# Land Use Compatibility & Air Quality Assessment

## Part of Lot 12, Concession 2, NDS, Oakville


**Argo Trafalgar Corporation**

4900 Palladium Way, Unit 105
Burlington, ON L7M 0W7

Prepared by:

**SLR Consulting (Canada) Ltd.**

100 Stone Road West, Suite 201
Guelph ON, N1G 5L3



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# Executive Summary

SLR Consulting (Canada) Ltd. (SLR), was retained by Argo Trafalgar Corporation, to conduct land use compatibility study considering air quality for a proposed development on the lands legally referred to as Part of Lot 12, Concession 2, NDS in Oakville, Ontario ("Project site"). This document is in support of an Official Plan Amendment (the "OPA") to permit mixed-use residential development within Urban Core Area 1 of the Trafalgar Urban Core.

The addition of "sensitive" land uses within the Project site, including mixed-use residential uses, 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; and
- Transportation-related air pollution.

The assessment has included a review of air quality emission from existing industrial facilities and surrounding future land uses in the area. A review was completed for the vacant lands in the immediate area, including the future land uses within the North Oakville East Secondary Plan. A detailed air quality analysis of transportation emissions sources in the immediate area was also conducted. All contaminants were predicted to meet the applicable guidelines at the Project site.

In accordance with the Halton Region Land Use Compatibility Guidelines (LUCG), the Project site is anticipated to be compatible with the surrounding land uses from an air quality perspective.

The Project site is anticipated to be compatible with the surrounding land uses from an air quality perspective. Further, the Project site will not affect the ability for industrial facilities to obtain or maintain compliance with applicable Provincial environmental policies, regulations, approvals, authorizations, and guidelines. The requirements of MECP Guideline D-6 and Regulation 419/05 are met. As the applicable policies and guidelines are met, the Project site is:

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

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# 1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR), was retained by Argo Trafalgar Corporation, to conduct a Land Use Compatibility study focusing on air quality, odour, and dust in support of an Official Plan Amendment (the "OPA") to permit mixed-use residential uses for the proposed development within this area within Urban Core Area 1 of the Trafalgar Urban Core Trafalgar Urban Core.. The development site is located on the lands legally referred to as Part of Lot 12, Concession 2, NDS in Oakville, Ontario ("the Project site").

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; and
- Transportation-related air pollution.

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

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

- The Halton region Land Use Compatibility Guidelines (LUCG), Regional Official Plan Guidelines;
- The Provincial Policy Statement;
- The Provincial Growth Plan;
- Ministry of the Environment, Conservation and Parks ("MECP") Guidelines D-1 and D-6;
- Ontario Regulation 419/05: Air Pollution – Local Air Quality and its associated air quality standards and assessment requirements;
- The MECP draft policies on odour impacts and assessment; and The Halton Region Air Quality Guidelines, Regional Official Plan Guidelines.

This report is intended to meet the requirements of the LUCG, Regional Official Plan Guidelines published by the Region of Halton. This report identifies existing and potential land use compatibility issues and identifies and evaluates options to achieve appropriate design, buffering and/or separation distances between the proposed sensitive land uses, including mixed-use residential uses, and nearby Employment Areas and/or major emissions sources.

# 2.0 Description of Potential Future Development and Surroundings

## 2.1 Proposed Development

The proposed Project site is located near the northeast corner of the intersection of Trafalgar Road and Burnhamthorpe Road East. The current development plans for the Project site include a mixed-use community, including medium to high density buildings. Figure 1 illustrates the location of the Project Site. The land use plan and preliminary illustrative concept plan of the proposed Project site development is attached in Appendix A.

## 2.2 Surroundings

The surrounding existing land uses are primarily vacant or agricultural use. There are some existing commercial facilities and a community centre in the immediate vicinity of the Project site. The Project site is located in the North Oakville East Secondary Plan (NOESP), within the Trafalgar Urban Core area.

