of the HOV lane composed of cars only (8,400 cars). Therefore, the total medium truck percentage along Trafalgar Road considered in the assessment was 5.6% to account for the buses, above the 4.7% in the 24-hour ATR data. Heavy vehicle traffic was considered to make up 3% of Trafalgar Road traffic on the inner 4 lanes (2 modelled segments).

Highway 407 and Transitway

For Highway 407, detailed traffic data is not available. SLR has applied historical estimates of 12,000 vehicles per lane AADT, for a total of 48,000 vehicles for eastbound and westbound traffic, respectively. Furthermore, based on previous SLR experience with Highway 407, a day/night split of 85% / 15% was applied, along with truck percentages of 6% medium trucks, and 6% heavy trucks.

Highway 407 Transitway bus volumes were obtained from the report prepared by Arcadis for the Ontario Ministry of Transportation entitled "Appendix J – Air Quality Impact Assessment – Highway 407 Transitway: West of Brant Street to West of Hurontario Street, June 2020". The Appendix K – Noise Report (also by Arcadis, prepared for the same overall study) was also reviewed, but did not contain specific traffic count information related to the Highway 407 Transitway. An estimated 464 transitway

buses (AADT) were considered in the assessment, based on the site plan of the Transitway Trafalgar Road Station prepared by Parsons Corporation and IBI Group, included for reference in **Appendix B**. A day/night split of 90% / 10% was assumed, and a travel speed of 100 km/hr was applied as the buses are entering the station from Highway 407.

Burhamthorpe Road

Ultimate road traffic data for Burnhamthorpe Road East was not available. Therefore, turning move counts obtained from Paradigm Transportation Solutions Limited and Halton Region were used 2041 (i.e., a typical mature state of development for various municipalities) Peak PM turning movement count (TMC) data at Trafalgar Road and Burnhamthorpe Road East was assumed to be 12% of the AADT. A medium/heavy truck split of 1.0% / 1.0% was applied in the assessment.

All road traffic data considered in the analysis is summarized in **Table 17**. Applicable traffic data and correspondence is included for reference in **Appendix B**.

Table 17: Summary of Road Traffic Data Used in the Transportation Analysis

Roadway Link	Modelled AADT	% Day/ Night Volume Split [1]		Commercial Traffic Breakdown		Vehicle Speed (km/h)
		Daytime	Night-time	% Medium Trucks	% Heavy Trucks	
Trafalgar Road – Northbound	20,500	90	10	4.8	3.7	80
Trafalgar Road - Southbound	20,500	90	10	4.8	3.7	80
Trafalgar Road HOV Lane - Northbound	4,500	90	10	6.7	0.0	80
Trafalgar Road HOV Lane - Southbound	4,500	90	10	6.7	0.0	80
William Halton Parkway	35,000	90	10	4.0	2.0	60
Burnhamthorpe Road East	13,634	90	10	1.0	1.0	60
407 Transitway	464	90	10	100.0	0.0	100
Highway 407 – Eastbound	48,000	85	15	6.0	6.0	100
Highway 407 - Westbound	48,000	85	15	6.0	6.0	100

Notes: [1] The Day/Night split was determined from historic data at SLR for urban areas, and for highways (Highway 407).

6.2.2.2 Predicted Sound Levels

Future 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 the ORNAMENT algorithms, the road traffic noise model of the MECP. These predictions were validated and are equivalent to those made using the MECP ORNAMENT or STAMSON v5.04 road traffic noise models. A STAMSON validation file is included for reference 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. Block number/letter identifiers for all site buildings were added by SLR for descriptive and reporting purposes, as shown in **Figure 15** and **Figure 16**. Building height estimates ranged from 4 storeys to 25 storeys, based on the Illustrative Concept Plans prepared by GSP Group. Estimated building heights considered in the assessment are summarized in **Appendix D**.

Topographic contours (1.0 m resolution) were included in the model to account for grade changes in the area surrounding the Project site. Ground absorption was conservatively assumed to be reflective (i.e., G = 0).

Façade Sound Levels

Predicted worst-case façade sound levels due to road traffic are presented in **Table 18** for select Blocks/buildings within the development. The predicted sound levels in **Table 18** represent the highest for each development block. The highest predicted sound levels for all buildings in the proposed development are summarized in **Appendix D** and shown in **Figure 17** and **Figure 18** for daytime, and **Figure 19** and **Figure 20** for night-time periods, respectively.

Table 18: Summary of Transportation Facade Sound Levels

Assessment Location	Worst-Case Building/Facade [1]	Roadway Sound Levels [1]	
		L_{eq} Day (dBA)	L_{eq} Night (dBA)
Block 1	Block 1A-2 / West	72	66
Block 2	Block 2B-3 / East & Block 2D-3 / East	74	68
Block 3	Block 3A-3 / West & Block 3C-3 / West	73	67
Block 4	Block 4B / East	66	61
Block 5	Block 5A-1 / South & Block 5C / South	69	63
Block 6	Block 6B-2 / East	75	68
Block 7	Block 7B-1 / East & Block 7B-2 / East & Block 7D-1 / East	74	68
Block 8	Block 8A-3 / South & Block 8B-3 / South	69	63
Block 9	Block 9B-4 / North	69	63
Block 10	Block 10A-2 / North	60	55
Block 11	Block 11B-1 / South	61	55

Notes: [1] Block numbers/letters are shown in **Figure 15** and **Figure 16**.
[2] Sound levels shown are the maximums along the identified Block building and façade.

Sound levels along several facades within the proposed developed exceed 65 dBA during daytime hours. Therefore, upgraded building shell components are required to achieve the indoor sound level requirements in **Table 12**. Refer to **Section 6.2.3**.

Outdoor Living Areas

Building massing and Outdoor Living Areas associated with residential buildings in the development are conceptual at this stage. To estimate potential Outdoor Living Area transportation noise impacts, it was assumed the development building rooftops would have common elevated rooftop amenity terraces.

As the development was assumed to include common rooftop amenity spaces for all residential building occupants, private terraces are not considered to be the only outdoor amenity spaces available. Therefore, an assessment of private terraces was excluded based on the definitions outlined in NPC-300.

The predicted transportation noise levels at the potential Outdoor Living Areas associated with each building in the development are shown in **Figure 20** (east side of the development) and **Figure 21** (west side of development). The highest Outdoor Living Area sound levels in each Block are summarized below in **Table 19**. A complete list of predicted daytime Outdoor Living Area sound levels is provided for reference in **Appendix D.**

Table 19: Summary of Predicted Outdoor Living Area Sound Levels

Assessment Location	Worst-Case OLA	L_{eq} Day (dBA)	Applicable Guideline Limit L_{eq} Day (dBA)[1]	Meets Criteria? (Yes/No)
Block 1	OLA_1A-2	67	60	N
Block 2	OLA_2B-2	65		N
Block 3	OLA_3B-3	62		N
Block 4	OLA-4B	63		N
Block 5	OLA_5B-1	62		N
Block 6	OLA_6B-2	64		N
Block 7	OLA_7D-2	60		Y
Block 8	OLA_8A-1	65		N
Block 9	OLA_9A-2	63		N
Block 10	OLA_10D-3	59		Y
Block 11	OLA_11A-2	60		Y

Notes: [1] MECP Guidelines allow for OLAs to have sound levels up to 55 dBA, or up to 60 dBA with appropriate warning clauses.

Sound levels are predicted to exceed 60 dBA for several of the potential Outdoor Living Area locations exceed 60 dBA; therefore, mitigation and warning clauses will be required. Refer to **Section 0**.

6.2.3 Façade Assessment

6.2.3.1 Glazing Requirements

Based on the sound levels shown in **Table 18**, façade sound levels were predicted to exceed 65 dBA (daytime) and 60 dBA (night-time) at multiple locations throughout the development. Therefore, an assessment of glazing requirements is necessary for meeting the indoor sound level requirements outlined in **Table 12** and **Table 13**.

Indoor sound levels and required facade 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 all buildings in the proposed development.

- Window wall construction with glazing and glass spandrel panel elements;

- For living/dining rooms and office spaces, 70% of the exterior wall is vision glass/patio doors;
- For bedrooms, 50% of the exterior wall is vision glass;
- Non-glazing portions of the wall (i.e., glass spandrel panel) has an assumed STC rating of 45;
- Living rooms were assumed to be 3 m x 6 m in size with intermediate absorption; and
- Bedrooms were assumed to be 3 m x 3 m in size with intermediate absorption; and
- General office space was assumed to be 15 m x 15 m in size with intermediate absorption.

The worst-case acoustic requirements for each Block are provided in **Table 20**, which presents the STC ratings taking into consideration roadway noise and the assumptions listed above. A summary of worst-case window STC requirements for all buildings in the proposed development are included in **Appendix D**. Detailed façade calculations for all locations with daytime sound levels exceeding 65 dBA and night-time sound levels exceeding 60 dBA (the criteria defined in **Table 12**) are provided in **Appendix E**.

Table 20: Façade Sound Transmission Class (STC) Requirements

Block	Worst-Case Building / Facade	STC Rating - Non-Glazing Component	Glazing Requirements [1]				
			Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
Block 1	Block 1A-2 / West	45	30	32	33	35	OBC
Block 2	Block 2B-3 / East	45	32	35	35	38	OBC
Block 3	Block 3C-3 / West	45	31	34	34	37	OBC
Block 4	Block 4B / East	45	OBC	OBC	OBC	OBC	OBC
Block 5	Block 5C / South	45	OBC	OBC	30	32	OBC
Block 6	Block 6B-2 / East	45	33	36	36	39	OBC
Block 7	Block 7B-2 / East	45	32	35	35	38	OBC
Block 8	Block 8A-3 / South	45	OBC	OBC	30	32	OBC
Block 9	Block 9B-4 / North	45	OBC	OBC	30	32	OBC
Block 10	Block 10A-2 / North	45	OBC	OBC	OBC	OBC	OBC
Block 11	Block 11B-1	45	OBC	OBC	OBC	OBC	OBC

Notes: [1] OBC = meets minimum structural and thermal requirements of the Ontario Building Code, meeting a rating of STC 29.

The combined glazing and frame assemblies must be designed to ensure the overall sound isolation performance for the entire window unit meets the sound isolation requirements. It is recommended that 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.

6.2.3.2 Ventilation and Warning Clause Requirements

The requirements for triggering warning clauses are summarized in Table 14. Where required, the warning clauses should be included in agreements registered on Title for the residential units, in all agreements of purchase and sale or lease, and all rental agreements.

Based on the façade sound levels, several buildings will require central air conditioning for noise control purposes (with a Type D warning clause), or the provision for adding air conditioning at a later date (with a Type C warning clause).

Ventilation warning clauses for all buildings in the proposed development are summarized in Appendix F.

6.2.3.3 Outdoor Living Area Requirements

The Outdoor Living Area assessment was based on assumed locations within the development, to determine the feasibility of including elevated rooftop Outdoor Living Areas for all buildings. When actual Outdoor Living Area locations and designs are established, the assessment should be reviewed in detail.

Recommendations/requirements for barriers and/or warning clauses related to Outdoor Living Areas are summarized in Appendix F for all buildings. For predicted sound levels between 56 dBA and 60 dBA inclusive, a Type A warning clause is required (with no barrier). For levels greater than 60 dBA, sound barriers and Type B warning clauses are required.

Based on the predicted Outdoor Living Area sound levels and previous SLR experience, it is anticipated that it would be feasible to mitigate Outdoor Living Area sound levels to meet the applicable criteria. Mitigation can be implemented through strategic design and placement of barriers, and by locating Outdoor Living Areas such that that take advantage of screening from other buildings within the development itself.

Any parapet walls/sound barriers must be constructed of a material with surface density of 20 kg/m^2, and without any cracks or gaps (except for small, localized gaps under the barrier if required for drainage purposes). A range of materials can be used to construct the parapet walls/barriers, including concrete, wood and plexiglass, provided the surface density requirements are met.

6.3 Stationary Source Noise Impacts on the Development Itself

At the time of this assessment, the mechanical systems for the proposed development have not been sufficiently designed for a detailed stationary source noise impact assessment. Although no adverse impacts are expected, such equipment has the potential to result in noise impacts on the noise sensitive spaces within the development itself.

Therefore, the potential noise impacts from mechanical systems should be assessed as part of the final building design. Noise impacts from all equipment should comply with the MECP Publication NPC-300 guideline limits. Criteria are expected to be met at all on-site receptors with the appropriate selection of mechanical equipment, by locating equipment to minimize noise impacts within the development, and by incorporating appropriate control measures (e.g., silencers, barriers) into the design, where necessary.

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

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.

6.4 Stationary Source Noise Impacts on Surrounding Area

With respect to the noise environment of the area (i.e., Class 1), it is expected that the project will have a negligible effect on the neighbouring properties due to high roadway noise levels.

Other noise sources associated with the proposed development with possible adverse impacts on the surrounding neighbourhood are mechanical equipment (e.g., make up air units, cooling units, and parking garage vents). Sound levels due to operation of these sources are required to meet MECP Publication NPC-300 limits at off-site noise sensitive receptors.

Off-site impacts are not anticipated given the elevated ambient sound levels in the area, and because systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.

Regardless, potential impacts should be assessed as part of the final building designs to ensure compliance, particularly for mixed-use buildings and those designated for employment uses. The applicable criteria can be met at all surrounding and on-site receptors though 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, barriers) into the design.

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

6.5 Summary of Noise Conclusions and Recommendations

The potential for noise impacts on the potential future development have been assessed. Based on the results of our studies:

- There are no existing stationary noise sources anticipated to impact the Project.
- Future stationary noise sources associated with mixed-uses within the development are not anticipated to be a concern and are expected to meet the applicable limits in NPC-300 with appropriate building design, equipment selection and inclusion of noise controls (if needed).
- The development Employment Lands are expected to meet the applicable limits in NPC-300 with the consideration of a Light Employment buffer separating General Employment lands, in addition to the consideration of appropriate building design, equipment selection and inclusion of noise controls (if needed).
- Based on transportation façade sound levels upgraded glazing is required within the development. Refer to Section 6.2.3 and Appendix D. 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.
- Type C and / or D Warning Clauses will be required for various buildings within the Project. These will be specified later in the design and development/planning/approvals process.
- Type A and Type B Warning Clauses, along with sound barriers/parapet walls, will likely be required for Outdoor Living Areas associated with the Project. These should be reviewed and specified later in the design and development/planning/approvals process.
- 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.

7.0 ENVIRONMENTAL VIBRATION ASSESSMENT

SLR conducted a review of the site and surrounding area to determine the potential for environmental vibration impacts onto the proposed development.

There are no railways located within 1 km of the proposed development; therefore, railway-generated vibration is not of concern. Furthermore, rubber-wheeled vehicles on the surrounding roadways are not expected to be a concern with respect to ground borne vibration.

With respect to surrounding industries, industrial vibration is typically generated by sources such as automotive parts heavy metal stamping. No significant industrial vibration sources are located within the proposed project development area. Therefore, an assessment of industrial vibration sources is not required.

As there are no significant sources of industrial or transportation-related vibration in proximity to the Project, vibration mitigation measures are not required.

8.0 CONCLUSIONS

A Compatibility/ Mitigation assessment has been completed, examining the potential for air quality, dust, odour, noise, and vibration impacts from road and nearby industrial land uses to affect the future development on the Project Site.

The assessment has included a review of the surrounding industrial facilities in the area. Their available MECP approvals have been reviewed.

8.1 Air Quality

The potential for air quality impacts on the potential future development, including dust and odour, have been reviewed for the existing surroundings, future surrounding uses and the development own employment lands. Based on the results of our studies, the Project site is anticipated to be compatible with the surrounding existing and potential land uses from an air quality perspective. In addition, adverse emissions of dust and odour at the Project site are not anticipated. The Project site is not anticipated to limit the ability of surrounding industries to obtain or maintain required MECP permits or approvals.

If industry were to start operations in the Area of Influence of a sensitive land use within the Project site, they will be required to be compatible with the existing sensitive land uses that may include mixed uses with elevated sensitive residential uses. The industry may also be required to obtain an ECA or an EASR prior to operation. Facilities with an ECA/EASR should already meet the MECP guidelines for air quality emissions at their property line.

8.2 Noise and Vibration

The potential for noise impacts on the potential future development have been reviewed. There are no existing stationary noise sources anticipated to impact the Project. Future stationary sources associated with mixed-use and employment land uses are expected to meet applicable limits in NPC-300 at the development residential buildings with the inclusion of appropriate building design, equipment selection and inclusion of noise controls (if needed). A Light Employment buffer is recommended to separate General Employment facilities for the developments proposed Employment Lands. With the inclusion of the Light Employment buffer, appropriate building design, equipment selection and inclusion of noise

controls (if needed), the NPC-300 guideline limits are expected to be met at the development noise sensitive building.

Upgraded glazing and façade constructions, as well as various Warning Clauses are required to address transportation noise. In addition, acoustic barriers may be required, pending the placement of the outdoor amenity areas.

There are no significant sources of vibration in proximity to the Project. Therefore, vibration is not a concern and no vibration mitigation measures are recommended.

With the above suggested mitigation measures, adverse impacts from dust, odour, noise and vibration are not anticipated on the Project site.

8.3 Overall

The requirements of MECP Guideline D-6, Regulation 419/05, and Publication NPC-300 would be met, with the inclusion of the above. The proposed development is:

- Unlikely to result in increased risk of complaint and nuisance claims;
- Unlikely to result in operational constraints for the surrounding facilities;
- Unlikely to result in constraints on surrounding facilities to reasonably expand, intensify or introduce changes to their operations; and
- Unlikely to result in constraints allowed land uses to reasonably be established in the Light Industrial zoned area.

Overall, from a compatibility perspective, the proposed development is considered to be feasible, with the ability of any air quality and noise emissions to be addressed with appropriate mitigation measures as determined by further studies at the time of future development applications.

9.0 REFERENCES

AECOM, 2015, *Trafalgar Road (Regional Road 3) Improvements Class Environmental Assessment Study – Traffic Noise Impact Study*.