## 2.3 Land Use Designations in Area

### 2.3.1 North Oakville East Secondary Plan

Within the NOESP, the Project site is designated as Trafalgar Road Urban Core Area and Natural Heritage System Area, with a small eastern portion designated employment district. To the north, the lands are designated as Trafalgar Road Urban Core Area. To the east, the lands are designated as Employment Area, Transitional Area and Natural Heritage System Area. To the south and west the lands are designated Trafalgar Road Urban Core 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 FD (Future Development) in the North Oakville Zoning By-Law 2009-189. Figure 2B shows the Town of Oakville Interactive Map. The lands surrounding the project site are also zoned as FD.

#### 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, shown in 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 mixed-use 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 Growth Plan for the Greater Golden Horseshoe (2019, as amended)

A Place to Grow: The Growth Plan for the Greater Golden Horseshoe, 2019 (the "2019 Growth Plan") came into effect, replacing the Growth Plan for the Greater Golden Horseshoe, 2017. All decisions made on or after this date in respect of the exercise of any authority that affects a planning matter will conform with the 2019 Growth Plan, subject to any legislative or regulatory provisions providing otherwise. Subsequently, on August 28, 2020, the 2019 Growth Plan was amended by Growth Plan Amendment No. 1.

There are a number of changes from the previously applicable Growth Plan that are relevant to the Project site. One significant change was the identification of 29 provincially significant employment zones. Provincially Significant Employment Zones (PSEZs) are areas defined by the Minister in consultation with affected municipalities for the purpose of long-term planning for job creation and economic development. These zones can consist of employment areas or mixed-use areas with a significant number

of jobs. The lands surrounding the Project site are located in PSEZ – Zone 18, Halton, Peel[1]. An Excerpt of the Place to Grow Map can be seen in the attached Figure 2D.

## 3.4 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.

## 3.5 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.

[1] https://www.ontario.ca/page/provincially-significant-employment-zones#section-1

*"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.

## 3.6 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.

## 3.7 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".

### 3.7.1 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<br>• Dust: Infrequent and not intense<br>• Odour: Infrequent and not intense<br>• Vibration: No ground-borne vibration on plant property | • No outside storage<br>• 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<br>• Low probability of fugitive emissions | • Daytime operations only<br>• Infrequent movement of products and/ or heavy trucks | • Electronics manufacturing and repair<br>• Furniture repair and refinishing<br>• Beverage bottling<br>• Auto parts supply<br>• Packaging and crafting services<br>• Distribution of dairy products<br>• Laundry and linen supply |
| Class II Medium Industry | • Noise: Sound occasionally heard off-property<br>• Dust: Frequent and occasionally intense<br>• Odour: Frequent and occasionally intense<br>• Vibration: Possible ground-borne vibration, but cannot be perceived off-property | • Outside storage permitted<br>• Medium level of production allowed | • Open process<br>• Periodic outputs of minor annoyance<br>• Low probability of fugitive emissions | • Shift operations permitted<br>• Frequent movements of products and/ or heavy trucks with the majority of movements during daytime hours | • Magazine printing<br>• Paint spray booths<br>• Metal command<br>• Electrical production<br>• Manufacturing of dairy products<br>• Dry cleaning services<br>• Feed packing plants |
| Class III Heavy Industry | • Noise: Sound frequently audible off property<br>• Dust: Persistent and/ or intense<br>• Odour: Persistent and/ or intense<br>• Vibration: Ground-borne vibration can frequently be perceived off-property | • Outside storage of raw and finished products<br>• Large production levels | • Open process<br>• Frequent outputs of major annoyances<br>• High probability of fugitive emissions | • Continuous movement of products and employees<br>• Daily shift operations permitted | • Paint and varnish manufacturing<br>• Organic chemical manufacturing<br>• Breweries<br>• Solvent recovery plants<br>• Soaps and detergent manufacturing<br>• Metal refining and manufacturing |

### 3.7.2 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). However, the D-Series of guidelines are still active, still represent current MECP policy and are specifically referenced in numerous other current MECP policies. In applying the D-series guidelines, the current policies, regulations, standards, and guidelines have been used (e.g., Regulation 419).