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10.0 STATEMENT OF LIMITATIONS

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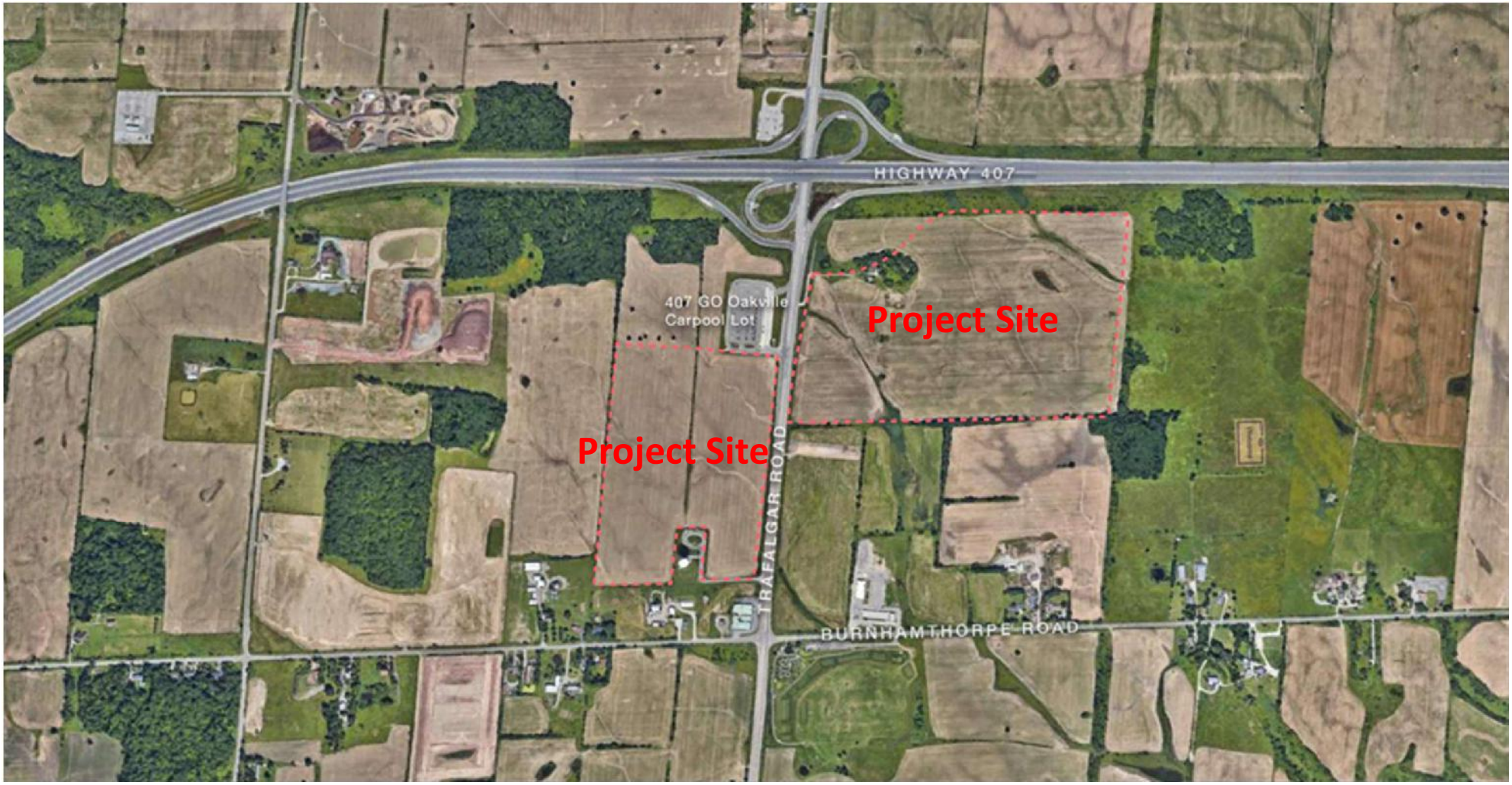
Figures

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

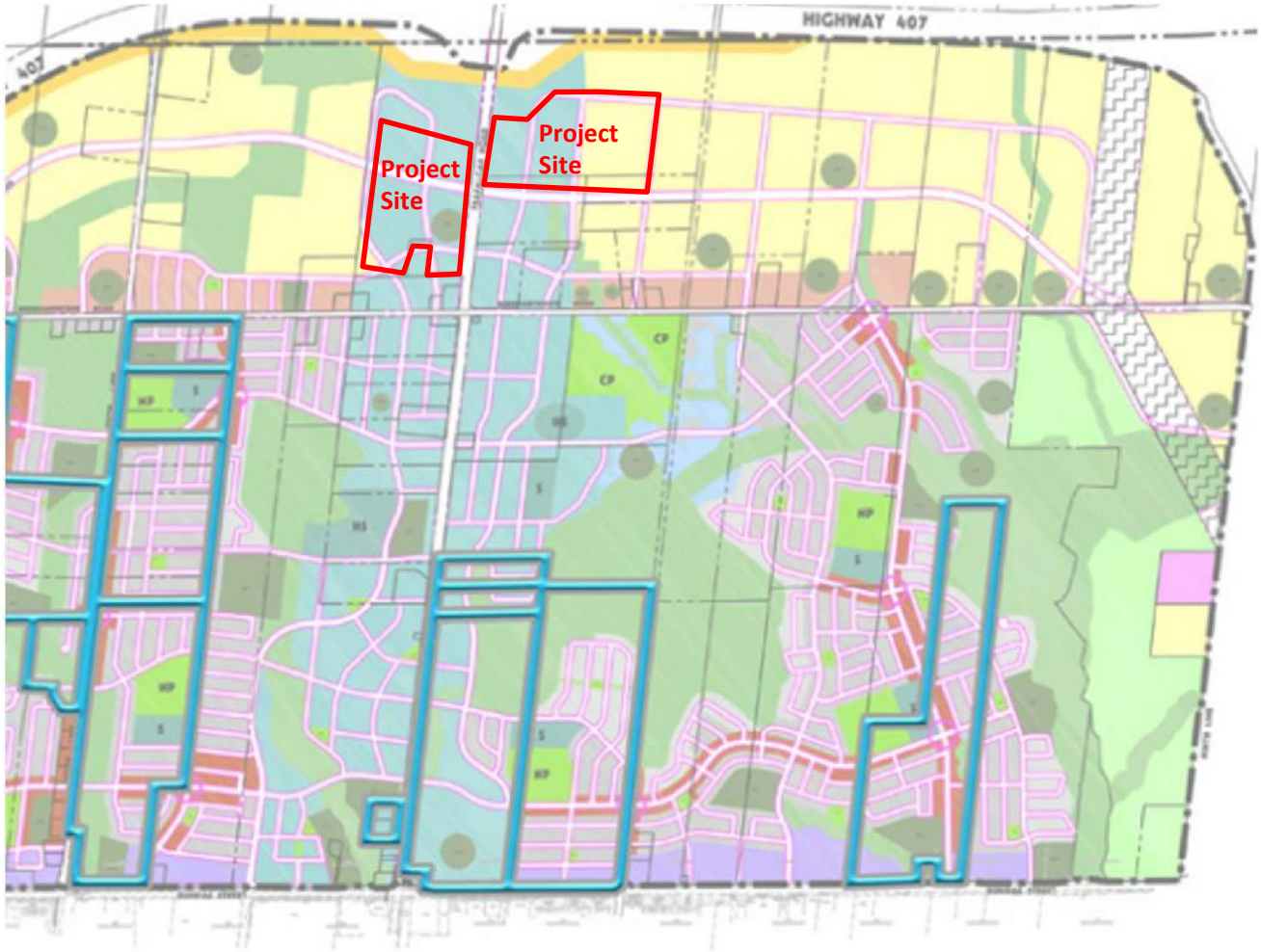
Compatibility & Mitigation Study

SLR Project No.: 241.30464.00000



Aerial Photography from Google Earth

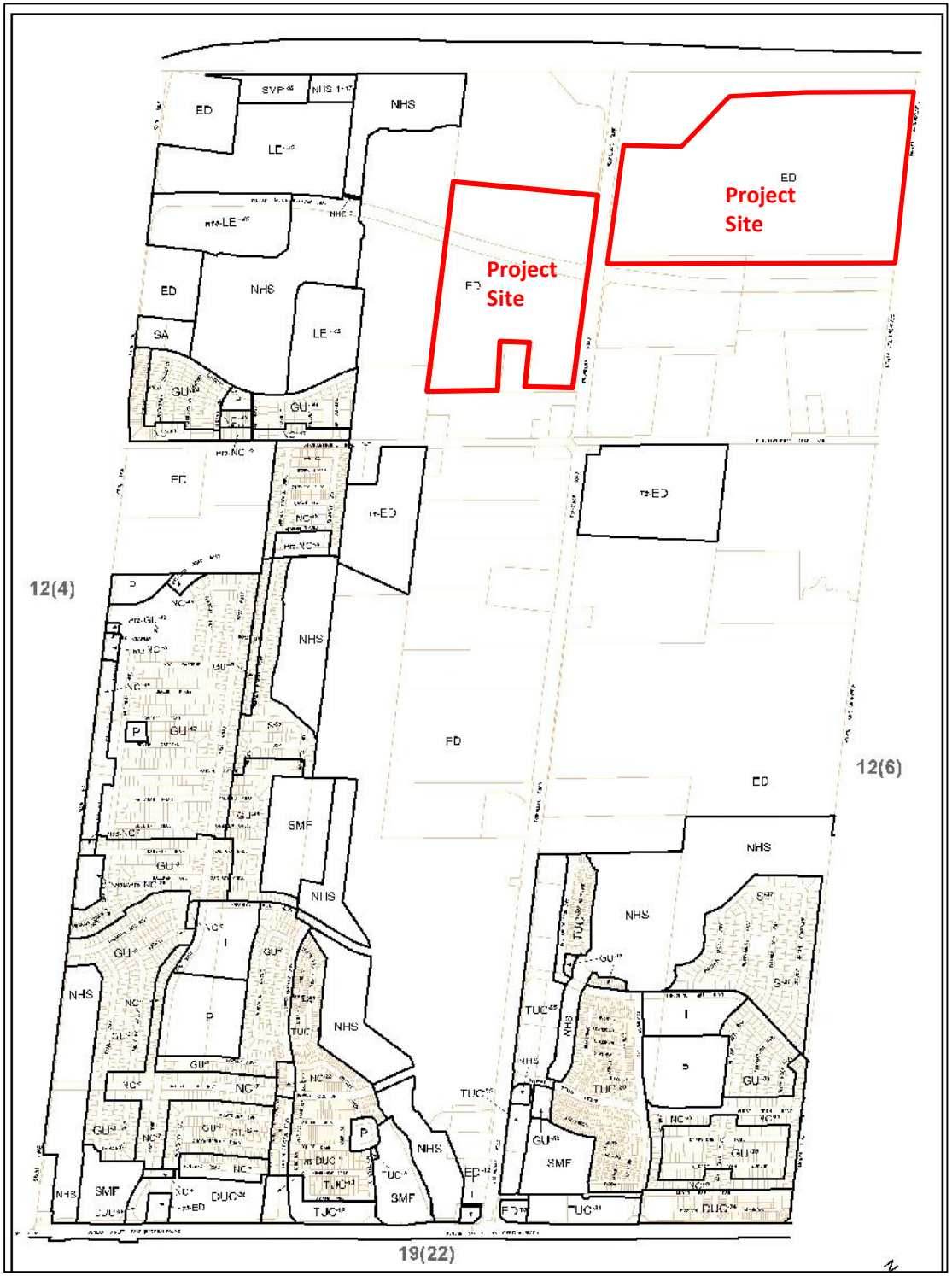
INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. 1	
SITE AND SURROUNDING AREA		Project No. 241.30464.00000		



LEGEND

- SECONDARY PLAN AREA BOUNDARY
- OAKVILLE / MILTON MUNICIPAL BOUNDARY
- TRANSITWAY
- DUNDAS STREET URBAN CORE AREA
- NEYAGAWA BLVD. URBAN CORE AREA
- TRAFALGAR ROAD URBAN CORE AREA
- TRANSITIONAL AREA
- EMPLOYMENT AREA
- NATURAL HERITAGE SYSTEM AREA
- INSTITUTIONAL AREA
- STORMWATER MANAGEMENT FACILITY (final location tbd)
- CP COMMUNITY PARK AREA
- HP NEIGHBOURHOOD PARK AREA
- VILLAGE SQUARE/URBAN SQUARE
- S ELEMENTARY SCHOOL SITE
- HS SECONDARY SCHOOL SITE
- JOSHUA CREEK FLOODPLAIN AREA
- UTILITY CORRIDOR
- NEIGHBOURHOOD ACTIVITY NODE
- CEMETERY AREA
- NEIGHBOURHOOD CENTRE AREA
- GENERAL URBAN AREA
- SUB URBAN AREA
- HD HIGH DENSITY RESIDENTIAL AREA
- ★ POLICY REFERENCE - SEE POLICY SECTION 7.4.7.2

INFRASTRUCTURE ONTARIO	True North	Scale: n/a	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **2A**	
LAND USE DESIGNATIONS FROM NORTH OAKVILLE EAST SECONDARY PLAN		Project No. 241.30464.00000		



Source:
https://www.oakville.ca/assets/general%20-%20town%20hall/2009-189-Section12-Maps.pdf

Zone Symbol	Zone
TUC	Trafalgar Urban Core
DUC	Dundas Urban Core
NUC	Neyagawa Urban Core
PUC	Palermo Village North Urban Core
NC	Neighbourhood Centre
GU	General Urban
S	Sub-urban
HDR	High Density Residential
LE	Light Employment
GE	General Employment
SA	Service Area-Employment
I, P, SMF	Institutional and Park Zones
ED	Existing Development
NHS	Natural Heritage System
CE	Cemetery
AS	Automobile Service Zone

True North

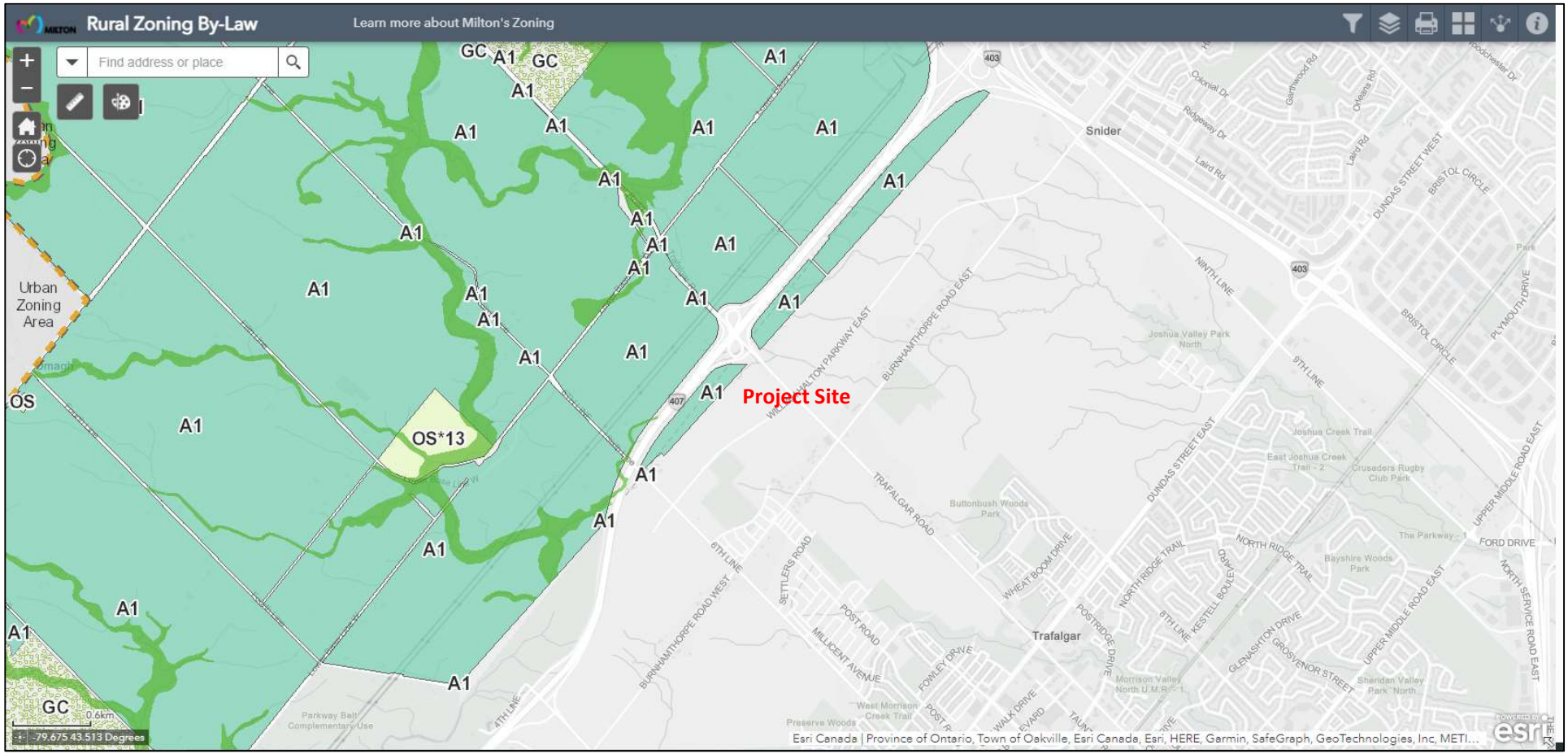
INFRASTRUCTURE ONTARIO

TRAFALGAR LANDS DEVELOPMENT
OAKVILLE, ONTARIO

ZONING DESIGNATIONS – NORTH OAKVILLE ZONING BY-LAW 2009-189

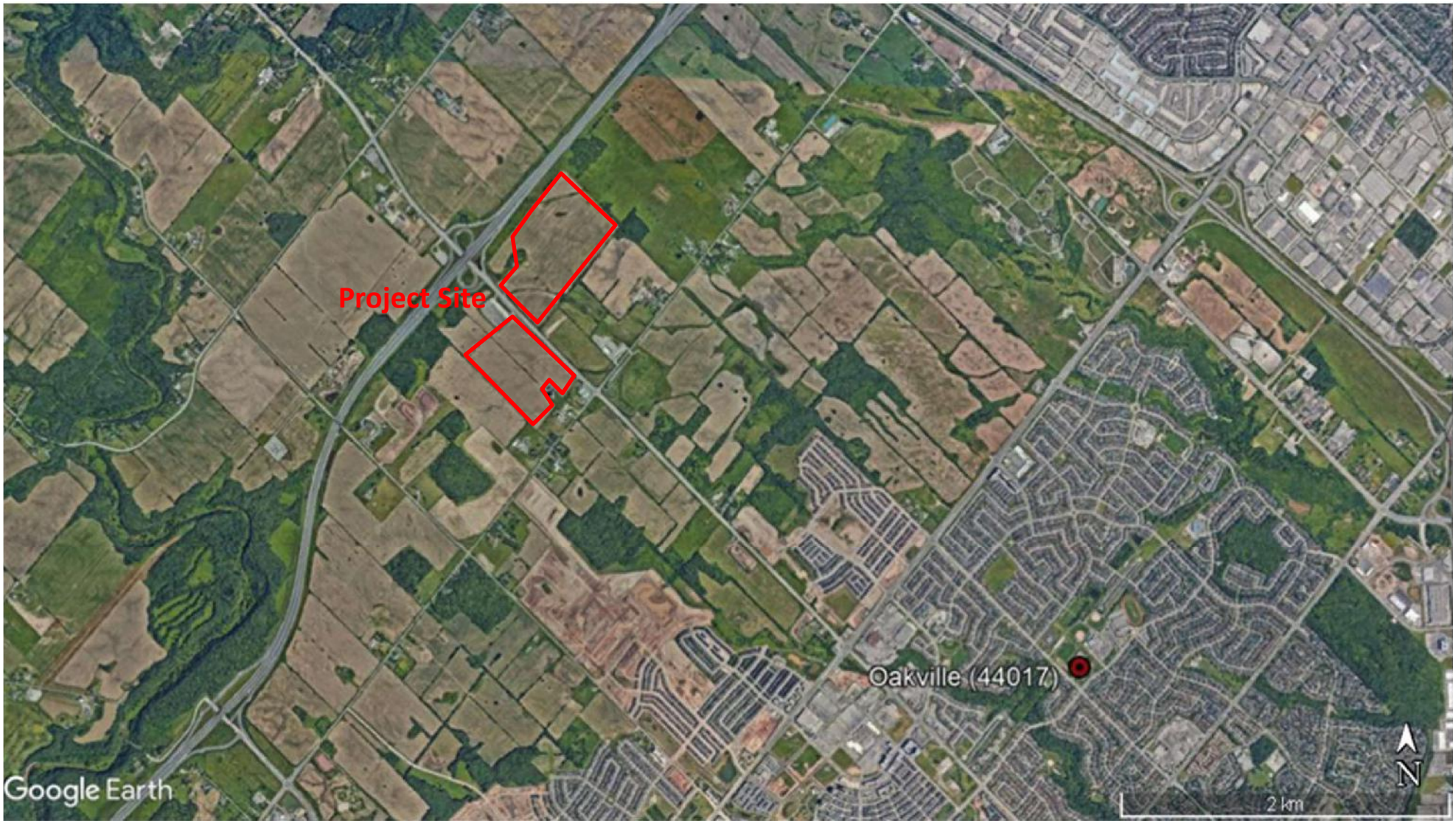
Scale: n/a		METRES
Date: Mar. 23, 2022	Rev 0.0	Figure No. **2B**
Project No. 241.30464.00000		