### 3.7.3 Recommended Minimum Separation Distances

Guideline D-6 also *recommends* that no sensitive land use be placed within the Recommended Minimum Separation Distance. However, it should be noted that this is a recommendation only. Section 4.10 of the Guideline allows for development within the Recommended Minimum Separation Distance, in cases

of redevelopment, infilling, and transitions to mixed use, provided that the appropriate studies are conducted and that the relevant air quality and noise guidelines are met.

# 4.0 Nearby Industries

The Guideline D-6 Separation distances from the Project site are shown in Figure 3. SLR personnel conducted a site visit to the area on March 15, 2023. Local industries within 1 km of the Project site were inventoried. The lands surrounding the Project site are generally comprised of commercial, residential and employment uses.

In Ontario, facilities that emit significant amounts of contaminants to the environment are required to obtain and maintain an Environmental Compliance Approval ("ECA") from the MECP or submit an Environmental Activity and Sector Registry ("EASR"). There was no ECAs/ EASRs on the MECP *Access Environment* website[2] within 1 km of the Project site.

Table 3 lists the identified industries within 1000 m of the Project site and within their applicable Area of Influence. A more detailed table of all industries within 1000 m is provided in Appendix B. Industries which lie within their applicable Area of Influence in respect to the Project are discussed further below.

**Table 3: Identified Industries Within the Potential Area of Influence of the Project Site**

| Facility | Type of Operation | Environmental Compliance Approval No. | Industry Class | Area of Influence Distance(m) | Actual Distance to Site (m) | Additional Assessment Required? |
|---|---|---|---|---|---|---|
| Ren's Pets Oakville | Pet Supply Store | - | Class I | 70 | 30 | Yes |
| Al Falah Islamic Centre | Mosque | - | Class I | 70 | 20 | Yes |

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 and commercial properties is provided in the following subsections.

## 4.1 Ren's Pets Oakville

| | |
|---|---|
| **ADDRESS** | 4002 TRAFALGAR ROAD |
| **DISTANCE TO PROJECT:** | 30 m |
| **D-6 CLASSIFICATION:** | Class I Light Industry |

Ren's Pets Oakville is a pet supply store which is located approximately 30 m west of the Project site. The store 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.

On March 26, 2023, SLR personnel conducted a site visit to the area. No odours, visible dust, or noise was observed at the facility at the time of the site visit.

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

Based on the size and nature of the of the facility operations, Ren's Pets Oakville is considered a Class Light Industry under MECP Guideline D-6, with a Recommended Minimum Separation Distance of 20 m and a Potential Area of Influence of 70 m. The Project site lies outside of the Recommended Minimum Separation distance but within the Potential Area of Influence.

Potential air quality source of interest associated with the facility include HVAC equipment and occasional vehicle movements from customer vehicles and delivery trucks.

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

## 4.2 Al Falah Islamic Centre

| | |
|---|---|
| **ADDRESS** | 391 BURNHAMTHORPE RD E |
| **DISTANCE TO PROJECT:** | 20 m |
| **D-6 CLASSIFICATION:** | Class I Light Industry |

Al Falah Islamic Centre is a Masjid/community centre located in the immediate vicinity of the Project site to the east. A search of the MECP registry did not yield a permit or registration for this site.

SLR personnel conducted site visits to the area on March 15, 2023. During the site visit no dust or odours emissions were detected from the facility.

Potential air quality source of interest associated with the facility include HVAC equipment and occasional vehicle movements.

Based on the size and nature of the of the facility operations, the Al Falah Islamic Centre is considered Class I Light Industry under MECP Guideline D-6. Despite being within the 70 m Area of Influence and 20 m of the Recommended Minimum Separation distance, air quality sources associated with the facility are considered to be minor, and adverse impacts at the Project site are not anticipated.