SLR global environmental solutions

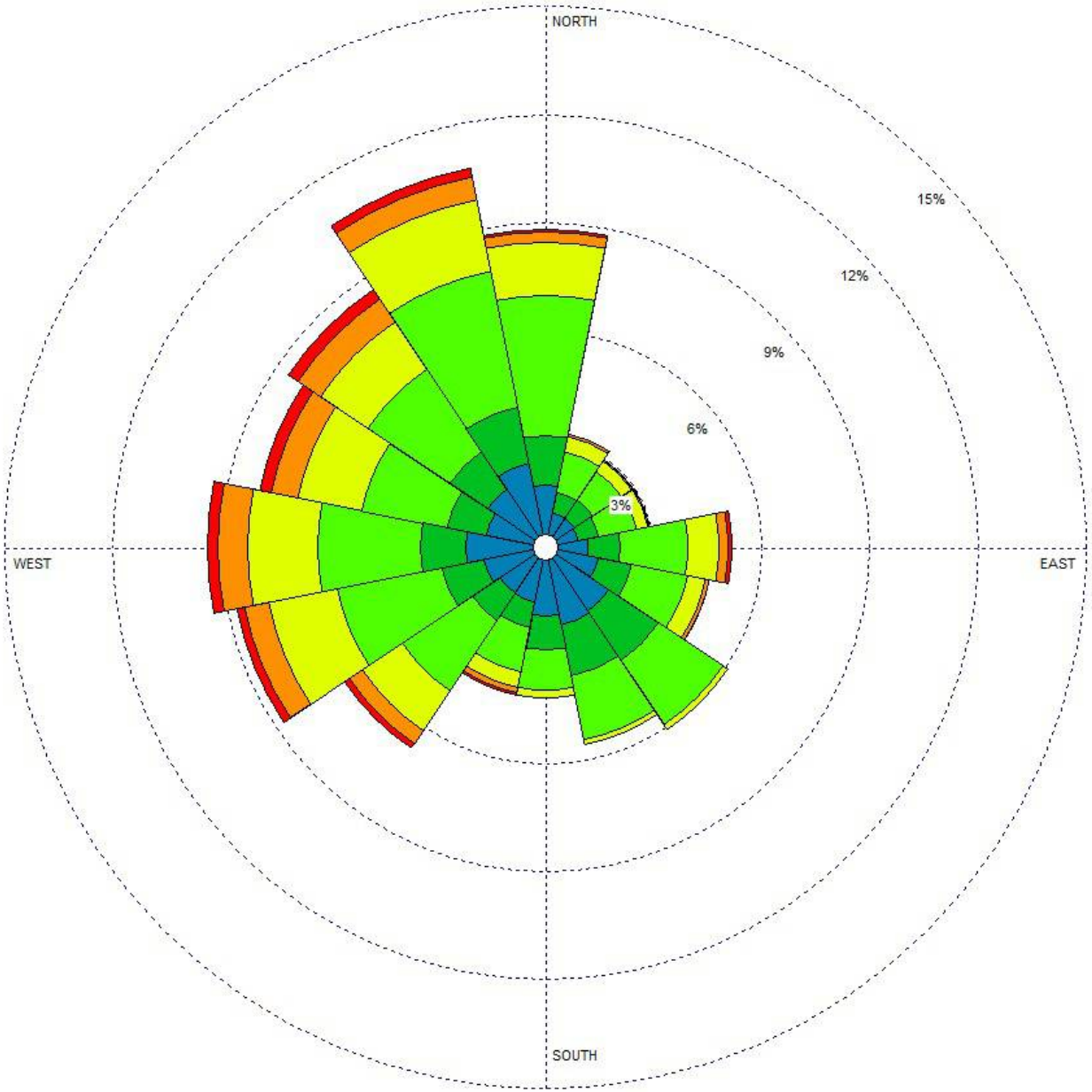


Source: https://milton.maps.arcgis.com/apps/MapSeries/index.html?appid=524c45113c8442e7952cd65a1be099e6&entry=2

INFRASTRUCTURE ONTARIO	True North	Scale: n/a	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **2C**	
ZONING DESIGNATIONS – TOWN OF MILTON ZONING BY-LAW 144-2003		Project No. 241.30464.00000		



INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **3**	
MONITORING STATION LOCATIONS		Project No. 241.30464.00000		



WIND SPEED (m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.00%

True North

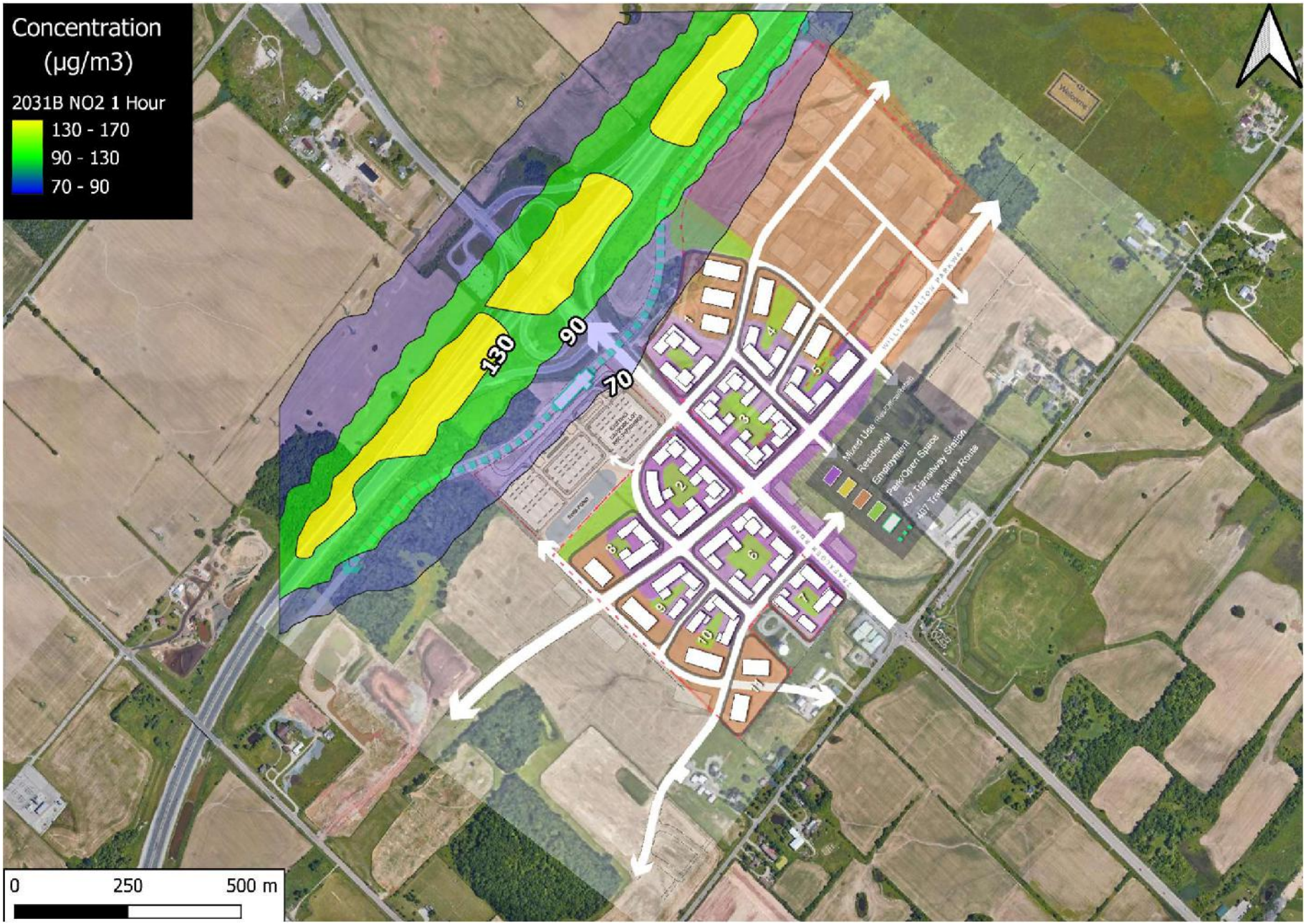
INFRASTRUCTURE ONTARIO

TRAFALGAR LANDS DEVELOPMENT
OAKVILLE, ONTARIO

WIND FREQUENCY DISTRIBUTION DIAGRAM (WIND ROSE)
TORONTO LESTER B. PEARSON INT' L AIRPORT

Scale: n/a		METRES
Date: Mar. 23, 2022	Rev 0.0	Figure No.
Project No. 241.30464.00000		4

SLR global environmental solutions



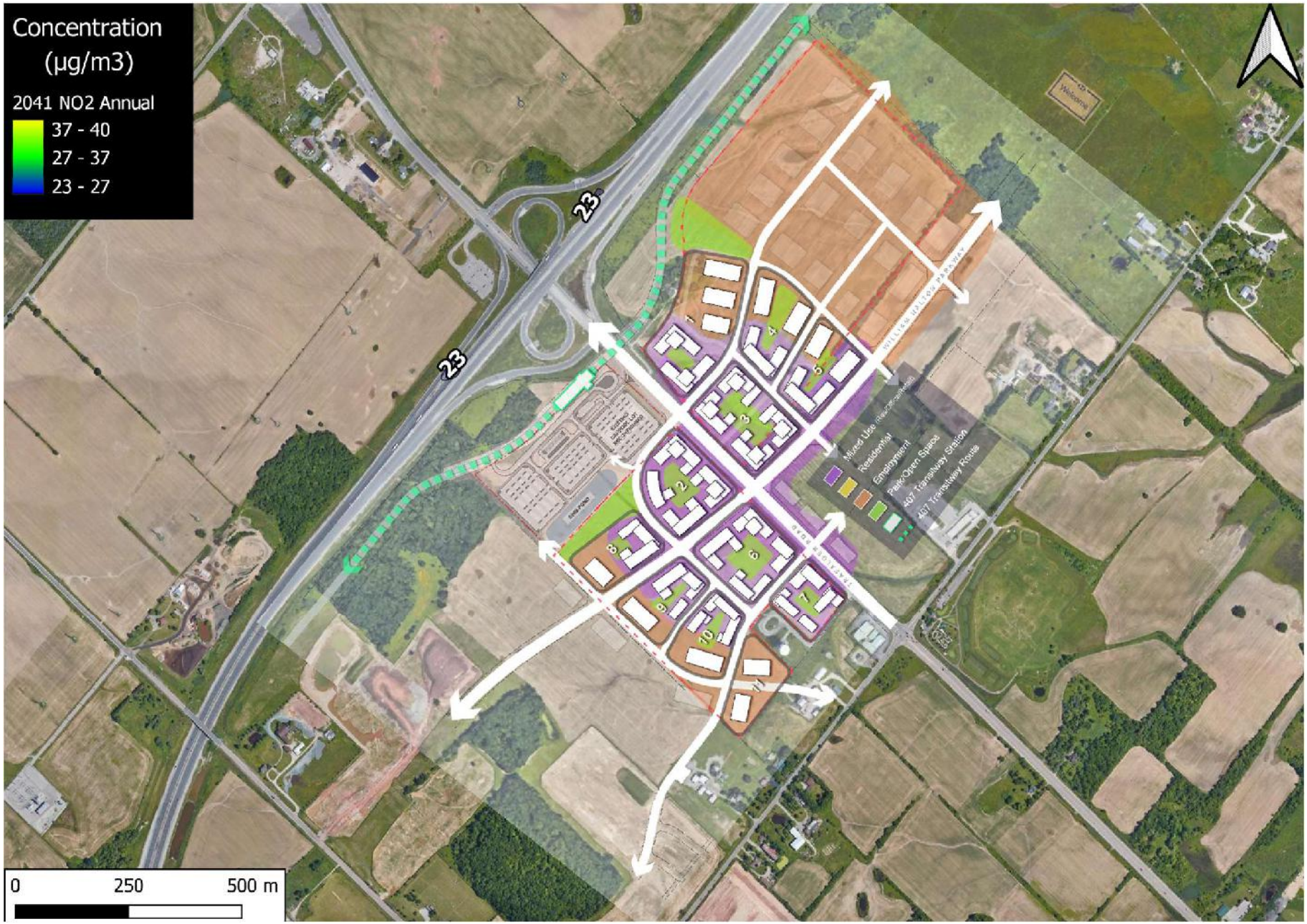
INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **5**	
1- HOUR NO2 CONCENTRATIONS – 2031 EMISSIONS SCENARIO		Project No. 241.30464.00000		

INFRASTRUCTURE ONTARIO	True North	Scale:		METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022	Rev 0.0	Figure No. **6**
1-HOUR NO2 CONCENTRATIONS – 2041 EMISSIONS SCENARIO		Project No. 241.30464.00000		

SLR global environmental solutions

INFRASTRUCTURE ONTARIO	True North	Scale:		METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022	Rev 0.0	Figure No. **7**
ANNUAL NO2 CONCENTRATIONS – 2031 EMISSIONS SCENARIO		Project No. 241.30464.00000		

SLR global environmental solutions

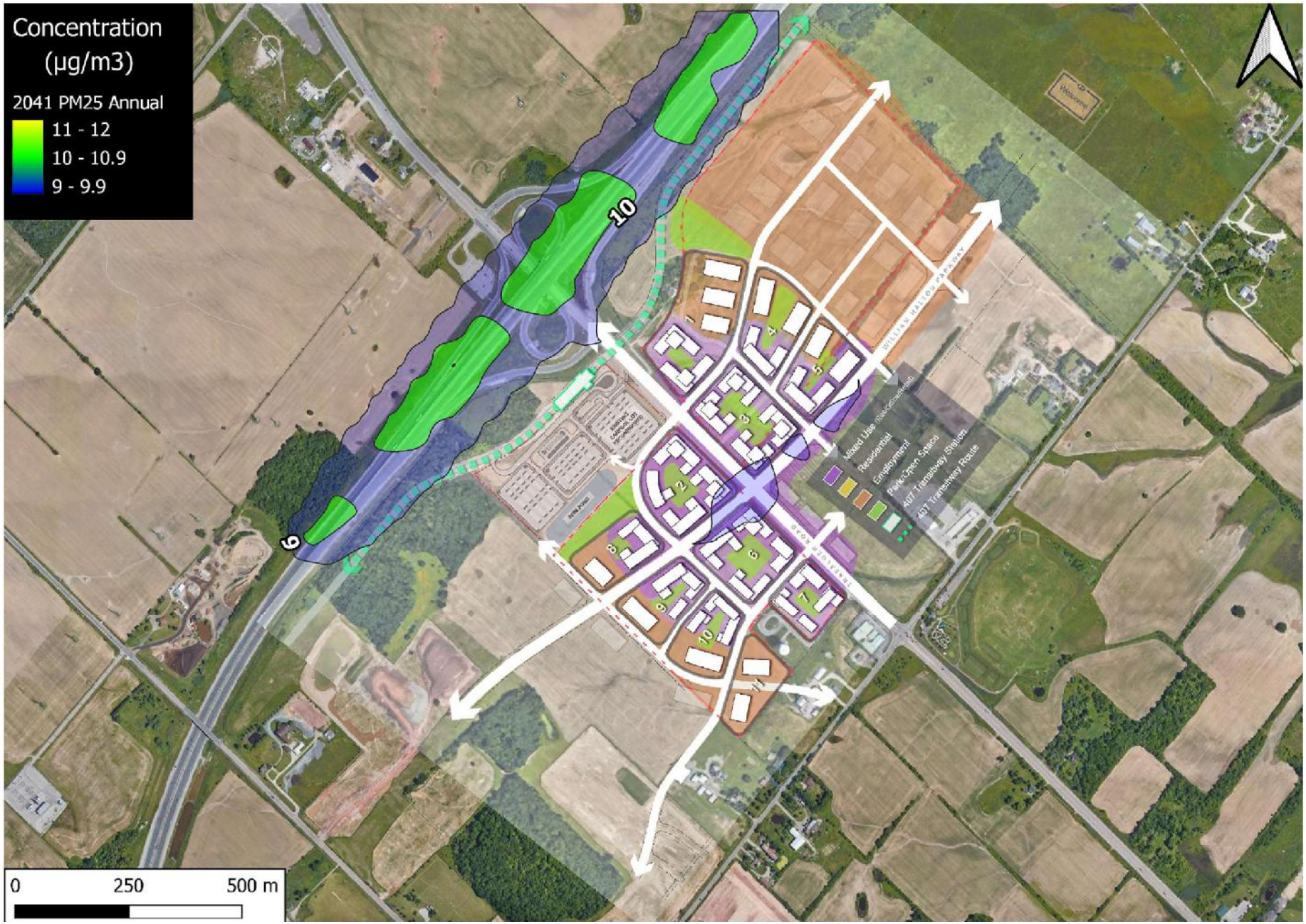


INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **8**	SLR global environmental solutions
ANNUAL NO2 CONCENTRATIONS – 2041 EMISSIONS SCENARIO		Project No. 241.30464.00000		

INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **9**	
24-HOUR PM2.5 CONCENTRATIONS – 2031 EMISSIONS SCENARIO		Project No. 241.30464.00000		

INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **10**	
24-HOUR PM2.5 CONCENTRATIONS – 2041 EMISSIONS SCENARIO		Project No. 241.30464.00000		

INFRASTRUCTURE ONTARIO	True North	Scale:	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **11**	
ANNUAL PM2.5 CONCENTRATIONS – 2031 EMISSIONS SCENARIO		Project No. 241.30464.00000		



INFRASTRUCTURE ONTARIO	True North	Scale:		METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022	Rev 0.0	Figure No. **12**
ANNUAL PM2.5 CONCENTRATIONS – 2041 EMISSIONS SCENARIO		Project No. 241.30464.00000		

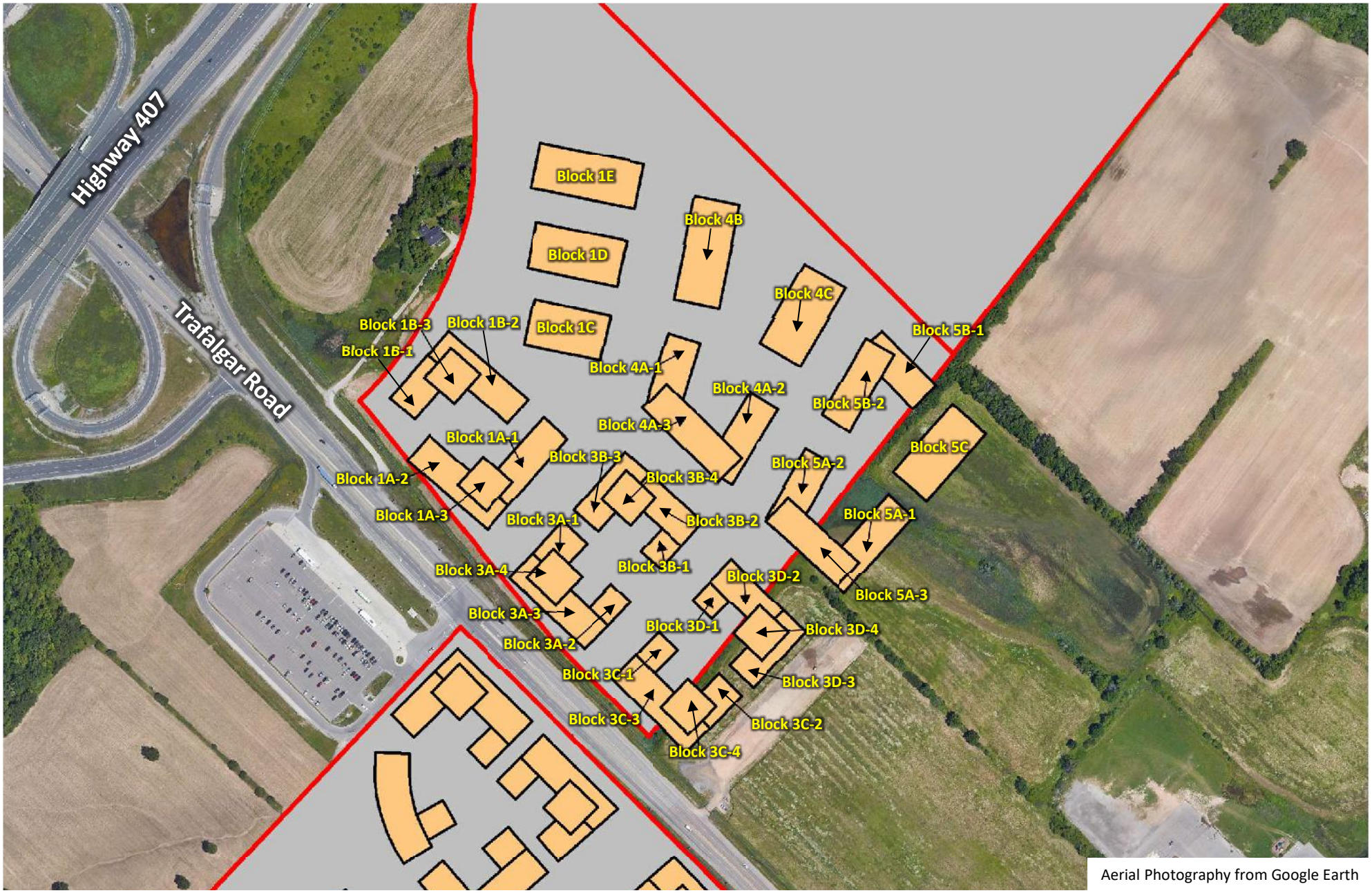
SLR global environmental solutions

INFRASTRUCTURE ONTARIO	True North	Scale:		METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022	Rev 0.0	Figure No. **13**
24-HOUR PM10 CONCENTRATIONS – 2031 EMISSIONS SCENARIO		Project No. 241.30464.00000		