## 4.3 Vacant Lots & Future Uses

The majority of the lands surrounding the Project site are currently vacant. 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 Future Development (FD), Natural Heritage System (NHS), and Park (P) under North Oakville Zoning By-Law.

### 4.3.1 Light Employment/Service Area - Employment lands

In the North Oakville East Secondary Plan, the lands to the west, north, and south of the Project site are designated as Trafalgar Road Urban Core Area. To the east, lands are designated as Employment Area. Approximately 600 m west of the site, lands are also designated as Employment Area. Under Town of Oakville Zoning By-Law 2009-189 the lands surrounding the Project site are zoned Future Development Area (FD). Beyond the lands zoned FD to the west, lands are zoned as Light Employment (LE). Given the zoning designations, it is expected that any future employment lands would fall within the uses designed under the LE permitted uses, as defined in Table 4.

**Table 4: 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 |
| 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: 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 identified 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.

A review of the wind frequency distribution for the Pearson Airport provided in **Figure 4**, identifies that the nearest lands designated Employment Areas are located predominantly downwind of the Project site.

Facilities with significant emission to atmosphere are required, under the Environmental Protection Act, to ensure compliance with the applicable Provincial air quality regulations and standards and noise guidelines at the Facility property line as well as at all existing sensitive receptors and any elevated receptor locations.

Based on the above, it is anticipated that the compatibility can be achieved between the Project site and future employment uses from an air quality perspective.

# 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 released an updated Draft Guideline to address odour mixtures in Ontario May 4, 2021. At the time of preparation of this report, the Draft Guideline has not been finalized.[3]

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.
- Location – Where the odour occurs. The MECP assesses at 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 May 2021 document provides clarification of point of Odour Receptors as follows:

*"Each of the following locations is a Point of Odour Reception if the location is not on the same property as the facility from which the odour is or will be discharged:*

1. *A building or structure that contains one or more dwellings.*
2. *A building used for a commercial purpose that includes one or more habitable rooms used as sleeping facilities, such as a hotel or motel.*
3. *A building used for an institutional purpose, including an educational facility, a child care centre, a health care facility, a community centre.*

[3] https://prod-environmental-registry.s3.amazonaws.com/2021-03/Draft%20Odour%20Guidance.pdf

4. *A building used for a place of worship, other than a place of worship located on land that is zoned for commercial or industrial use.*
5. *A location on a vacant lot, other than an inaccessible vacant lot, that has been zoned to permit a building mentioned in paragraph 1, 2, 3 or 4.*
6. *A portion of a property used for recreational purposes, not including a portion used for a recreational trail.*
7. *A portion of a property that is used for as a campsite or campground at which overnight accommodation is provided by or on behalf of a public agency or as part of a commercial operation.*

*The MECP notes that the above definition of a "Point of Odour Reception" is for screening purposes only. When assessing odour, the facility should consider additional points of odour reception such as commercial buildings, office buildings or outdoor areas where there is human activity."*

In addition, the MECP provided proposed clarification of human odour receptors, as shown in the following table:

**Table 5: Proposed Clarification of Human Receptors (MECP 2016)**

| Receptor Category | Examples | Exposure Type | Type of Assessment |
|---|---|---|---|
| Permanent potential 24-hour sensitivity | Anywhere someone could sleep including any residence 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, day cares, 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 |
| 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. |

Under the May 2021 Guideline, MECP recommends that Land use compatibility assessments of potential odour sources identify facilities with the potential to emit mixed odours under the following industrial tiers:

**Table 6: Industrial Tiers for Odorous Activities and Processes**

| MECP Tier | Activities/Processes Requiring Assessment | MECP Industry Requirements |
|---|---|---|
| Not Applicable | • Foundries, Forest Products, Pulp and paper, Petroleum Refining, Petrochemical and Asphalt Mix | • Screen out of Odour Assessment requirements if registered to MECP Industry Specific Technical Standard |
| Tier 1 | • Wastewater facilities with design capacity <25,0000 m3/day<br>• Paint and Coating Manufacturing<br>• Portable Asphalt paving mixture and block manufacturing<br>• Adhesive manufacturing<br>• Printing ink manufacturing<br>• Blowing or expanding foam products<br>• Crematory<br>• Meat and poultry processing<br>• Landfills<br>• Thermal treatment of waste (non-biomass)<br>• Plastic extrusion or melting<br>• Printing <100 kg/hour and <400 kg/hour<br>• Process using resins<br>• Scented products manufacturing <10 million kg/year<br>• Spraying operations <10 litres/hour<br>• Indoor waste transfer and/or processing station (residential or IC&I) | • Regulated industry<br>• Require an up to date Best Management Practice Plan (BMPP) to ensure odours are minimized |
| Tier 2 | • Wastewater facilities with design capacity >25,0000 m3/day and <100,000 m3/day<br>• Paper, newsprint, and Paperboard mills<br>• Asphalt paving mixture and block manufacturing<br>• Asphalt shingle and coating material manufacturing<br>• Cooking or drying animal products<br>• Leaf and yard waste composting<br>• Food frying<br>• Printing >400 kg/hour<br>• Scented products manufacturing >10 million kg/year<br>• Wastewater sludge pelletization<br>• Spraying operations >10 litres/hour<br>• Vulcanized rubber product manufacturing<br>• Outdoor waste transfer and/or processing station (residential or IC&I) | • Regulated industry<br>• Require an up to date Best Management Practice Plan (BMPP) to ensure odours are minimized<br>• If in compliance with MECP Industry Standard required to implement Odour controls<br>• Potentially require an up to date Odour Technology Benchmarking Report |

| | | |
|---|---|---|
| Tier 3 | • Wastewater facilities with design capacity <100,000 m3/day<br>• Wet corn milling<br>• Oilseed processing<br>• Fat and oil refining and blending<br>• Anaerobic digestion<br>• Animal or poultry slaughtering<br>• Biofuel production<br>• Rendering or tallow production<br>• Thermal Treatment of biomass, other than wood waste<br>• Waste transfer and/or processing of putrescible waste | • Regulated industry<br>• Require an up to date Best Management Practice Plan (BMPP) to ensure odours are minimized<br>• If in compliance with MECP Industry Standard required to implement Odour controls<br>• Potentially require an up to date Odour Technology Benchmarking Report |

The May 2021 Guideline further recommends that the Recommended Minimum Separation Distance for assessment of odour be measured from the point of reception to the nearest source of odour, not property boundary to property boundary.

#### 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 1996 through 2000, 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 Site Visits and Odour and Dust Observations

A site visit was conducted to the area on March 15, 2023 by SLR personnel to identify significant sources of air quality emissions and to identify any significant sources of odour, or dust in the area surrounding the Project site. During the site visit, the staff members observed existing industries from the sidewalks and other publicly accessible areas. Wind conditions during the site visit were noted as:

- March 15, 2023 north westerly winds, 12 km/h, -3 °C, 51 %RH

No odours or fugitive dust emissions were detected at the Project site during the site visit.

### 5.1.4 Assessment of Potential Air Quality Impacts

No significant industrial developments were identified in the vicinity of the proposed development. Information on the nearest industries and/or commercial properties is provided above in Section 4.0. The land use compatibility assessment as required by the Halton Region is focused on transportation sources in the immediate area and is detailed below.

## 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.

### 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 includes mixed-use residential apartments and townhomes which 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, no further assessment of industrial uses is required.

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:

- 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 Argo Trafalgar lands development area; and that are representative of background air quality concentrations in the area. Figure 5 shows the location of the selected monitoring station relative to the Project site location.

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

- Oakville (ID: 44017), Address: Eighth Line, Glenashton Dr., Halton Res. Year: 2017-2021, 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). The 90$^{th}$ percentile ambient concentrations are provided in Table 7. These concentrations were added to maximum modelled concentrations to estimate cumulative air quality concentrations at the proposed development site.

**Table 7: Ambient Background 90th Percentile Concentrations**

| Parameter | Averaging Period | 90$^{th}$ Percentile Ambient Concentration (µg/m$^3$) | Monitoring Station |
|---|---|---|---|
| $NO_x$ | 1-hr | 20 | Oakville (44017) |
| | 24-hr | 17.21 | Oakville (44017) |
| $NO_2$ | 1-Hour | 33.62 | Oakville (44017) |
| | Annual[1] | 17.96 | Oakville (44017) |
| $PM_{2.5}$ | 24-hr | 12.35 | Oakville (44017) |
| | Annual[1] | 7.36 | Oakville (44017) |
| $PM_{10}$ | 24-hr | 22.87 | Oakville (44017) |

**Notes:** [1] For annual averages, the maximum annual average over 5 years of background data were used rather than the 90$^{th}$ 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 8.

**Table 8: Land Use Features Considered for Further Study**

| Type | Feature | Reason for Consideration in Study |
|---|---|---|
| Roadways | 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 Burnhamthorpe 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 Argo Trafalgar lands development maximum modelled concentrations were combined with the 90$^{th}$ 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 for Trafalgar Road, Burnhamthorpe Road and William Halton Parkway were provided in the form of annual average daily traffic (AADT) volumes by CGH Transportation Inc. The AADTs were provided for 2031 and 2041. Existing truck percentages were also provided. It was assumed that the break down of Medium and Heavy Duty Vehicle percentages include a 50%/50% split of the total truck percentages provided by CGH for 2022. To simplify the number of emissions profiles considered, two emission scenarios were conservatively applied to the various road sections: 1) a medium duty vehicle percentage of 1% and a heavy duty vehicle percentage of 1% and 2) a medium duty vehicle percentage of 2% and a heavy duty vehicle percentage of 2% which can be found in Table 9. The provided traffic data is shown in Appendix C.

In order to determine hourly roadway emission rates, the USEPA urban hourly distribution was used.

**Table 9: Traffic Volumes Considered in the Assessment**

| Roadway Section | 2031 | 2041 | Medium Duty Vehicle (MDV) % | Heavy Duty Vehicle (HDV) % | Vehicle Speed |
|---|---|---|---|---|---|
| Trafalgar Road / South of Burnhamthorpe Road | 39,640 | 48,720 | 1.0% | 1.0% | 80 |
| Trafalgar Road / Burnhamthorpe Road to William Halton Parkway | 40,470 | 51,765 | 1.0% | 1.0% | 80 |

| Roadway Section | 2031 | 2041 | Medium Duty Vehicle (MDV) % | Heavy Duty Vehicle (HDV) % | Vehicle Speed |
|---|---|---|---|---|---|
| Trafalgar Road / North of William Halton Parkway | 39,240 | 48,980 | 2.0% | 2.0% | 80 |
| Burnhamthorpe Road / West of Trafalgar Road | 11,535 | 13,095 | 1.0% | 1.0% | 60 |
| Burnhamthorpe Road / East of Trafalgar Road | 10,705 | 13,060 | 2.0% | 2.0% | 60 |
| William Halton Parkway / West of Trafalgar Road | 24,575 | 32,290 | 1.0% | 1.0% | 60 |
| William Halton Parkway / East of Trafalgar Road | 26,235 | 32,350 | 1.0% | 1.0% | 60 |

Following completion of the air quality transportation assessment, modifications were made to the traffic analysis to align with the Region's traffic model assumptions, resulting in approximate 10% increase in traffic volumes along William Halton Parkway. While this increase in traffic may result in slightly higher predicted on-site concentrations from vehicle emissions, since the cumulative impacts are dominated by background concentrations for the majority of contaminants, the overall conclusions of the assessment are not anticipated to change. The values provided above represent those considered in the air quality assessment.