SLR global environmental solutions

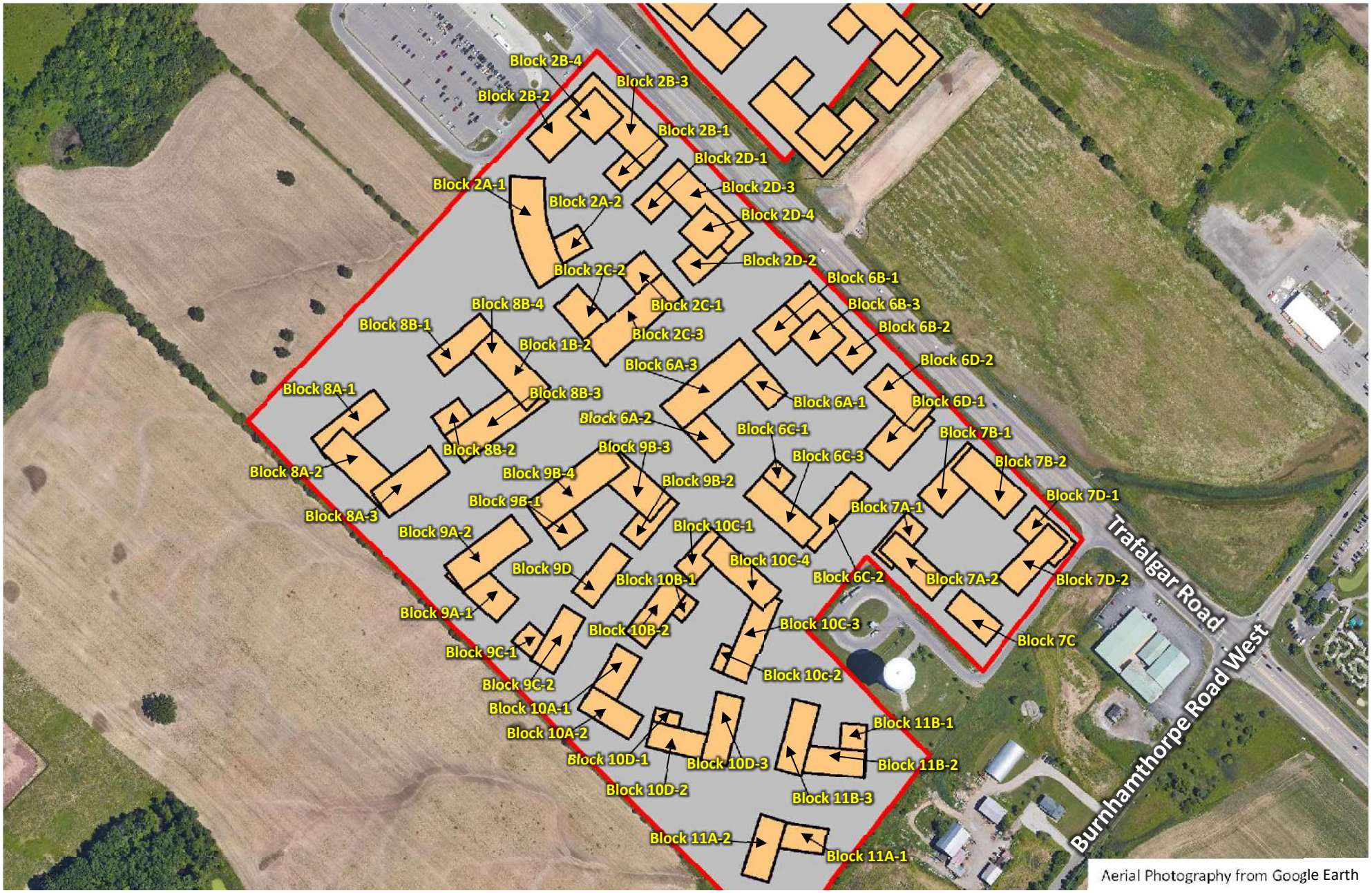
INFRASTRUCTURE ONTARIO	True North	Scale:		METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022	Rev 0.0	Figure No. **14**
24-HOUR PM10 CONCENTRATIONS – 2041 EMISSIONS SCENARIO		Project No. 241.30464.00000		

SLR global environmental solutions



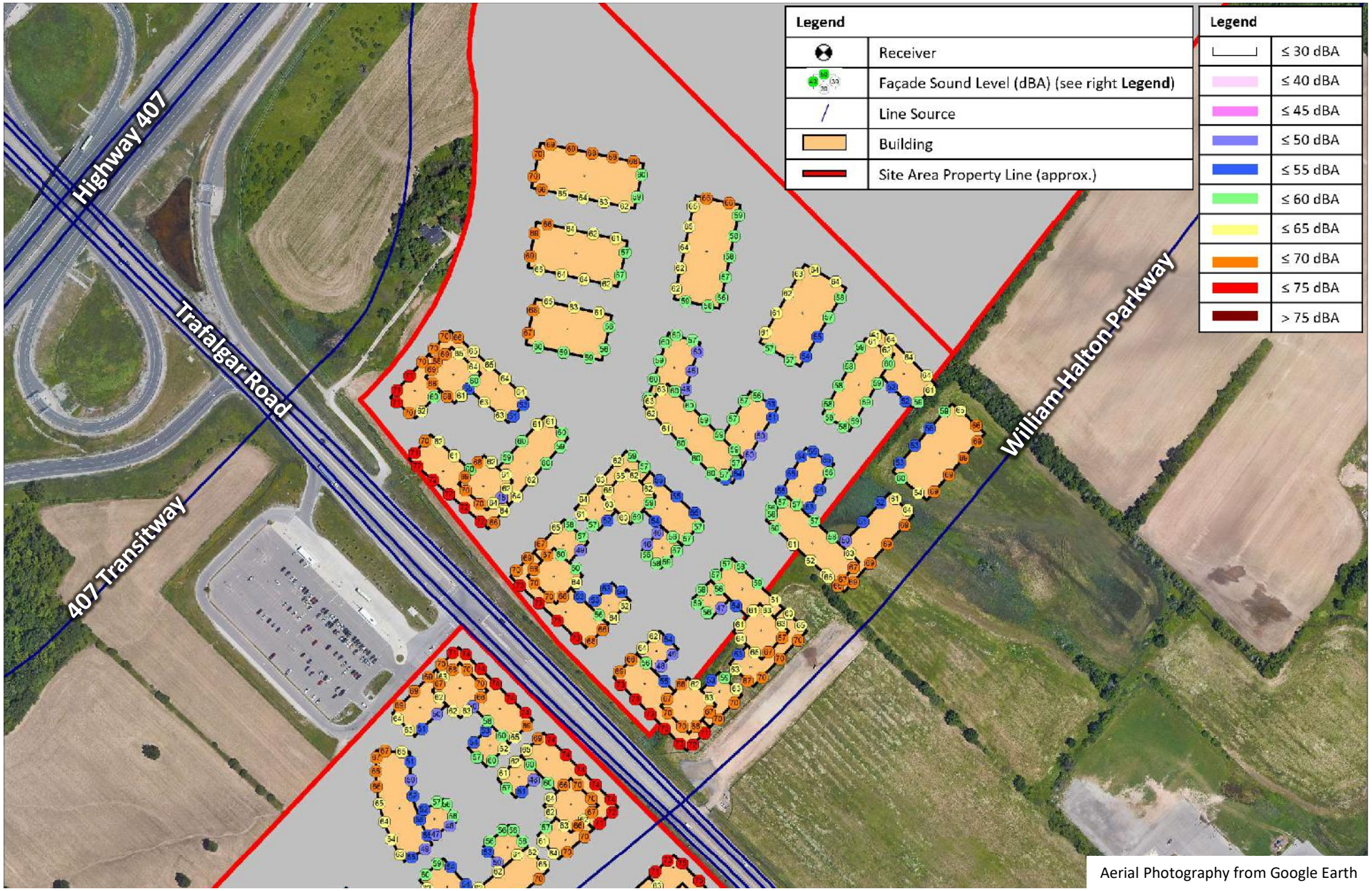
Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **15**	
PROPOSED DEVELOPMENT – EAST PORTION (WITH BUILDING IDS)		Project No. 241.30464.00000		



Aerial Photography from Google Earth

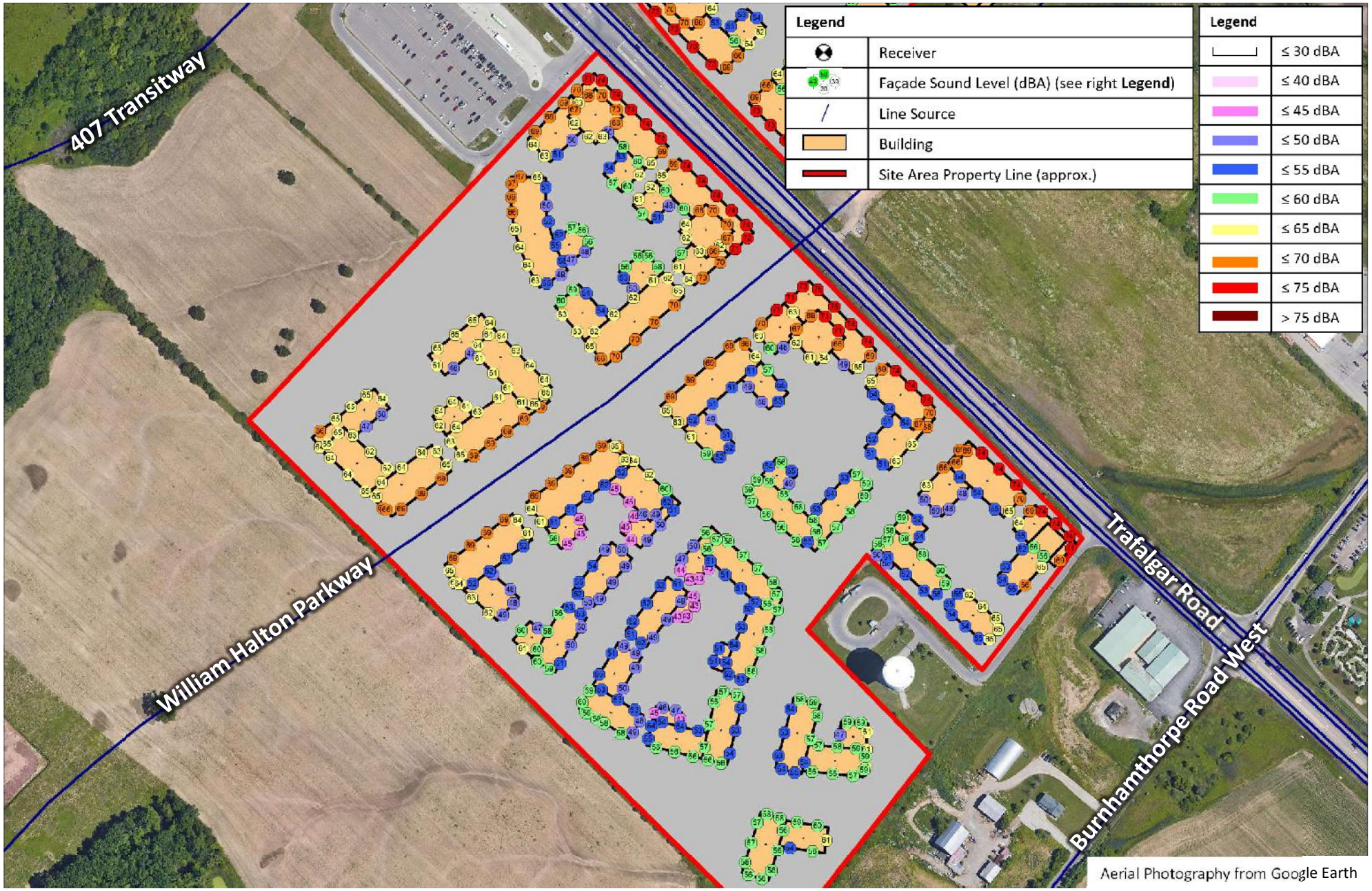
INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **16**	
PROPOSED DEVELOPMENT – WEST PORTION (WITH BUILDING IDS)		Project No. 241.30464.00000		



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **17**
PREDICTED FAÇADE SOUND LEVELS – ROAD – DAYTIME - EAST		Project No. 241.30464.00000	

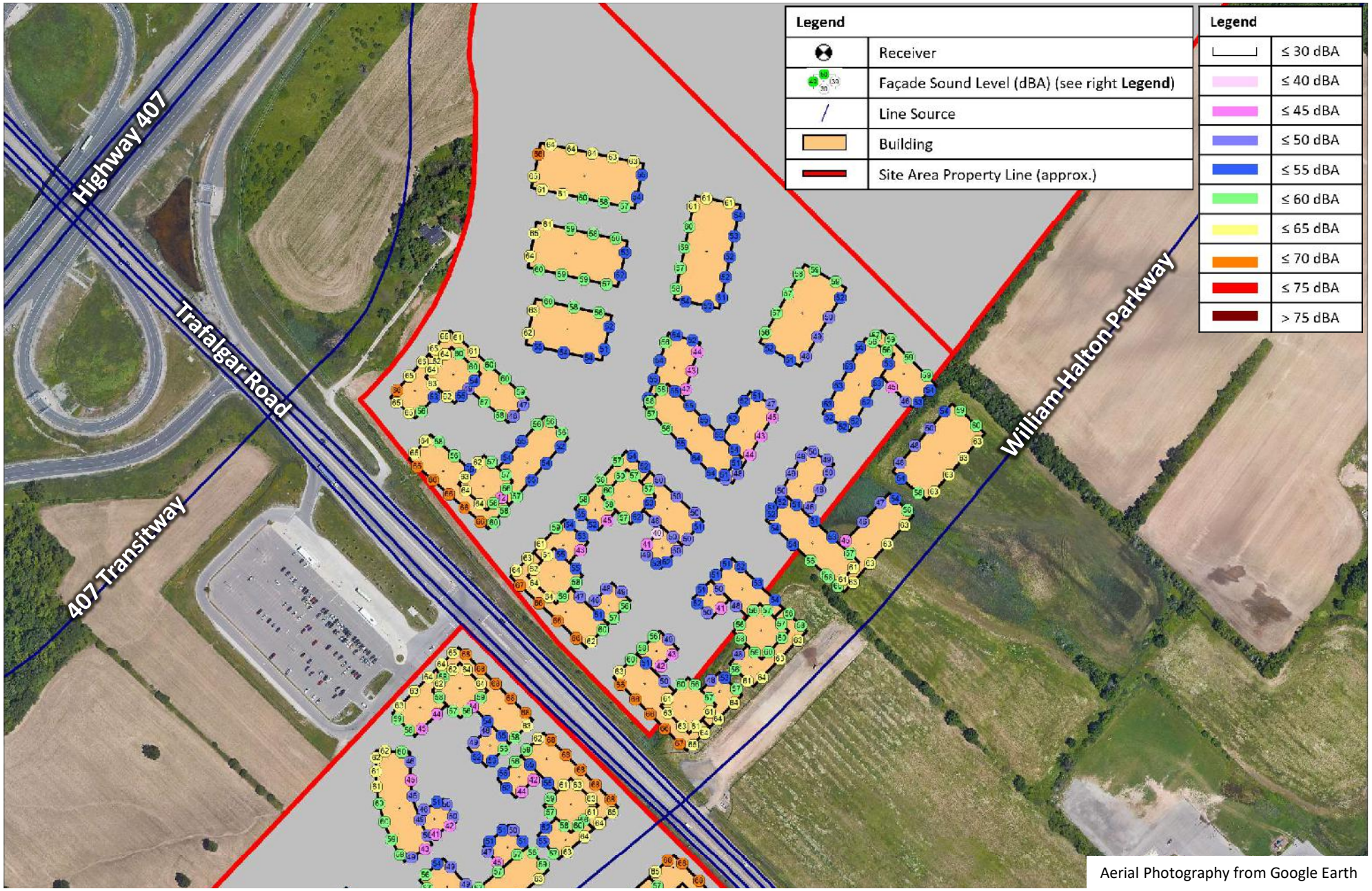
SLR global environmental solutions



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **18**
PREDICTED FAÇADE SOUND LEVELS – ROAD – DAYTIME - WEST		Project No. 241.30464.00000	

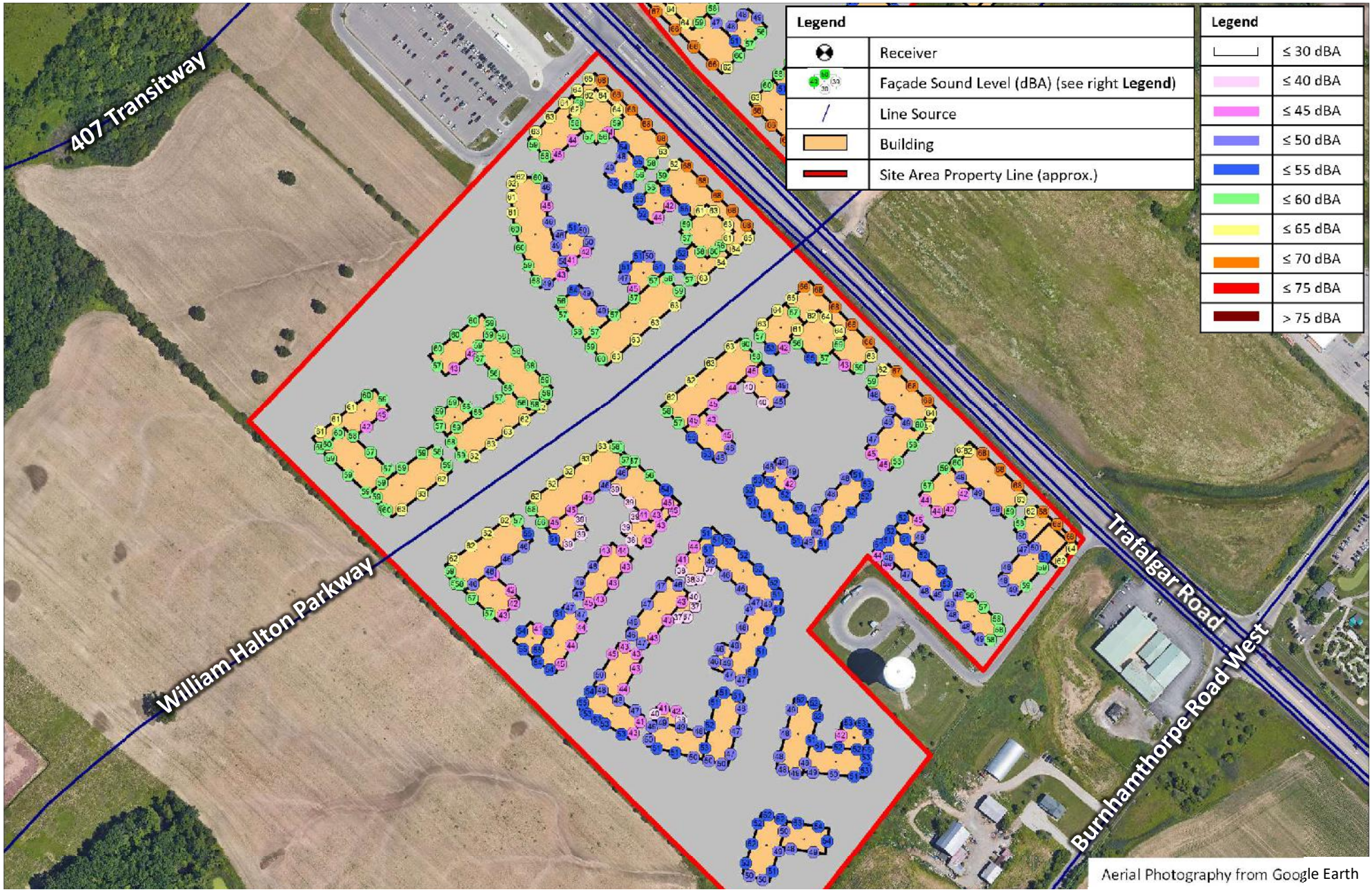
SLR global environmental solutions



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **19**
PREDICTED FAÇADE SOUND LEVELS – ROAD – NIGHT-TIME - EAST		Project No. 241.30464.00000	

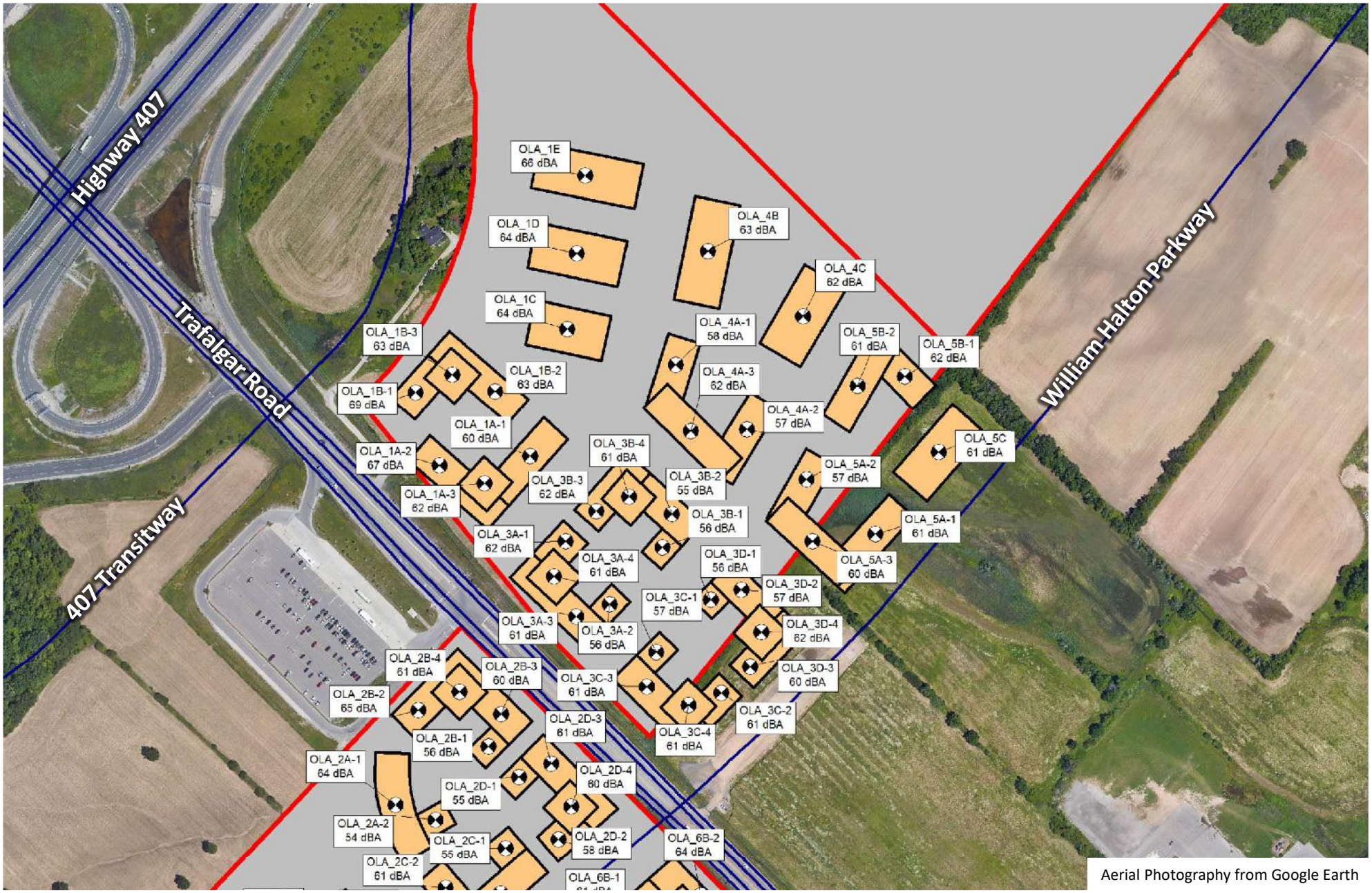
SLR global environmental solutions



Aerial Photography from Google Earth

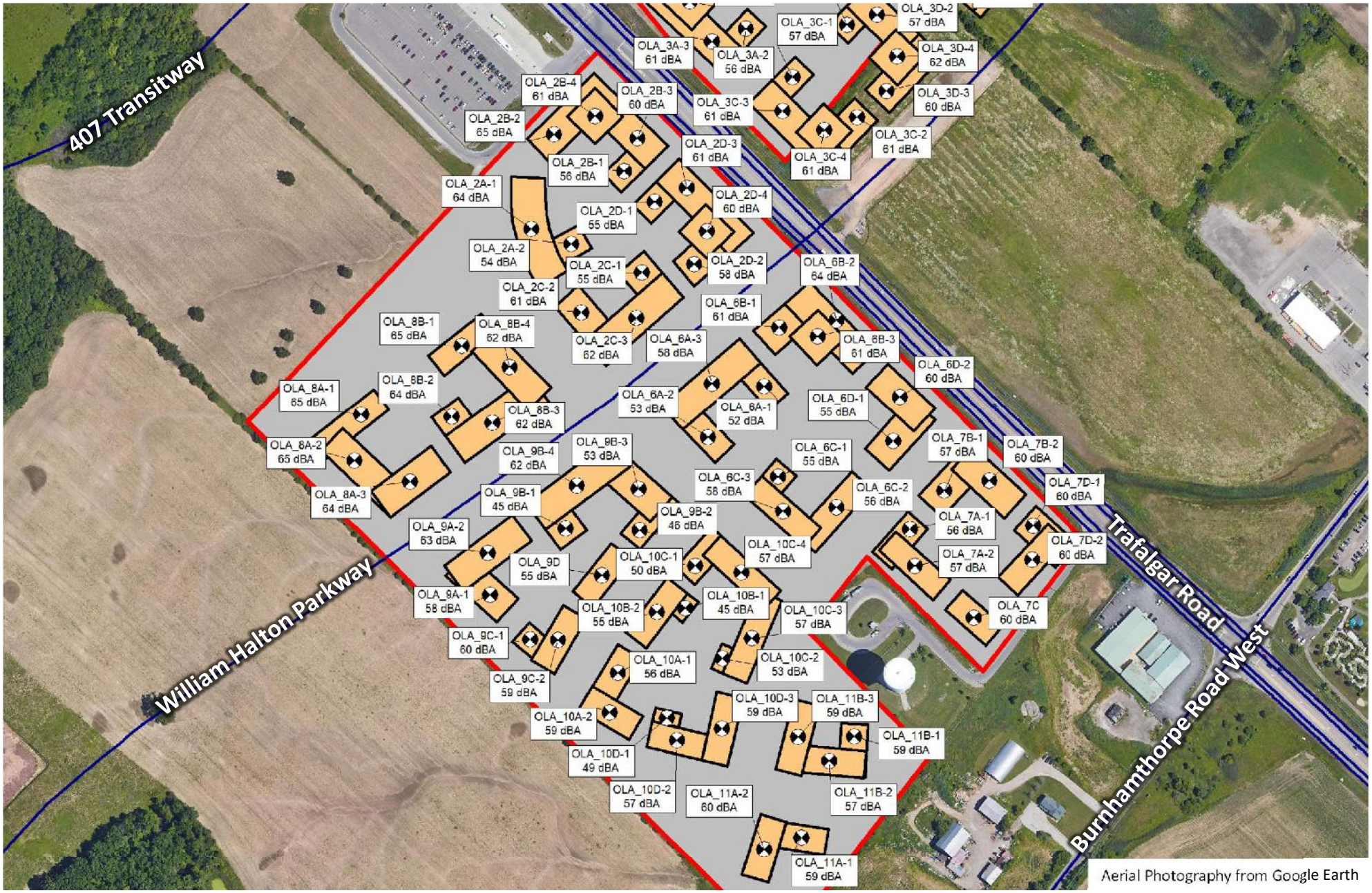
INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **20**
PREDICTED FAÇADE SOUND LEVELS – ROAD – NIGHT-TIME - WEST		Project No. 241.30464.00000	

SLR global environmental solutions



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **21**	
PREDICTED OLA SOUND LEVELS – ROAD – DAYTIME - EAST		Project No. 241.30464.00000		



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES	
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 23, 2022 Rev 0.0	Figure No. **22**	SLR global environmental solutions
PREDICTED OLA SOUND LEVELS – ROAD – DAYTIME - WEST		Project No. 241.30464.00000		

Appendix A
Site Development Plans

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

Compatibility & Mitigation Study

SLR Project No.: 241.30464.00000

GSP group

Figure

Development Concept

Source: Development Concept (2020)

2A

Appendix B
Traffic Data and Correspondence

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

Compatibility & Mitigation Study

SLR Project No.: 241.30464.00000

Keni Mallinen

From: Krusto, Matt <Matt.Krusto@halton.ca>
Sent: February 14, 2022 9:27 AM
To: Keni Mallinen
Cc: Marcus Li
Subject: RE: Request for Ultimate Traffic Data - Trafalgar Road, William Hanlon Parkway, Burnhampthorpe Road

Hi Keni,

Further to your request, please use the following:

Trafalgar Road:

50,000 ultimate AADT, 6 lanes, truck percentages must be based on existing counts. For the existing counts to determine existing truck percentages, please send your request to trafficdatarequests@halton.ca

William Halton Parkway:

35,000 ultimate AADT, 4 lanes, 4% medium, 2% heavy.

Burnhamthorpe Rd:

Burnhamthorpe Road has now been downloaded from Halton Region to the Town of Oakville. Please contact Town staff for this information.

Matt

Matt Krusto
Supervisor, Transportation Development Review
Infrastructure Planning & Policy
Public Works
Halton Region
905-825-6000, ext. 7225 | 1-866-442-5866

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From: Keni Mallinen <kmallinen@slrconsulting.com>
Sent: February 10, 2022 11:36 AM
To: Loro, Darren <Darren.Loro@halton.ca>

Cc: Krusto, Matt <Matt.Krusto@halton.ca>; Marcus Li <mli@slrconsulting.com>
Subject: FW: Request for Ultimate Traffic Data - Trafalgar Road, William Hanlon Parkway, Burnhampthorpe Road

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Hi Darren,

I'm just forwarding this to you as it looks like Matt Krusto is out of the office, and I received your email in his automatic out-of-office response.

Is this request something you might be able to help with?

Thank you,
Keni

SLR

Keni Mallinen, P.Eng.
Acoustic Engineer

O +1 226 706 8080
C +1 226 203 7385
E kmallinen@slrconsulting.com

SLR Consulting (Canada) Ltd.
100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

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From: Keni Mallinen <kmallinen@slrconsulting.com>
Sent: February 10, 2022 11:32 AM
To: Matt.Krusto@halton.ca
Cc: Marcus Li <mli@slrconsulting.com>
Subject: Request for Ultimate Traffic Data - Trafalgar Road, William Hanlon Parkway, Burnhampthorpe Road

Hi Matt,

I hope this email finds you well.

We are working on a transportation noise assessment for a proposed development in Oakville, in the areas shown on the map below:

Would you be able to provide ultimate traffic count data for the following?

- Trafalgar Road (Regional Road 3), north of Burnhamthorpe Road
- William Hanlon Parkway (Regional Road 40) at Trafalgar Road
- Burnhamthorpe Road (Regional Road 27) at Trafalgar Road, if applicable (note: the Halton Region website only highlights Burnhamthorpe Road west of Sixth Line, but I wanted to double check).

Please let me know if you have any questions or require anything further regarding this traffic count request.

Best regards,
Keni

SLR

Keni Mallinen, P.Eng.
Acoustic Engineer

O +1 226 706 8080
C +1 226 203 7385
E kmallinen@slrconsulting.com

SLR Consulting (Canada) Ltd.
100 Stone Road West, Suite 201, Guelph, ON N1G 5L3

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Prepared For: Halton Region

Prepared By: *PYRAMID* Traffic Inc.

Site ID: 100308

Location: REG. RD. #3 btwn Burnhamthorpe & Hwy 407 EB

Interval: 15 min.

Start Date: Tuesday Jun 5, 2018

Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary
0:15	34	22	
0:30	36	19	
0:45	30	9	
1:00	18	10	178
1:15	14	8	144
1:30	12	9	110
1:45	14	11	96
2:00	10	12	90
2:15	5	8	81
2:30	10	9	79
2:45	9	3	66
3:00	4	4	52
3:15	20	7	66
3:30	3	6	56
3:45	6	13	63
4:00	8	16	79
4:15	3	10	65
4:30	12	16	84
4:45	18	29	112
5:00	26	34	148
5:15	24	58	217
5:30	44	59	292
5:45	65	94	404
6:00	75	93	512
6:15	94	145	669
6:30	134	187	887
6:45	165	247	1140
7:00	201	336	1509
7:15	238	266	1774
7:30	312	352	2117
7:45	369	365	2439
8:00	325	398	2625
8:15	362	336	2819
8:30	322	363	2840
8:45	305	388	2799
9:00	257	350	2683
9:15	211	317	2513
9:30	181	291	2300
9:45	176	275	2058
10:00	166	196	1813
10:15	134	194	1613
10:30	138	166	1445
10:45	150	163	1307
11:00	139	168	1252
11:15	158	158	1240
11:30	150	174	1260
11:45	178	201	1326
12:00	180	158	1357

Period Ending	Channel 1 NB	Channel 2 SB	Hourly Summary
12:15	168	165	1374
12:30	167	172	1389
12:45	185	205	1400
13:00	159	199	1420
13:15	145	196	1428
13:30	164	208	1461
13:45	176	226	1473
14:00	196	212	1523
14:15	212	206	1600
14:30	219	243	1690
14:45	228	185	1701
15:00	259	230	1782
15:15	297	224	1885
15:30	315	249	1987
15:45	301	247	2122
16:00	385	252	2270
16:15	386	269	2404
16:30	395	281	2516
16:45	374	274	2616
17:00	431	324	2734
17:15	424	303	2806
17:30	416	333	2879
17:45	397	337	2965
18:00	389	328	2927
18:15	333	283	2816
18:30	314	275	2656
18:45	276	270	2468
19:00	202	228	2181
19:15	206	197	1968
19:30	192	190	1761
19:45	163	141	1519
20:00	170	117	1376
20:15	170	148	1291
20:30	154	147	1210
20:45	116	144	1166
21:00	114	133	1126
21:15	133	128	1069
21:30	118	121	1007
21:45	99	112	958
22:00	93	63	867
22:15	100	77	783
22:30	101	79	724
22:45	86	74	673
23:00	66	60	643
23:15	74	57	597
23:30	70	53	540
23:45	82	43	505
0:00	52	23	454

Period	Total	Percent of Total (%)
Day	28579	90%
Night	3022	10%
Total	**31601**	**100%**

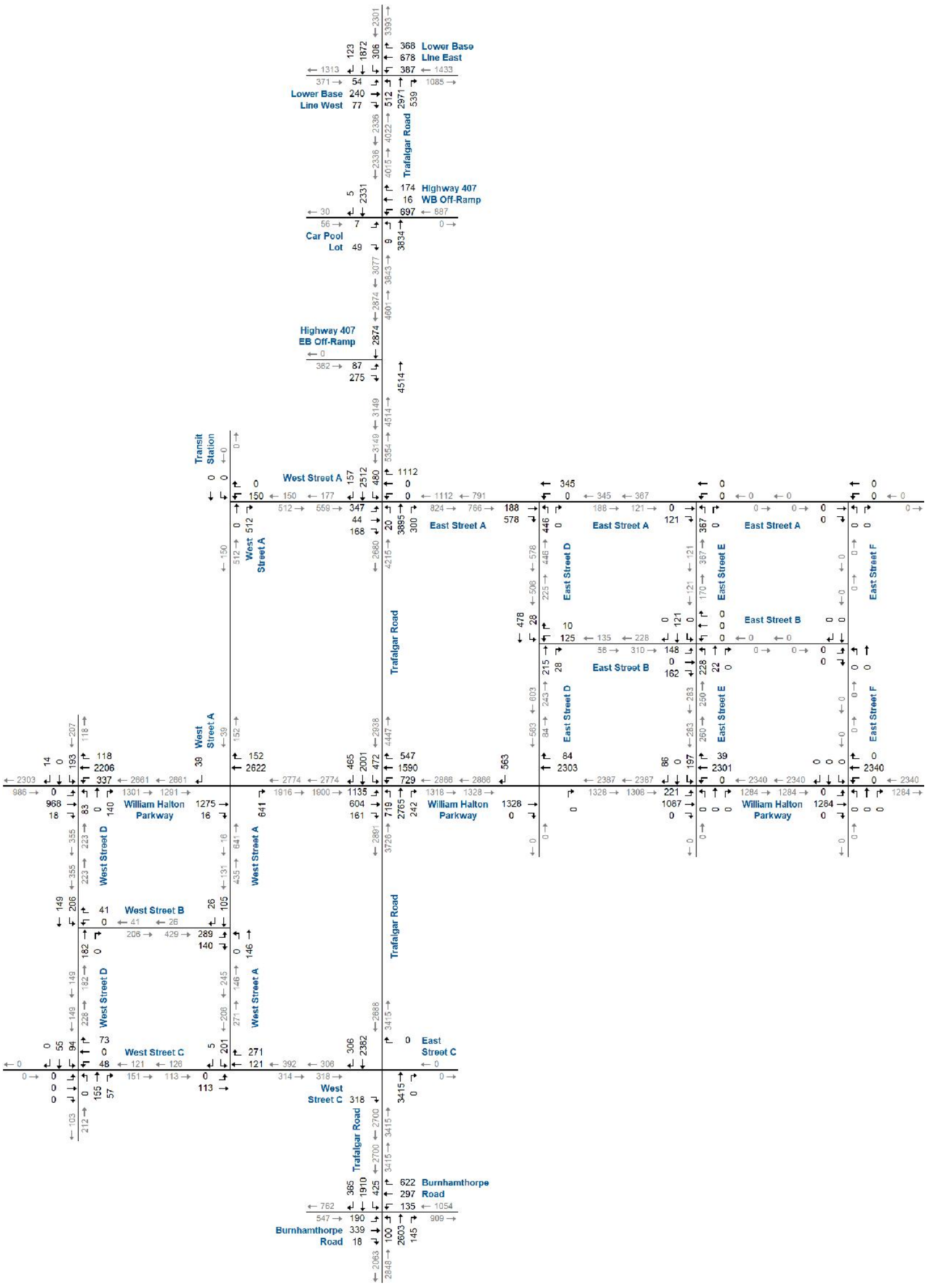
AM Peak: 2840 PM Peak: 2965 24 HR VOLUME: 31601

Data From Halton Region:

Master Station	Description	Count date	total vol	ampk end	ampk vol	off pk end	offpk vol	pm pk end	pkhr vol
100308	Trafalgar Road - between Burnhamthorpe Road & Hwy 407 EB Off-Ramp	18-May-21	22,908	8:45	1,494	13:45	1,335	17:30	2,069

8hr vol	13hr vol	posted speed (km)	50% speed (km)	avg (km)	85percent.	Variance	exceeding (%)	#cars	# sml trk	med trk/bu	# hvy trk
12,534	18,981	80	70	78	92.30	12.30	44.30%	21,255	331	542	688

% cars	% smal trk	% med trk/bus	% hvy trk	headway max (sec)	headway min (sec)	temp min (C)	Temp max (C)	surface
93.2%	1.5%	2.4%	3.0%	1.61	100.00	15	45	Dry