#### 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 3.0, released in November 2020, is the US EPA's latest 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 9).

The emission rates for each modelled vehicle speed and associated truck percentages (road segment dependent, as outlined in Table 9) are shown in Table 10 and Table 11. Emission rates are provided in grams per vehicle mile travelled (g/VMT).

**Table 10: MOVES Emission Rates by Parameter (g/VMT) for 80 km/hr Segments**

| Pollutant | 2031 | 2041 |
|---|---|---|
| Oxides of Nitrogen | 0.083 | 0.066 |
| Nitrogen Dioxide | 0.023 | 0.020 |
| Total $PM_{10}$ | 0.022 | 0.022 |
| Total $PM_{2.5}$ | 0.004 | 0.004 |

Emissions averaged for medium/heavy-duty vehicle percentage of 2%/2% in 2031 and 2041.

**Table 11: MOVES Emission Rates by Parameter (g/VMT) for 60 km/hr Segments.**

| Pollutant | 2031 | 2041 |
|---|---|---|
| Oxides of Nitrogen | 0.112 | 0.094 |

| | | |
|---|---|---|
| Nitrogen Dioxide | 0.035 | 0.032 |
| Total $PM_{10}$ | 0.048 | 0.048 |
| Total $PM_{2.5}$ | 0.008 | 0.007 |

Emissions averaged for medium/heavy-duty vehicle percentages of 2%/2% in 2031 and 2041.

A large portion of particulate matter emissions are generated from dust/debris on the pavement which is re-suspended by vehicles travelling on the roads. 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 12.

**Table 12: 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 | 0.015 | 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 22112. Roads were 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 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 (NOX) 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 roadways.

### 5.2.5 Modelling Results

Maximum model results were combined with the 90$^{th}$ 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 arterial roads in the vicinity of the Project site for each air emission parameter were assessed. For all parameters, maximum predicted concentrations occur at the intersection of Trafalgar Road and William Halton Parkway, specifically on the northern/western edge of the Project site. The concentration decreases heading south/east on proposed Project site, further from the roadways. For comparison of predicted results against the CAAQS thresholds, maximum model results have been added to background concentrations, rather than 98$^{th}$ 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.

Table 13 presents the AERMOD modeling results. For all contaminants, the combined concentrations are predicted to be below the applicable guidelines.

Figures 6, 7, 10, and 11, present the concentration contours for $NO_2$ for 1-hour and annual averaging periods, for the 2031 and 2041 emission scenarios. Note that these contour plots do not include background concentrations, which generally dominate the combined concentrations presented in the table below. The background concentrations considered in this assessment are already 41% and 75% of the hourly and annual $NO_2$ CAAQS standard values, respectively. The max predicted concentrations for NOX and NO2 occur close to the Trafalgar Road and William Halton Parkway intersection, generally at north/northwest corner of the intersection. Figures 8, 9, 12, and 13, show the concentration contours for NOX for 1-hour and annual averaging periods, for the 2031 and 2041 emission scenarios.

Figure 14 through Figure 19 present the concentration contours for $PM_{10}$ and $PM_{2.5}$ for their respective averaging periods, for the 2031 and 2041 emission scenarios. Note that these contour plots do not include background concentrations, which generally dominate the combined concentrations presented in the table below. For annual $PM_{2.5}$, the background concentrations account for 84% of the standard prior to adding in the modelled emissions The max modelled concentrations occur at southeast corner of Trafalgar Road and William Halton Parkway intersection.