NTS

Scenario B 2041 Total Traffic Volumes – PM Peak Hour

IO Trafalgar & 407 Oakville, ON TIS
210156/210157

Figure 4.6B

Table 3. Road Traffic Data

Traffic Noise Source	Existing		Future "No Project"						Future "With Project"				
	Year 2011		Year 2021		Year 2031		Truck Percentage (% AADT)		HOV Lanes, Year 2021		BRT Lanes, Year 2031		Total Truck Percentage (% AADT)
	AADT	*Posted Speed Limit (km/h)*	*AADT*	*Posted Speed Limit (km/h)*	*AADT*	*Posted Speed Limit (km/h)*	*Medium Trucks*	*Heavy Trucks*	*AADT*	*Posted Speed Limit (km/h)*	*AADT*	*Posted Speed Limit (km/h)*	
Trafalgar Rd, Leighland Ave to McCraney St	37038	60	40169	60	43300	60	1.1	1.9	37474	60	39488	60	3-5[1a, 2]
Trafalgar Rd, McCraney St to Marlborough Ct	31275	60	35348	60	39600	60	2.0	2.0	34286	60	35400	60	3-5[1a, 2]
Trafalgar Rd, Marlborough Ct to Ceremonial Dr	29025	60	32563	60	36100	60	1.8	3.3	31109	60	31125	60	3-5[1a, 2]
Trafalgar Rd, Ceremonial Dr to Sheridan Access N.	24625	60	30913	60	37200	60	1.9	3.2	31396	60	30550	60	3-5[1a, 2]
Trafalgar Rd, Sheridan Access N. to Upper Middle Rd	33100	60	35250	60	37400	60	6.1	1.0	33548	60	32263	60	3-5[1a, 2]
Trafalgar Rd, Upper Middle Rd to River Oaks Blvd	24925	60	28813	60	32700	60	3.9	2.6	31591	60	29263	60	3-5[1a, 2]
Trafalgar Rd, River Oaks Blvd to Glenashton Dr	25375	60	30188	60	35000	60	2.8	2.9	29223	60	28038	60	3-5[1a, 2]
Trafalgar Rd, Glenashton Dr to Rosegate Way	24400	60	29500	60	34600	60	2.8	2.9	26496	60	25900	60	3-5[1a, 2]
Trafalgar Rd, Rosegate Way to Oak Park Blvd	26775	60	30188	60	33600	60	2.8	2.9	21300	60	18738	60	3-5[1a, 2]
Trafalgar Rd, Oak Park Blvd to Dundas St	20450	60	25925	60	31400	60	2.5	4.1	28977	60	23225	60	3-5[1a, 2]
BRT Lanes, McCraney St to Dundas St	-	-	-	-	-	-	-	-	-	-	600	60	100[1b, 3]
HOV Lanes, McCraney St to Marlborough Ct	-	-	-	-	-	-	-	-	3763	60	-	-	6.3[1a]
HOV Lanes, Marlborough Ct to Ceremonial Dr	-	-	-	-	-	-	-	-	3415	60	-	-	6.3[1a]
HOV Lanes, Ceremonial Dr to Sheridan Access N.	-	-	-	-	-	-	-	-	3446	60	-	-	6.3[1a]
HOV Lanes, Sheridan Access N. to Upper Middle Rd	-	-	-	-	-	-	-	-	3682	60	-	-	6.3[1a]
HOV Lanes, Upper Middle Rd to River Oaks Blvd	-	-	-	-	-	-	-	-	3468	60	-	-	6.3[1a]
HOV Lanes, River Oaks Blvd to Glenashton Dr	-	-	-	-	-	-	-	-	3208	60	-	-	6.3[1a]
HOV Lanes, Glenashton Dr to Rosegate Way	-	-	-	-	-	-	-	-	2908	60	-	-	6.3[1a]
HOV Lanes, Rosegate Way to Oak Park Blvd	-	-	-	-	-	-	-	-	2338	60	-	-	6.3[1a]
HOV Lanes, Oak Park Blvd to Dundas St	-	-	-	-	-	-	-	-	3181	60	-	-	6.3[1a]
Leighland Ave/Iroquois Shore Rd	10750	50	18175	50	23700	50	1.0	0.9	12713	50	10338	50	2-4[1a, 2]
McCraney St/White Oaks Blvd S.	8388	50	7994	50	7600	50	1.0	3.0	4188	50	4013	50	3-6[1a, 2]
Marlborough Ct	1200	50	1911	50	2600	50	5.2	5.2	1925	50	1763	50	3-6[1a, 2, 4]
Ceremonial Dr	388	20	894	20	1400	20	0.0	3.2	988	20	975	20	3-6[1a, 2, 4]
Sheridan Access N. / White Oaks Blvd N.	2625	50	3613	50	4600	50	1.4	7.1	2113	50	1413	50	3-6[1a, 2]
Upper Middle Rd	22325	60	21013	50	19700	50	0.6	1.5	19150	50	23538	50	2-4[1a, 2]
River Oaks Blvd	1213	50	1606	50	2000	50	1.0	5.2	925	50	338	50	2-5[1a, 2, 5]
Glenashton Dr	5763	50	6431	50	6500	50	3.3	2.2	11613	50	10350	50	2-5[1a, 2]
Rosegate Way	3538	50	3169	50	2800	50	2.5	1.1	4550	50	4875	50	2-5[1a, 2, 5]
Oak Park Blvd	10150	50	8225	50	6300	50	1.8	2.6	3738	50	2675	50	2-5[1a, 2, 5]
Dundas St	29013	80	29506	80	29800	80	2.7	2.0	19588	80	16300	80	2-5[1a, 2, 5]

Notes to Table 3:

1. Assumed day/night % of AADT traffic split of
   a. 90%/10%
   b. 100%/0%
2. Assumed medium and heavy trucks distributed as follows:
   - % medium trucks = 5/13 x Total Truck Percentage
   - % heavy Trucks = 8/13 x Total Truck Percentage
3. Assumed 100% medium trucks/buses
4. Assumed same medium and heavy truck percentages as McCraney Street/White Oaks Blvd South
5. Assumed same medium and heavy truck percentages as Glenashton Drive

Transportation Noise (Day/Night):

O R N A M E N T - Sound Power Emissions & Source Heights

Ontario Road Noise Analysis Method for Environment and Transportation

Road Segment ID	Roadway Name	Link Description	Speed (kph)	Period (h)	Total Traffic Volumes	Auto %	Med %	Hvy %	Auto	Med	Heavy	Road Gradient (%)	Cadna/A Ground Absorption G	PWL (dBA)	Source Height, s (m)	Reference Leq (dBA)
Trafalgar_NB_avg	Trafalgar Road - Northbound	Daytime Impacts	80	16	18450	91.6%	4.8%	3.7%	16898	878	675	0	0.00	**87.8**	**1.4**	**72.8**
		Nighttime Impacts	80	8	2050	91.6%	4.8%	3.7%	1878	98	75	0	0.00	**81.3**	**1.4**	**66.2**
Trafalgar_SB_avg	Trafalgar Road - Southbound	Daytime Impacts	80	16	18450	91.6%	4.8%	3.7%	16898	878	675	0	0.00	**87.8**	**1.4**	**72.8**
		Nighttime Impacts	80	8	2050	91.6%	4.8%	3.7%	1878	98	75	0	0.00	**81.3**	**1.4**	**66.2**
Trafalgar_HOV_NB_avg	Trafalgar Road HOV - Northbound	Daytime Impacts	80	16	4050	93.3%	6.7%	0.0%	3780	270	0	0	0.00	**79.3**	**0.5**	**64.3**
		Nighttime Impacts	80	8	450	93.3%	6.7%	0.0%	420	30	0	0	0.00	**72.8**	**0.5**	**57.7**
Trafalgar_HOV_SB_avg	Trafalgar Road HOV - Southbound	Daytime Impacts	80	16	4050	93.3%	6.7%	0.0%	3780	270	0	0	0.00	**79.3**	**0.5**	**64.3**
		Nighttime Impacts	80	8	450	93.3%	6.7%	0.0%	420	30	0	0	0.00	**72.8**	**0.5**	**57.7**
William_Halton_avg	William Halton Parkway	Daytime Impacts	60	16	31500	94.0%	4.0%	2.0%	29610	1260	630	0	0.00	**86.3**	**1.2**	**71.2**
		Nighttime Impacts	60	8	3500	94.0%	4.0%	2.0%	3290	140	70	0	0.00	**79.7**	**1.2**	**64.6**
Burnhamthorpe_avg	Burnhamthorpe Road East	Daytime Impacts	60	16	12271	98.0%	1.0%	1.0%	12025	123	123	0	0.00	**80.3**	**1.0**	**65.2**
		Nighttime Impacts	60	8	1363	98.0%	1.0%	1.0%	1336	14	14	0	0.00	**73.8**	**1.0**	**58.7**
407_Transitway_avg	407 Transitway Bus Traffic	Daytime Impacts	100	16	418	0.0%	100.0%	0.0%	0	418	0	0	0.00	**80.2**	**0.5**	**65.1**
		Nighttime Impacts	100	8	46	0.0%	100.0%	0.0%	0	46	0	0	0.00	**73.7**	**0.5**	**58.6**
Hwy407_EB_avg	Highway 407 - Eastbound	Daytime Impacts	100	16	40800	88.0%	6.0%	6.0%	35904	2448	2448	0	0.00	**94.5**	**1.6**	**79.4**
		Nighttime Impacts	100	8	7200	88.0%	6.0%	6.0%	6336	432	432	0	0.00	**90.0**	**1.6**	**74.9**
Hwy407_WB_avg	Highway 407 - Westbound	Daytime Impacts	100	16	40800	88.0%	6.0%	6.0%	35904	2448	2448	0	0.00	**94.5**	**1.6**	**79.4**
		Nighttime Impacts	100	8	7200	88.0%	6.0%	6.0%	6336	432	432	0	0.00	**90.0**	**1.6**	**74.9**

Appendix C
STAMSON Output File

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

Compatibility & Mitigation Study

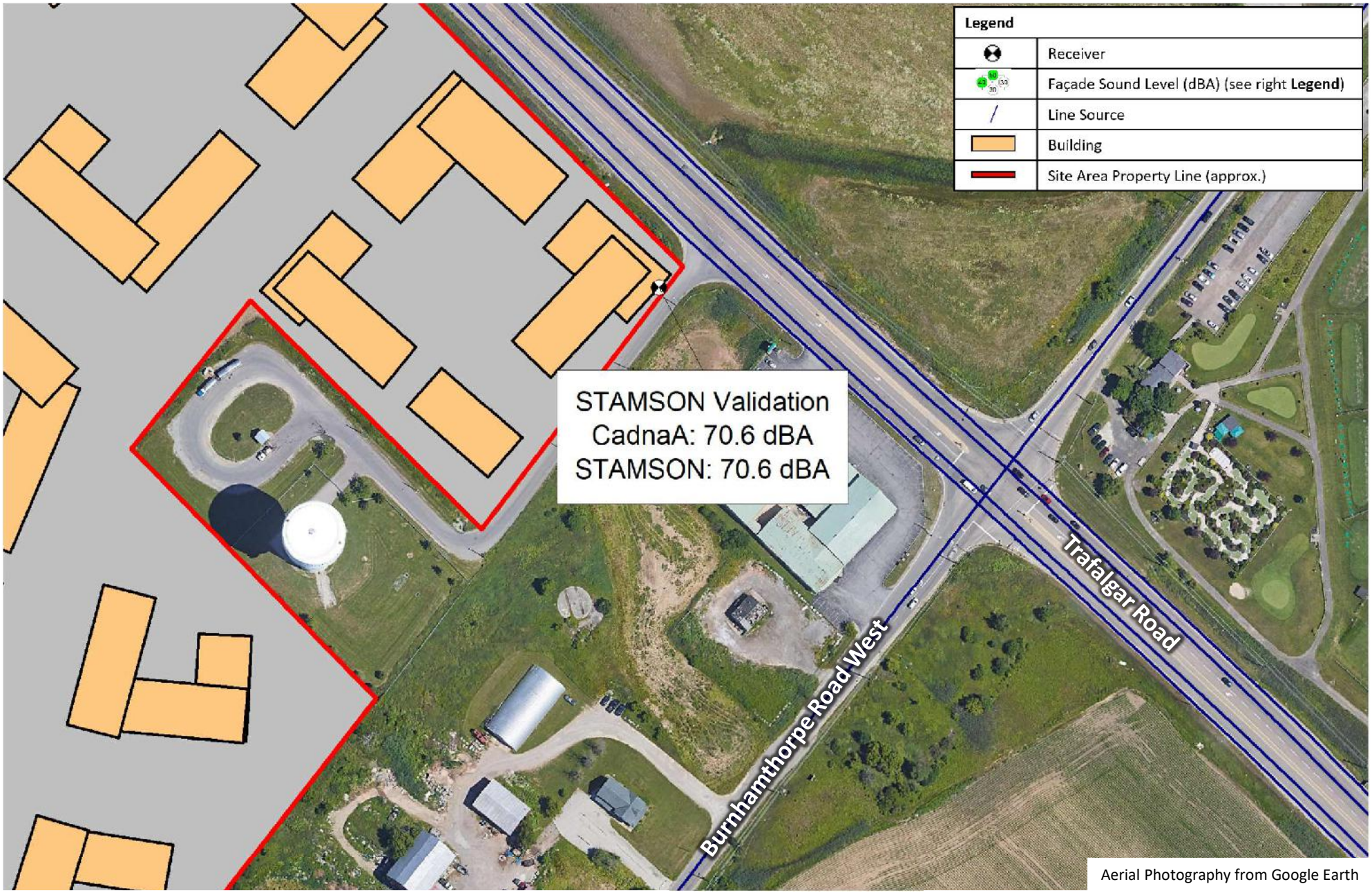
SLR Project No.: 241.30464.00000

```
STAMSON 5.04        NORMAL REPORT        Date: 09-03-2022 21:00:20
MINISTRY OF ENVIRONMENT CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: ST5val.te            Time Period: 16 hours
Description: STAMSON Validation File - Sample Calculation

Road data, segment # 1: Traf NB
-------------------------------
Car traffic volume  : 16898 veh/TimePeriod
Medium truck volume :   878 veh/TimePeriod
Heavy truck volume  :   675 veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: Traf NB
-----------------------------
Angle1   Angle2           :  -5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  38.70 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Traf SB
-------------------------------
Car traffic volume  : 16898 veh/TimePeriod
Medium truck volume :   878 veh/TimePeriod
Heavy truck volume  :   675 veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: Traf SB
-----------------------------
Angle1   Angle2           :  -5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  26.40 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Traf HOV NB
-----------------------------------
Car traffic volume  :  3780 veh/TimePeriod
Medium truck volume :   270 veh/TimePeriod
Heavy truck volume  :     0 veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: Traf HOV NB
---------------------------------
Angle1   Angle2           :  -5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  43.80 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 4: Traf HOV SB
-----------------------------------
Car traffic volume  :  3780 veh/TimePeriod
Medium truck volume :   270 veh/TimePeriod
Heavy truck volume  :     0 veh/TimePeriod
Posted speed limit  :    80 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 4: Traf HOV SB
---------------------------------
Angle1   Angle2           :  -5.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  21.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 5: Bnhamthorpe
-----------------------------------
Car traffic volume  : 12025 veh/TimePeriod
Medium truck volume :   123 veh/TimePeriod
Heavy truck volume  :   123 veh/TimePeriod
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

```
Data for Segment # 5: Bnhamthorpe
---------------------------------
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  : 148.50 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: Traf NB
----------------------------

Source height = 1.38 m

ROAD (0.00 + 65.88 + 0.00) = 65.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
    -5     90   0.00  72.77   0.00  -4.12  -2.78   0.00   0.00   0.00  65.88
--------------------------------------------------------------------------------

Segment Leq : 65.88 dBA

Results segment # 2: Traf SB
----------------------------

Source height = 1.38 m

ROAD (0.00 + 67.54 + 0.00) = 67.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
    -5     90   0.00  72.77   0.00  -2.46  -2.78   0.00   0.00   0.00  67.54
--------------------------------------------------------------------------------

Segment Leq : 67.54 dBA

Results segment # 3: Traf HOV NB
--------------------------------

Source height = 0.50 m

ROAD (0.00 + 56.84 + 0.00) = 56.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------------
    -5     90   0.00  64.27   0.00  -4.65  -2.78   0.00   0.00   0.00  56.84
--------------------------------------------------------------------------------

Segment Leq : 56.84 dBA
```

```
Results segment # 4: Traf HOV SB
--------------------------------

Source height = 0.50 m

ROAD (0.00 + 60.03 + 0.00) = 60.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------
    -5     90   0.00  64.27   0.00  -1.46  -2.78   0.00   0.00   0.00  60.03
--------------------------------------------------------------------------

Segment Leq : 60.03 dBA

Results segment # 5: Bnhamthorpe
--------------------------------

Source height = 1.00 m

ROAD (0.00 + 55.28 + 0.00) = 55.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
--------------------------------------------------------------------------
   -90     90   0.00  65.23   0.00  -9.96   0.00   0.00   0.00   0.00  55.28
--------------------------------------------------------------------------

Segment Leq : 55.28 dBA

Total Leq All Segments: 70.56 dBA

TOTAL Leq FROM ALL SOURCES:       70.56
```



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:2000	METRES	
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 21, 2022 Rev 0.0	Figure No. **C1**	SLR global environmental solutions
COMPARISON OF CADNA/A AND STAMSON – ROAD NOISE		Project No. 241.30464.00000		

Appendix D
Transportation Noise Assessment Summary

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

Compatibility & Mitigation Study

SLR Project No.: 241.30464.00000

Appendix D – Summary of Worst-Case Transportation Façade Sound Levels – All Buildings

The following table (**Table D1**) summarizes the maximum predicted sound levels at each building, and the façade on which it is predicted to occur.

Table D1: Summary of Transportation Facade Sound Levels for All Buildings

Assessment Location	Building Height (Storeys)	Worst-Case Facade [1]	Roadway Sound Levels [1]	
			L_{eq} Day (dBA)	L_{eq} Night (dBA)
Block 1A-1	4	South	64	57
Block 1A-2	8	West	72	66
Block 1A-3	25	West	70	64
Block 1B-1	4	North / West	71	66
Block 1B-2	8	North	70	65
Block 1B-3	25	North / West	69	64
Block 1C	9	North	68	63
Block 1D	9	North	69	65
Block 1E	9	North	70	66
Block 2A-1	8	North	67	62
Block 2A-2	6	North	57	51
Block 2B-1	4	South	62	56
Block 2B-2	8	North	69	64
Block 2B-3	12	East	74	68
Block 2B-4	25	East	70	64
Block 2C-1	4	East	58	51
Block 2C-2	8	West	63	58
Block 2C-3	12	South	70	63
Block 2D-1	4	North	62	56
Block 2D-2	8	South	70	64
Block 2D-3	12	East	74	68
Block 2D-4	25	East	70	63
Block 3A-1	8	North	67	61
Block 3A-2	8	South	64	57
Block 3A-3	12	West	73	67
Block 3A-4	25	West	70	64

Assessment Location	Building Height (Storeys)	Worst-Case Facade [1]	Roadway Sound Levels [1]	
			L_{eq} Day (dBA)	L_{eq} Night (dBA)
Block 3B-1	4	West / South	59	52
Block 3B-2	8	South	57	51
Block 3B-3	8	North	64	58
Block 3B-4	25	North	65	60
Block 3C-1	8	North	64	58
Block 3C-2	8	South	70	64
Block 3C-3	12	West	73	67
Block 3C-4	25	West	70	63
Block 3D-1	4	West	59	52
Block 3D-2	8	East	61	54
Block 3D-3	8	South	70	64
Block 3D-4	18	South	67	60
Block 4A-1	6	North	60	56
Block 4A-2	6	North	57	52
Block 4A-3	12	North	63	58
Block 4B	8	East	66	61
Block 4C	8	East	64	59
Block 5A-1	4	South	69	63
Block 5A-2	6	North	56	51
Block 5A-3	8	South	67	61
Block 5B-1	4	East	64	59
Block 5B-2	8	East	62	56
Block 5C	4	South	69	63
Block 6A-1	4	East	57	51
Block 6A-2	8	West	61	55
Block 6A-3	12	North	69	63
Block 6B-1	4	North	71	64
Block 6B-2	8	East	75	68
Block 6B-3	25	East	71	64
Block 6C-1	8	East	56	49

Assessment Location	Building Height (Storeys)	Worst-Case Facade [1]	Roadway Sound Levels [1]	
			L_{eq} Day (dBA)	L_{eq} Night (dBA)
Block 6C-2	9	East / South	59	53
Block 6C-3	12	North	59	53
Block 6D-1	6	East	68	61
Block 6D-2	12	East	74	68
Block 7A-1	4	North	59	52
Block 7A-2	8	East / South	60	53
Block 7B-1	6	East	74	68
Block 7B-2	12	East	74	68
Block 7C	8	East / South	65	58
Block 7D-1	12	East	74	68
Block 7D-2	8	South	66	59
Block 8A-1	4	North	66	61
Block 8A-2	6	West	66	60
Block 8A-3	8	South	69	63
Block 8B-1	4	North	65	60
Block 8B-2	6	North	64	59
Block 8B-3	10	South	69	63
Block 8B-4	12	South	65	59
Block 9A-1	8	West	64	58
Block 9A-2	12	North	69	62
Block 9B-1	4	West	58	51
Block 9B-2	4	East	60	55
Block 9B-3	8	East	66	60
Block 9B-4	12	North	69	63
Block 9C-1	6	North / West	61	55
Block 9C-2	8	North / West	60	55
Block 9D	8	North	55	49
Block 10A-1	6	North	59	54
Block 10A-2	8	North	60	55
Block 10B-1	4	East	45	40

Assessment Location	Building Height (Storeys)	Worst-Case Facade [1]	Roadway Sound Levels [1]	
			L_{eq} Day (dBA)	L_{eq} Night (dBA)
Block 10B-2	8	North / East / West	52	48
Block 10C-1	4	East	58	52
Block 10C-2	6	North	51	46
Block 10C-3	8	South	58	51
Block 10C-4	9	East	58	52
Block 10D-1	4	East	47	42
Block 10D-2	8	North / West	56	51
Block 10D-3	10	North	57	53
Block 11A-1	8	South	61	54
Block 11A-2	9	North / East / South	58	53
Block 11B-1	6	South	61	55
Block 11B-2	8	East / South	59	53
Block 11B-3	9	East / South	59	52

Appendix D – Summary of Worst-Case Transportation OLA Sound Levels – All Buildings

The following table (**Table D2**) summarizes the maximum predicted OLA sound levels at each building based on assumed common rooftop amenity terraces atop all development buildings.

Table D2: Summary of Transportation OLA Sound Levels and Mitigation Requirements

Building	OLA Assessment Location	L_{eq} Day (dBA)	Meets Maximum Criteria? [1],[2] (Yes/No)
Block 1A-1	OLA_1A-1	60	Y
Block 1A-2	OLA_1A-2	67	N
Block 1A-3	OLA_1A-3	62	N
Block 1B-1	OLA_1B-1	69	N
Block 1B-2	OLA_1B-2	63	N
Block 1B-3	OLA_1B-3	63	N
Block 1C	OLA_1C	64	N
Block 1D	OLA_1D	64	N
Block 1E	OLA_1E	66	N
Block 2A-1	OLA_2A-1	64	N
Block 2A-2	OLA_2A-2	54	Y
Block 2B-1	OLA_2B-1	56	Y
Block 2B-2	OLA_2B-2	65	N
Block 2B-3	OLA_2B-3	60	Y
Block 2B-4	OLA_2B-4	61	N
Block 2C-1	OLA_2C-1	55	Y
Block 2C-2	OLA_2C-2	61	N
Block 2C-3	OLA_2C-3	62	N
Block 2D-1	OLA_2D-1	55	Y
Block 2D-2	OLA_2D-2	58	Y
Block 2D-3	OLA_2D-3	61	N
Block 2D-4	OLA_2D-4	60	Y
Block 3A-1	OLA_3A-1	62	N
Block 3A-2	OLA_3A-2	56	Y
Block 3A-3	OLA_3A-3	61	N
Block 3A-4	OLA_3A-4	61	N

Building	OLA Assessment Location	L_{eq} Day (dBA)	Meets Maximum Criteria? [1],[2] (Yes/No)
Block 3B-1	OLA_3B-1	56	Y
Block 3B-2	OLA_3B-2	55	Y
Block 3B-3	OLA_3B-3	62	N
Block 3B-4	OLA_3B-4	61	N
Block 3C-1	OLA_3C-1	57	Y
Block 3C-2	OLA_3C-2	61	N
Block 3C-3	OLA_3C-3	61	N
Block 3C-4	OLA_3C-4	61	N
Block 3D-1	OLA_3D-1	56	Y
Block 3D-2	OLA_3D-2	57	Y
Block 3D-3	OLA_3D-3	60	Y
Block 3D-4	OLA_3D-4	62	N
Block 4A-1	OLA_4A-1	58	Y
Block 4A-2	OLA_4A-2	57	Y
Block 4A-3	OLA_4A-3	62	N
Block 4B	OLA_4B	63	N
Block 4C	OLA_4C	62	N
Block 5A-1	OLA_5A-1	61	N
Block 5A-2	OLA_5A-2	57	Y
Block 5A-3	OLA_5A-3	60	Y
Block 5B-1	OLA_5B-1	62	N
Block 5B-2	OLA_5B-2	61	N
Block 5C	OLA_5C	61	N
Block 6A-1	OLA_6A-1	52	Y
Block 6A-2	OLA_6A-2	53	Y
Block 6A-3	OLA_6A-3	58	Y
Block 6B-1	OLA_6B-1	61	N
Block 6B-2	OLA_6B-2	64	N
Block 6B-3	OLA_6B-3	61	N
Block 6C-1	OLA_6C-1	55	Y

Building	OLA Assessment Location	L_{eq} Day (dBA)	Meets Maximum Criteria? [1],[2] (Yes/No)
Block 6C-2	OLA_6C-2	56	Y
Block 6C-3	OLA_6C-3	58	Y
Block 6D-1	OLA_6D-1	55	Y
Block 6D-2	OLA_6D-2	60	Y
Block 7A-1	OLA_7A-1	56	Y
Block 7A-2	OLA_7A-2	57	Y
Block 7B-1	OLA_7B-1	57	Y
Block 7B-2	OLA_7B-2	60	Y
Block 7C	OLA_7C	60	Y
Block 7D-1	OLA_7D-1	60	Y
Block 7D-2	OLA_7D-2	60	Y
Block 8A-1	OLA_8A-1	65	N
Block 8A-2	OLA_8A-2	65	N
Block 8A-3	OLA_8A-3	64	N
Block 8B-1	OLA_8B-1	65	N
Block 8B-2	OLA_8B-2	64	N
Block 8B-3	OLA_8B-3	62	N
Block 8B-4	OLA_8B-4	62	N
Block 9A-1	OLA_9A-1	58	Y
Block 9A-2	OLA_9A-2	63	N
Block 9B-1	OLA_9B-1	45	Y
Block 9B-2	OLA_9B-2	46	Y
Block 9B-3	OLA_9B-3	53	Y
Block 9B-4	OLA_9B-4	62	N
Block 9C-1	OLA_9C-1	60	Y
Block 9C-2	OLA_9C-2	59	Y
Block 9D	OLA_9D	55	Y
Block 10A-1	OLA_10A-1	56	Y
Block 10A-2	OLA_10A-2	59	Y
Block 10B-1	OLA_10B-1	45	Y

Building	OLA Assessment Location	L_{eq} Day (dBA)	Meets Maximum Criteria? [1],[2] (Yes/No)
Block 10B-2	OLA_10B-2	55	Y
Block 10C-1	OLA_10C-1	50	Y
Block 10C-2	OLA_10C-2	53	Y
Block 10C-3	OLA_10C-3	57	Y
Block 10C-4	OLA_10C-4	57	Y
Block 10D-1	OLA_10D-1	49	Y
Block 10D-2	OLA_10D-2	57	Y
Block 10D-3	OLA_10D-3	59	Y
Block 11A-1	OLA_11A-1	59	Y
Block 11A-2	OLA_11A-2	60	Y
Block 11B-1	OLA_11B-1	59	Y
Block 11B-2	OLA_11B-2	57	Y
Block 11B-3	OLA_11B-3	59	Y

Notes: [1] Maximum permitted sound level is 60 dBA with mitigation and a **Type B** warning clause (if the sound level is between 56 dBA and 60 dBA inclusive).

Sound levels between 56 dBA and 60 dBA inclusive without a barrier require a **Type A** warning clause.

Sound levels below 55 dBA do not require mitigation or warning clauses.

[2] Further assessment will be required for OLAs that do not meet the maximum criteria at the detailed design stage of the planning and development process, to determine sound barrier requirements.

Appendix D – Summary of Worst-Case Façade Requirements– All Buildings

The following table (**Table D3**) summarizes the worst-case required façade sound transmission class (STC) requirements.

Table D3: Summary of Required Façade Sound Transmission Class (STC) Requirements

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
Block 1	Block 1A-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 1A-2	West	45	30	32	33	35	OBC
	Block 1A-3	West	45	OBC	30	31	33	OBC
	Block 1B-1	North / West	45	OBC	31	32	34	OBC
	Block 1B-2	North	45	OBC	30	31	33	OBC
	Block 1B-3	North / West	45	OBC	OBC	30	32	OBC
	Block 1C	North	45	OBC	OBC	OBC	31	OBC
	Block 1D	North	45	OBC	OBC	30	32	OBC
	Block 1E	North	45	OBC	30	31	33	OBC
Block 2	Block 2A-1	North	45	OBC	OBC	OBC	30	OBC
	Block 2A-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 2B-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 2B-2	North	45	OBC	OBC	30	32	OBC
	Block 2B-3	East	45	32	35	35	38	OBC
	Block 2B-4	East	45	OBC	30	31	33	OBC
	Block 2C-1	East	45	OBC	OBC	OBC	OBC	OBC

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
	Block 2C-2	West	45	OBC	OBC	OBC	OBC	OBC
	Block 2C-3	South	45	OBC	30	31	33	OBC
	Block 2D-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 2D-2	South	45	OBC	30	31	33	OBC
	Block 2D-3	East	45	32	35	35	38	OBC
	Block 2D-4	East	45	OBC	30	31	33	OBC
Block 3	Block 3A-1	North	45	OBC	OBC	OBC	30	OBC
	Block 3A-2	South	45	OBC	OBC	OBC	OBC	OBC
	Block 3A-3	West	45	31	34	34	37	OBC
	Block 3A-4	West	45	OBC	30	31	33	OBC
	Block 3B-1	West / South	45	OBC	OBC	OBC	OBC	OBC
	Block 3B-2	South	45	OBC	OBC	OBC	OBC	OBC
	Block 3B-3	North	45	OBC	OBC	OBC	OBC	OBC
	Block 3B-4	North	45	OBC	OBC	OBC	OBC	OBC
	Block 3C-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 3C-2	South	45	OBC	30	31	33	OBC
	Block 3C-3	West	45	31	34	34	37	OBC
	Block 3C-4	West	45	OBC	30	31	33	OBC
	Block 3D-1	West	45	OBC	OBC	OBC	OBC	OBC
	Block 3D-2	East	45	OBC	OBC	OBC	OBC	OBC

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
	Block 3D-3	South	45	OBC	30	31	33	OBC
	Block 3D-4	South	45	OBC	OBC	OBC	30	OBC
Block 4	Block 4A-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 4A-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 4A-3	North	45	OBC	OBC	OBC	OBC	OBC
	Block 4B	East	45	OBC	OBC	OBC	OBC	OBC
	Block 4C	East	45	OBC	OBC	OBC	OBC	OBC
Block 5	Block 5A-1	South	45	OBC	OBC	30	32	OBC
	Block 5A-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 5A-3	South	45	OBC	OBC	OBC	30	OBC
	Block 5B-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 5B-2	East	45	OBC	OBC	OBC	OBC	OBC
	Block 5C	South	45	OBC	OBC	30	32	OBC
Block 6	Block 6A-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 6A-2	West	45	OBC	OBC	OBC	OBC	OBC
	Block 6A-3	North	45	OBC	OBC	30	32	OBC
	Block 6B-1	North	45	OBC	31	32	34	OBC
	Block 6B-2	East	45	33	36	36	39	OBC
	Block 6B-3	East	45	OBC	31	32	34	OBC
	Block 6C-1	East	45	OBC	OBC	OBC	OBC	OBC

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
	Block 6C-2	East / South	45	OBC	OBC	OBC	OBC	OBC
	Block 6C-3	North	45	OBC	OBC	OBC	OBC	OBC
	Block 6D-1	East	45	OBC	OBC	OBC	31	OBC
	Block 6D-2	East	45	32	35	35	38	OBC
Block 7	Block 7A-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 7A-2	East / South	45	OBC	OBC	OBC	OBC	OBC
	Block 7B-1	East	45	32	35	35	38	OBC
	Block 7B-2	East	45	32	35	35	38	OBC
	Block 7C	East / South	45	OBC	OBC	OBC	OBC	OBC
	Block 7D-1	East	45	32	35	35	38	OBC
	Block 7D-2	South	45	OBC	OBC	OBC	OBC	OBC
Block 8	Block 8A-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 8A-2	West	45	OBC	OBC	OBC	OBC	OBC
	Block 8A-3	South	45	OBC	OBC	30	32	OBC
	Block 8B-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 8B-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 8B-3	South	45	OBC	OBC	30	32	OBC
	Block 8B-4	South	45	OBC	OBC	OBC	OBC	OBC
Block 9	Block 9A-1	West	45	OBC	OBC	OBC	OBC	OBC
	Block 9A-2	North	45	OBC	OBC	30	32	OBC

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
	Block 9B-1	West	45	OBC	OBC	OBC	OBC	OBC
	Block 9B-2	East	45	OBC	OBC	OBC	OBC	OBC
	Block 9B-3	East	45	OBC	OBC	OBC	OBC	OBC
	Block 9B-4	North	45	OBC	OBC	30	32	OBC
	Block 9C-1	North / West	45	OBC	OBC	OBC	OBC	OBC
	Block 9C-2	North / West	45	OBC	OBC	OBC	OBC	OBC
	Block 9D	North	45	OBC	OBC	OBC	OBC	OBC
Block 10	Block 10A-1	North	45	OBC	OBC	OBC	OBC	OBC
	Block 10A-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 10B-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 10B-2	North / East / West	45	OBC	OBC	OBC	OBC	OBC
	Block 10C-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 10C-2	North	45	OBC	OBC	OBC	OBC	OBC
	Block 10C-3	South	45	OBC	OBC	OBC	OBC	OBC
	Block 10C-4	East	45	OBC	OBC	OBC	OBC	OBC
	Block 10D-1	East	45	OBC	OBC	OBC	OBC	OBC
	Block 10D-2	North / West	45	OBC	OBC	OBC	OBC	OBC
	Block 10D-3	North	45	OBC	OBC	OBC	OBC	OBC
Block 11	Block 11A-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 11A-2	North / East / South	45	OBC	OBC	OBC	OBC	OBC

Block	Building	Worst-Case Facade	STC Rating - Non-Glazing Component	Glazing Requirements[1]				
				Living/Dining Room	Bedroom	Corner Living/Dining Room	Corner Bedroom	Corner Office
	Block 11B-1	South	45	OBC	OBC	OBC	OBC	OBC
	Block 11B-2	East / South	45	OBC	OBC	OBC	OBC	OBC
	Block 11B-3	East / South	45	OBC	OBC	OBC	OBC	OBC

Notes: [1] OBC = meets minimum structural and thermal requirements of the Ontario Building Code, meeting a rating of STC 29.

Appendix E
Detailed Façade Calculations

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

Compatibility & Mitigation Study

SLR Project No.: 241.30464.00000

Appendix E – Detailed Façade Calculations

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

IO Trafalgar, Oakville - 241.30464.00000

		Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
Receptor ID	Source Description	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	Require Glazing STC (STC)
DAYTIME - BEDROOMS														
Block 1A-2 - MAX	Roadways, Daytime	72	45	50%	2.8	3.0	3.0	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 operable thick window	32
Block 1A-3 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 1B-1 - MAX	Roadways, Daytime	71	45	50%	2.8	3.0	3.0	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 operable thick window	31
Block 1B-2 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 1B-3 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 1C - MAX	Roadways, Daytime	68	45	50%	2.8	3.0	3.0	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 operable thick window	28
Block 1D - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 1E - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 2A-1 - MAX	Roadways, Daytime	67	45	50%	2.8	3.0	3.0	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 operable thick window	27
Block 2B-2 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 2C-3 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	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 operable thick window	35
Block 2B-4 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 2C-3 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 2D-2 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 2D-3 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	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 operable thick window	35
Block 2D-4 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 3A-1 - MAX	Roadways, Daytime	67	45	50%	2.8	3.0	3.0	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 operable thick window	27
Block 3A-3 - MAX	Roadways, Daytime	73	45	50%	2.8	3.0	3.0	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 operable thick window	34
Block 3A-4 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 3C-2 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 3C-3 - MAX	Roadways, Daytime	73	45	50%	2.8	3.0	3.0	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 operable thick window	34
Block 3C-4 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 3D-3 - MAX	Roadways, Daytime	70	45	50%	2.8	3.0	3.0	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 operable thick window	30
Block 3D-4 - MAX	Roadways, Daytime	67	45	50%	2.8	3.0	3.0	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 operable thick window	27
Block 4D - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	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 operable thick window	26
Block 5A-1 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 5A-3 - MAX	Roadways, Daytime	67	45	50%	2.8	3.0	3.0	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 operable thick window	27
Block 5C - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 6A-3 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 6B-1 - MAX	Roadways, Daytime	71	45	50%	2.8	3.0	3.0	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 operable thick window	31
Block 6B-2 - MAX	Roadways, Daytime	75	45	50%	2.8	3.0	3.0	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 operable thick window	36
Block 6B-3 - MAX	Roadways, Daytime	71	45	50%	2.8	3.0	3.0	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 operable thick window	31
Block 6D-1 - MAX	Roadways, Daytime	68	45	50%	2.8	3.0	3.0	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 operable thick window	28
Block 6D-2 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	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 operable thick window	35
Block 7B-1 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	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 operable thick window	35
Block 7B-2 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	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 operable thick window	35
Block 7D-1 - MAX	Roadways, Daytime	74	45	50%	2.8	3.0	3.0	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 operable thick window	35
Block 7D-2 - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	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 operable thick window	26
Block 8A-1 - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	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 operable thick window	26
Block 8A-2 - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	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 operable thick window	26
Block 8A-3 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 8B-3 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 9A-2 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29
Block 9B-3 - MAX	Roadways, Daytime	66	45	50%	2.8	3.0	3.0	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 operable thick window	26
Block 9B-4 - MAX	Roadways, Daytime	69	45	50%	2.8	3.0	3.0	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 operable thick window	29

Appendix E – Detailed Façade Calculations (continued)

NIGHT-TIME - BEDROOMS															
Block 1A-2 - MAX	Roadways, Night-time	66	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
Block 1A-3 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 1B-1 - MAX	Roadways, Night-time	66	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
Block 1B-2 - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
Block 1B-3 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 1C - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 1D - MAX	Roadways, Night-time	65	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	30
Block 1E - MAX	Roadways, Night-time	66	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	31
Block 2A-1 - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
Block 2B-2 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 2B-3 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 2B-4 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 2C-3 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 2D-2 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 2D-3 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 2D-4 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 3A-1 - MAX	Roadways, Night-time	61	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
Block 3A-3 - MAX	Roadways, Night-time	67	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
Block 3A-4 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 3C-2 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 3C-3 - MAX	Roadways, Night-time	67	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	32
Block 3C-4 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 3D-3 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 4B - MAX	Roadways, Night-time	61	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
Block 5A-1 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 5A-3 - MAX	Roadways, Night-time	61	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
Block 5C - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 6A-3 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 6B-1 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 6B-2 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 6B-3 - MAX	Roadways, Night-time	64	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	29
Block 6D-1 - MAX	Roadways, Night-time	61	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
Block 6D-2 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 7B-1 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 7B-2 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 7D-1 - MAX	Roadways, Night-time	68	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	34
Block 8A-1 - MAX	Roadways, Night-time	61	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	26
Block 8A-3 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 8B-3 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28
Block 9A-2 - MAX	Roadways, Night-time	62	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	27
Block 9B-4 - MAX	Roadways, Night-time	63	40	50%	2.8	3.0	3.0	Intermediate	0 - 90	D. mixed road traffic, distant aircraft	45	B. sealed thick window, or exterior wall, or roof/ceiling	C. sealed thin window, or openable thick window	28

Appendix E – Detailed Façade Calculations (continued)

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

IO Trafalgar, Oakville - 241.30464.00000

		Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
Receptor ID	Source Description	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:	Require Glazing STC (STC)
DAYTIME - LIVING ROOMS / DINING ROOMS														
Block 1A-2 - MAX	Roadways, Daytime	72	45	70%	2.8	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 operable thick window	30
Block 1A-3 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 1B-1 - MAX	Roadways, Daytime	71	45	70%	2.8	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 operable thick window	29
Block 1B-2 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 1B-3 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 1C - MAX	Roadways, Daytime	68	45	70%	2.8	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 operable thick window	26
Block 1D - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 1E - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 2A-1 - MAX	Roadways, Daytime	67	45	70%	2.8	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 operable thick window	25
Block 2B-2 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 2B-3 - MAX	Roadways, Daytime	74	45	70%	2.8	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 operable thick window	32
Block 2B-4 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 2C-3 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 2D-2 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 2D-3 - MAX	Roadways, Daytime	74	45	70%	2.8	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 operable thick window	32
Block 2D-4 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 3A-1 - MAX	Roadways, Daytime	67	45	70%	2.8	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 operable thick window	25
Block 3A-3 - MAX	Roadways, Daytime	73	45	70%	2.8	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 operable thick window	31
Block 3A-4 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 3C-2 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 3C-3 - MAX	Roadways, Daytime	73	45	70%	2.8	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 operable thick window	31
Block 3C-4 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 3D-3 - MAX	Roadways, Daytime	70	45	70%	2.8	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 operable thick window	28
Block 3D-4 - MAX	Roadways, Daytime	67	45	70%	2.8	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 operable thick window	25
Block 4B - MAX	Roadways, Daytime	66	45	70%	2.8	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 operable thick window	24
Block 5A-1 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 5A-3 - MAX	Roadways, Daytime	67	45	70%	2.8	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 operable thick window	25
Block 5C - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 6A-3 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 6B-1 - MAX	Roadways, Daytime	71	45	70%	2.8	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 operable thick window	29
Block 6B-2 - MAX	Roadways, Daytime	75	45	70%	2.8	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 operable thick window	33
Block 6B-3 - MAX	Roadways, Daytime	71	45	70%	2.8	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 operable thick window	29
Block 6D-1 - MAX	Roadways, Daytime	68	45	70%	2.8	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 operable thick window	26
Block 6D-2 - MAX	Roadways, Daytime	74	45	70%	2.8	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 operable thick window	32
Block 7B-1 - MAX	Roadways, Daytime	74	45	70%	2.8	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 operable thick window	32
Block 7B-2 - MAX	Roadways, Daytime	74	45	70%	2.8	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 operable thick window	32
Block 7D-1 - MAX	Roadways, Daytime	74	45	70%	2.8	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 operable thick window	32
Block 7D-2 - MAX	Roadways, Daytime	66	45	70%	2.8	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 operable thick window	24
Block 8A-1 - MAX	Roadways, Daytime	66	45	70%	2.8	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 operable thick window	24
Block 8A-2 - MAX	Roadways, Daytime	66	45	70%	2.8	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 operable thick window	24
Block 8A-3 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 8B-3 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 9A-2 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27
Block 9B-3 - MAX	Roadways, Daytime	66	45	70%	2.8	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 operable thick window	24
Block 9B-4 - MAX	Roadways, Daytime	69	45	70%	2.8	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 operable thick window	27

Appendix E – Detailed Façade Calculations (continued)

NIGHT-TIME - LIVING ROOMS / DINING ROOMS															
Block 1A-2 - MAX	Roadways, Night-time	66	45	70%	2.8	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	24
Block 1A-3 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 1B-1 - MAX	Roadways, Night-time	66	45	70%	2.8	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	24
Block 1B-2 - MAX	Roadways, Night-time	65	45	70%	2.8	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
Block 1B-3 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 1C - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 1D - MAX	Roadways, Night-time	65	45	70%	2.8	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
Block 1E - MAX	Roadways, Night-time	66	45	70%	2.8	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	24
Block 2A-1 - MAX	Roadways, Night-time	62	45	70%	2.8	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
Block 2B-2 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 2B-3 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 2B-4 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 2C-3 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 2D-2 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 2D-3 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 2D-4 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 3A-1 - MAX	Roadways, Night-time	61	45	70%	2.8	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	19
Block 3A-3 - MAX	Roadways, Night-time	67	45	70%	2.8	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
Block 3A-4 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 3C-2 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 3C-3 - MAX	Roadways, Night-time	67	45	70%	2.8	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
Block 3C-4 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 3D-3 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 4B - MAX	Roadways, Night-time	61	45	70%	2.8	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	19
Block 5A-1 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 5A-3 - MAX	Roadways, Night-time	61	45	70%	2.8	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	19
Block 5C - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 5A-5 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 6B-1 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 6B-2 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 6B-3 - MAX	Roadways, Night-time	64	45	70%	2.8	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	22
Block 6D-1 - MAX	Roadways, Night-time	61	45	70%	2.8	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	19
Block 6D-2 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 7B-1 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 7B-2 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 7D-1 - MAX	Roadways, Night-time	68	45	70%	2.8	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	26
Block 8A-1 - MAX	Roadways, Night-time	61	45	70%	2.8	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	19
Block 8A-3 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 8B-3 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21
Block 9A-2 - MAX	Roadways, Night-time	62	45	70%	2.8	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
Block 9B-4 - MAX	Roadways, Night-time	63	45	70%	2.8	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	21

Appendix E – Detailed Façade Calculations (continued)

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

IO Trafalgar, Oakville - 241.30464.00000

		Sound Levels		Room / Façade Inputs					Source Inputs		Veneer - Component 1		Glazing - Component 2	
Receptor ID	Source Description	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:	Require Glazing STC (STC)
DAYTIME - CORNER OFFICE SPACES														
Block 1A-2 - MAX	Roadways, Daytime	72	50	70%	2.8	15.0	15.0	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 operable thick window	24
Block 1A-3 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 1B-1 - MAX	Roadways, Daytime	71	50	70%	2.8	15.0	15.0	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 operable thick window	23
Block 1B-2 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 1B-3 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 1C - MAX	Roadways, Daytime	68	50	70%	2.8	15.0	15.0	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 operable thick window	20
Block 1D - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 1E - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 2A-1 - MAX	Roadways, Daytime	67	50	70%	2.8	15.0	15.0	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 operable thick window	19
Block 2B-2 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 2B-3 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	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 operable thick window	26
Block 2B-4 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 2C-3 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 2D-2 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 2D-3 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	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 operable thick window	26
Block 2D-4 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 3A-1 - MAX	Roadways, Daytime	67	50	70%	2.8	15.0	15.0	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 operable thick window	19
Block 3A-3 - MAX	Roadways, Daytime	73	50	70%	2.8	15.0	15.0	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 operable thick window	25
Block 3A-4 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 3C-2 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 3C-3 - MAX	Roadways, Daytime	73	50	70%	2.8	15.0	15.0	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 operable thick window	25
Block 3C-4 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 3D-3 - MAX	Roadways, Daytime	70	50	70%	2.8	15.0	15.0	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 operable thick window	22
Block 3D-4 - MAX	Roadways, Daytime	67	50	70%	2.8	15.0	15.0	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 operable thick window	19
Block 4B - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	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 operable thick window	18
Block 5A-1 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 5A-3 - MAX	Roadways, Daytime	67	50	70%	2.8	15.0	15.0	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 operable thick window	19
Block 5C - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 6A-3 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 6B-1 - MAX	Roadways, Daytime	71	50	70%	2.8	15.0	15.0	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 operable thick window	23
Block 6B-2 - MAX	Roadways, Daytime	75	50	70%	2.8	15.0	15.0	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 operable thick window	27
Block 6B-3 - MAX	Roadways, Daytime	71	50	70%	2.8	15.0	15.0	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 operable thick window	23
Block 6D-1 - MAX	Roadways, Daytime	68	50	70%	2.8	15.0	15.0	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 operable thick window	20
Block 6D-2 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	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 operable thick window	26
Block 7B-1 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	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 operable thick window	26
Block 7B-2 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	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 operable thick window	26
Block 7D-1 - MAX	Roadways, Daytime	74	50	70%	2.8	15.0	15.0	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 operable thick window	26
Block 7D-2 - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	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 operable thick window	18
Block 8A-1 - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	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 operable thick window	18
Block 8A-2 - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	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 operable thick window	18
Block 8A-3 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 8B-3 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 9A-2 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21
Block 9B-3 - MAX	Roadways, Daytime	66	50	70%	2.8	15.0	15.0	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 operable thick window	18
Block 9B-4 - MAX	Roadways, Daytime	69	50	70%	2.8	15.0	15.0	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 operable thick window	21

Appendix F
Ventilation, Warning Clause & Barrier Summary

Provincial Lands East and West of Trafalgar Road, South of Highway 407

Oakville, Ontario

Compatibility & Mitigation Study

SLR Project No.: 241.30464.00000

Ventilation, Warning Clause and Barrier Summary

The following Warning Clauses are recommended for inclusion in agreements registered on Title for the residential units, and included in all agreements of purchase and sale or lease, and all rental agreements.

A summary of the Warning Clause and Ventilation Requirements is included in **Table F1** on the following pages.

> **MECP Type A:** "Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally 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 B:** "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 road and rail 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 C:** "This dwelling unit has been supplied 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."
>
> **MECP Type D:** "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."

Table F1: Summary of Ventilation and Warning Clause and Barrier Requirements

Building	Barrier (Y/N)?	Air Conditioning Requirement [1]	Required Warning Clause(s)
Block 1A-1	N	Provision for AC	Type A, Type C
Block 1A-2	Y	AC Required	Type B, Type D
Block 1A-3	Y	AC Required	Type B, Type D
Block 1B-1	Y	AC Required	Type B, Type D
Block 1B-2	Y	AC Required	Type B, Type D
Block 1B-3	Y	AC Required	Type B, Type D
Block 1C	Y	AC Required	Type B, Type D
Block 1D	Y	AC Required	Type B, Type D
Block 1E	Y	AC Required	Type B, Type D
Block 2A-1	Y	AC Required	Type B, Type D
Block 2A-2	N	Provision for AC	Type C
Block 2B-1	N	Provision for AC	Type A, Type C
Block 2B-2	Y	AC Required	Type B, Type D
Block 2B-3	N	AC Required	Type A, Type D
Block 2B-4	Y	AC Required	Type B, Type D
Block 2C-1	N	Provision for AC	Type C
Block 2C-2	Y	Provision for AC	Type B, Type C
Block 2C-3	Y	AC Required	Type B, Type D
Block 2D-1	N	Provision for AC	Type C
Block 2D-2	N	AC Required	Type A, Type D
Block 2D-3	Y	AC Required	Type B, Type D
Block 2D-4	N	AC Required	Type A, Type D
Block 3A-1	Y	AC Required	Type B, Type D
Block 3A-2	N	Provision for AC	Type A, Type C
Block 3A-3	Y	AC Required	Type B, Type D
Block 3A-4	Y	AC Required	Type B, Type D
Block 3B-1	N	Provision for AC	Type A, Type C
Block 3B-2	N	Provision for AC	Type C

Table F1: Summary of Ventilation and Warning Clause and Barrier Requirements (continued)

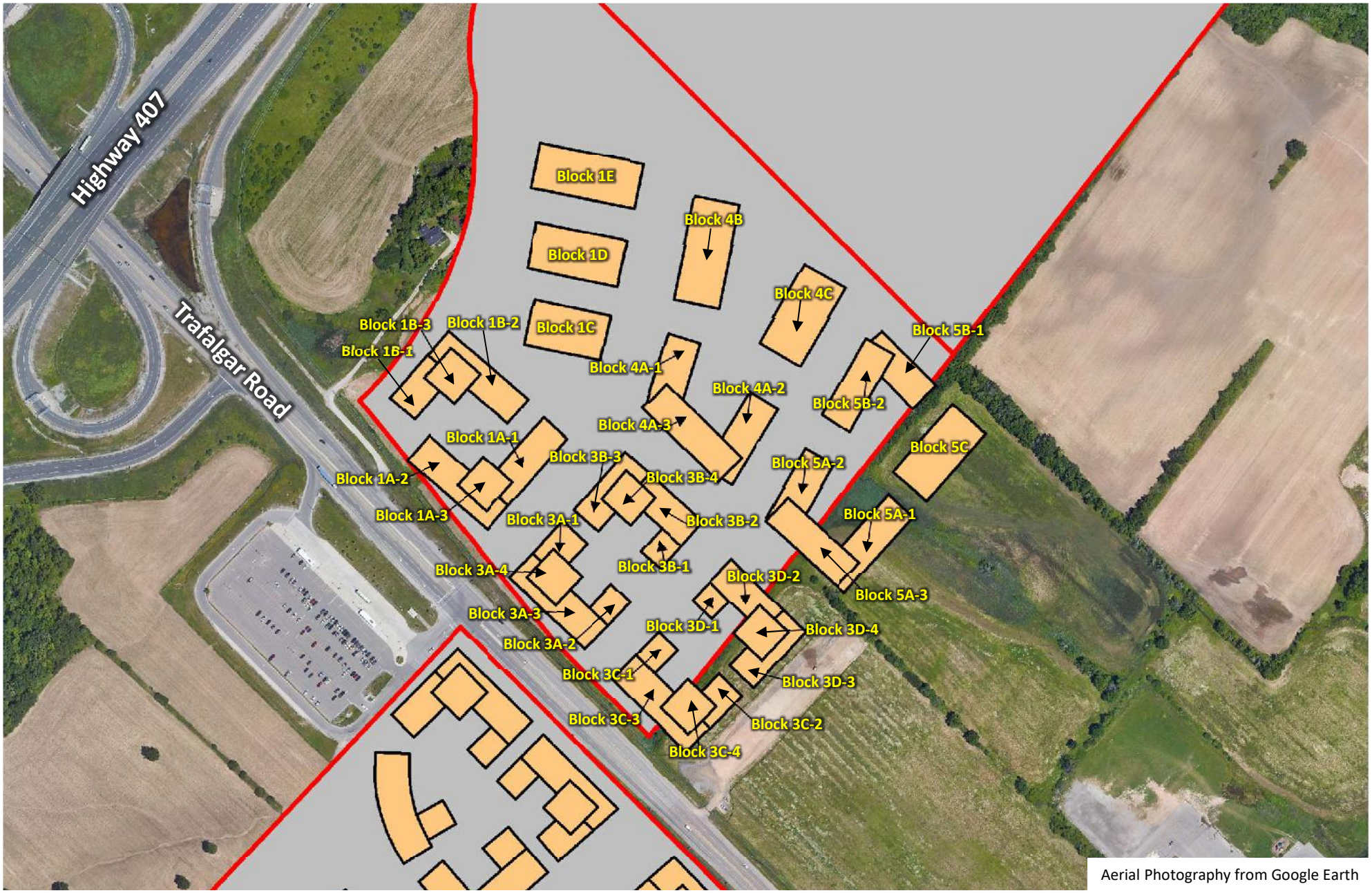
Building	Barrier (Y/N)?	Air Conditioning Requirement [1]	Warning Clause
Block 3B-3	Y	Provision for AC	Type B, Type C
Block 3B-4	Y	Provision for AC	Type B, Type C
Block 3C-1	N	Provision for AC	Type A, Type C
Block 3C-2	Y	AC Required	Type B, Type D
Block 3C-3	Y	AC Required	Type B, Type D
Block 3C-4	Y	AC Required	Type B, Type D
Block 3D-1	N	Provision for AC	Type A, Type C
Block 3D-2	N	Provision for AC	Type A, Type C
Block 3D-3	Y	AC Required	Type B, Type D
Block 3D-4	Y	AC Required	Type B, Type D
Block 4A-1	N	Provision for AC	Type A, Type C
Block 4A-2	N	Provision for AC	Type A, Type C
Block 4A-3	Y	Provision for AC	Type B, Type C
Block 4B	Y	AC Required	Type B, Type D
Block 4C	Y	Provision for AC	Type B, Type C
Block 5A-1	Y	AC Required	Type B, Type D
Block 5A-2	N	Provision for AC	Type A, Type C
Block 5A-3	N	AC Required	Type A, Type D
Block 5B-1	Y	Provision for AC	Type B, Type C
Block 5B-2	Y	Provision for AC	Type B, Type C
Block 5C	Y	AC Required	Type B, Type D
Block 6A-1	N	Provision for AC	Type C
Block 6A-2	N	Provision for AC	Type C
Block 6A-3	N	AC Required	Type A, Type D
Block 6B-1	Y	AC Required	Type B, Type D
Block 6B-2	Y	AC Required	Type B, Type D
Block 6B-3	Y	AC Required	Type B, Type D
Block 6C-1	N	Provision for AC	Type C

Table F1: Summary of Ventilation and Warning Clause and Barrier Requirements (continued)

Building	Barrier/OLA Mitigation Required	Air Conditioning Requirement [1]	Warning Clause
Block 6C-2	N	Provision for AC	Type A, Type C
Block 6C-3	N	Provision for AC	Type A, Type C
Block 6D-1	N	AC Required	Type D
Block 6D-2	N	AC Required	Type A, Type D
Block 7A-1	N	Provision for AC	Type A, Type C
Block 7A-2	N	Provision for AC	Type A, Type C
Block 7B-1	N	AC Required	Type A, Type D
Block 7B-2	N	AC Required	Type A, Type D
Block 7C	N	Provision for AC	Type A, Type C
Block 7D-1	N	AC Required	Type A, Type D
Block 7D-2	N	AC Required	Type A, Type D
Block 8A-1	Y	AC Required	Type B, Type D
Block 8A-2	Y	AC Required	Type B, Type D
Block 8A-3	Y	AC Required	Type B, Type D
Block 8B-1	Y	Provision for AC	Type B, Type C
Block 8B-2	Y	Provision for AC	Type B, Type C
Block 8B-3	Y	AC Required	Type B, Type D
Block 8B-4	Y	Provision for AC	Type B, Type C
Block 9A-1	N	Provision for AC	Type A, Type C
Block 9A-2	Y	AC Required	Type B, Type D
Block 9B-1	N	Provision for AC	Type C
Block 9B-2	N	Provision for AC	Type C
Block 9B-3	N	AC Required	Type D
Block 9B-4	Y	AC Required	Type B, Type D
Block 9C-1	N	Provision for AC	Type A, Type C
Block 9C-2	N	Provision for AC	Type A, Type C
Block 9D	N	None	---
Block 10A-1	N	Provision for AC	Type A, Type C

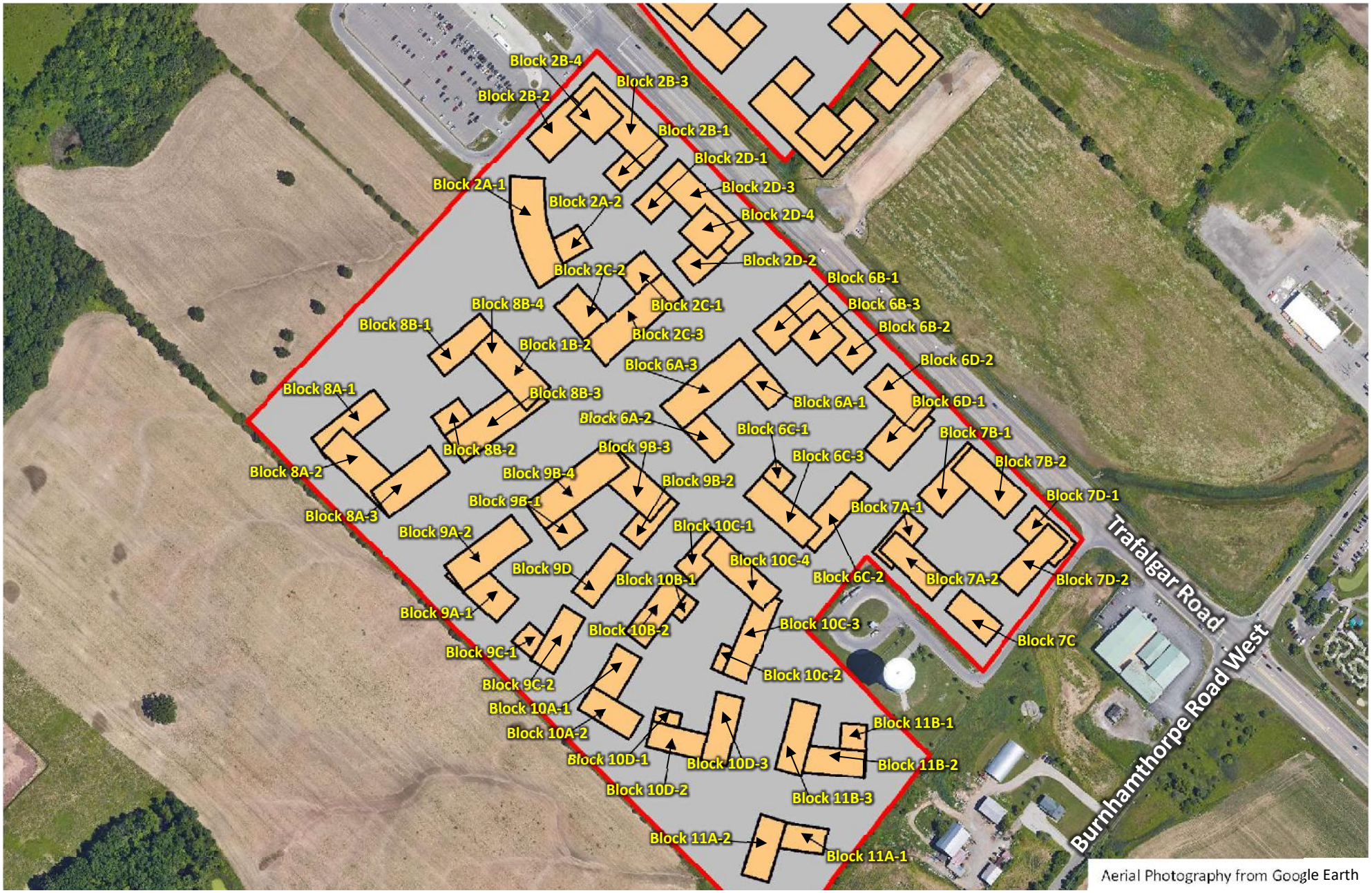
Table F1: Summary of Ventilation and Warning Clause and Barrier Requirements (continued)

Building	Barrier/OLA Mitigation Required	Air Conditioning Requirement [1]	Warning Clause
Block 10A-2	N	Provision for AC	Type A, Type C
Block 10B-1	N	None	---
Block 10B-2	N	None	---
Block 10C-1	N	Provision for AC	Type C
Block 10C-2	N	None	---
Block 10C-3	N	Provision for AC	Type A, Type C
Block 10C-4	N	Provision for AC	Type A, Type C
Block 10D-1	N	None	---
Block 10D-2	N	Provision for AC	Type A, Type C
Block 10D-3	N	Provision for AC	Type A, Type C
Block 11A-1	N	Provision for AC	Type A, Type C
Block 11A-2	N	Provision for AC	Type A, Type C
Block 11B-1	N	Provision for AC	Type A, Type C
Block 11B-2	N	Provision for AC	Type A, Type C
Block 11B-3	N	Provision for AC	Type A, Type C



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 21, 2022 Rev 0.0	Figure No. **F1**	
PROPOSED DEVELOPMENT – EAST PORTION (WITH BUILDING IDS)		Project No. 241.30464.00000		



Aerial Photography from Google Earth

INFRASTRUCTURE ONTARIO	True North	Scale: 1:4000	METRES	SLR global environmental solutions
TRAFALGAR LANDS DEVELOPMENT - OAKVILLE, ONTARIO		Date: Mar. 21, 2022 Rev 0.0	Figure No. **F2**	
PROPOSED DEVELOPMENT – WEST PORTION (WITH BUILDING IDS)		Project No. 241.30464.00000		