**Table 13: AERMOD Modeling Result**

| Contaminant | Averaging Period | Threshold (µg/m³) | Maximum Model Concentration (µg/m³) | Background 90th Percentile Concentration (µg/m³) | Total (µg/m³) | Percentage of Threshold |
|---|---|---|---|---|---|---|
| 2031 | | | | | | |
| Oxides of Nitrogen | 1-Hour | 400 | 19.93 | 20 | 39.93 | 9.98% |
| | 24-Hour | 200 | 7.89 | 17.21 | 25.10 | 12.55% |
| Nitrogen Dioxide | 1-Hour (CAAQS) | 83 | 16.98 | 33.62 | 50.60 | 60.97% |
| | Annual (CAAQS) | 24 | 1.71 | 17.96 | 19.67 | 81.99% |
| PM2.5 | 24-Hour | 27 | 4.01 | 12.35 | 16.36 | 60.59% |
| | Annual | 8.8 | 0.99 | 7.360 | 8.35 | 94.89% |
| PM10 | 24-Hour | 50 | 17.13 | 22.87 | 40.00 | 80.00% |

| Contaminant | Averaging Period | Threshold (µg/m³) | Maximum Model Concentration (µg/m³) | Background 90th Percentile Concentration (µg/m³) | Total (µg/m³) | Percentage of Threshold |
|---|---|---|---|---|---|---|
| 2041 | | | | | | |
| Oxides of Nitrogen | 1-Hour | 400 | 20.68 | 20 | 40.68 | 10.17% |
| | 24-Hour | 200 | 8.12 | 17.21 | 25.33 | 12.67% |
| Nitrogen Dioxide | 1-Hour (CAAQS) | 83 | 17.29 | 33.62 | 50.91 | 61.34% |
| | Annual (CAAQS) | 24 | 1.77 | 17.96 | 19.73 | 82.24% |
| PM2.5 | 24-Hour | 27 | 5.22 | 12.35 | 17.57 | 65.08% |
| | Annual | 8.8 | 1.27 | 7.36 | 8.63 | 98.07% |
| PM10 | 24-Hour | 50 | 22.08 | 22.87 | 44.95 | 89.90% |

### 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 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 roadways were assessed in dispersion modelling. No exceedances of standards were predicted in the study area including the proposed Project Site.

## 6.0 Conclusions

SLR Consulting (Canada) Ltd. (SLR), completed a Land Use Compatibility study focusing on air quality, odour, and dust in support of an Official Plan Amendment (the "OPA") to permit mixed-use residential development within Urban Core Area 1 of the Trafalgar Urban Core.

The assessment has included a review of air quality emission from existing industrial facilities and surrounding future land uses in the area. A review was completed for the vacant lands in the immediate area, including the future land uses within the North Oakville East Secondary Plan. A detailed air quality analysis of transportation emissions sources in the immediate area was also conducted. All contaminants were predicted to meet the applicable guidelines at the Project site.

In accordance with the Halton Region Land Use Compatibility Guidelines (LUCG), the Project site is anticipated to be compatible with the surrounding land uses from an air quality perspective. Further, the Project site will not affect the ability for industrial facilities to obtain or maintain compliance with applicable Provincial environmental policies, regulations, approvals, authorizations, and guidelines. The requirements of MECP Guideline D-6 and Regulation 419/05 are met. As the applicable policies and guidelines are met, the Project site is:

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

# 7.0 Statement of Limitations

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for Argo Trafalgar Corporation, hereafter referred to as the "Client". It is intended for the sole and exclusive use of the Client. The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

This report has been prepared in a manner generally accepted by professional consulting principles and practices for the same locality and under similar conditions. No other representations or warranties, expressed or implied, are made.

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# 8.0 Closure

Should you have questions on the above report, please contact the undersigned.

Sincerely,

**SLR Consulting (Canada) Ltd.**


Jenny Graham, P.Eng.
Senior Air Quality Engineer

Mina Ghorbani, M.Eng., E.I.T.
Air Quality Scientist

Distribution: 1 electronic copy – Argo Trafalgar Corporation
1 electronic copy – SLR Consulting (Canada) Ltd.

# Figures

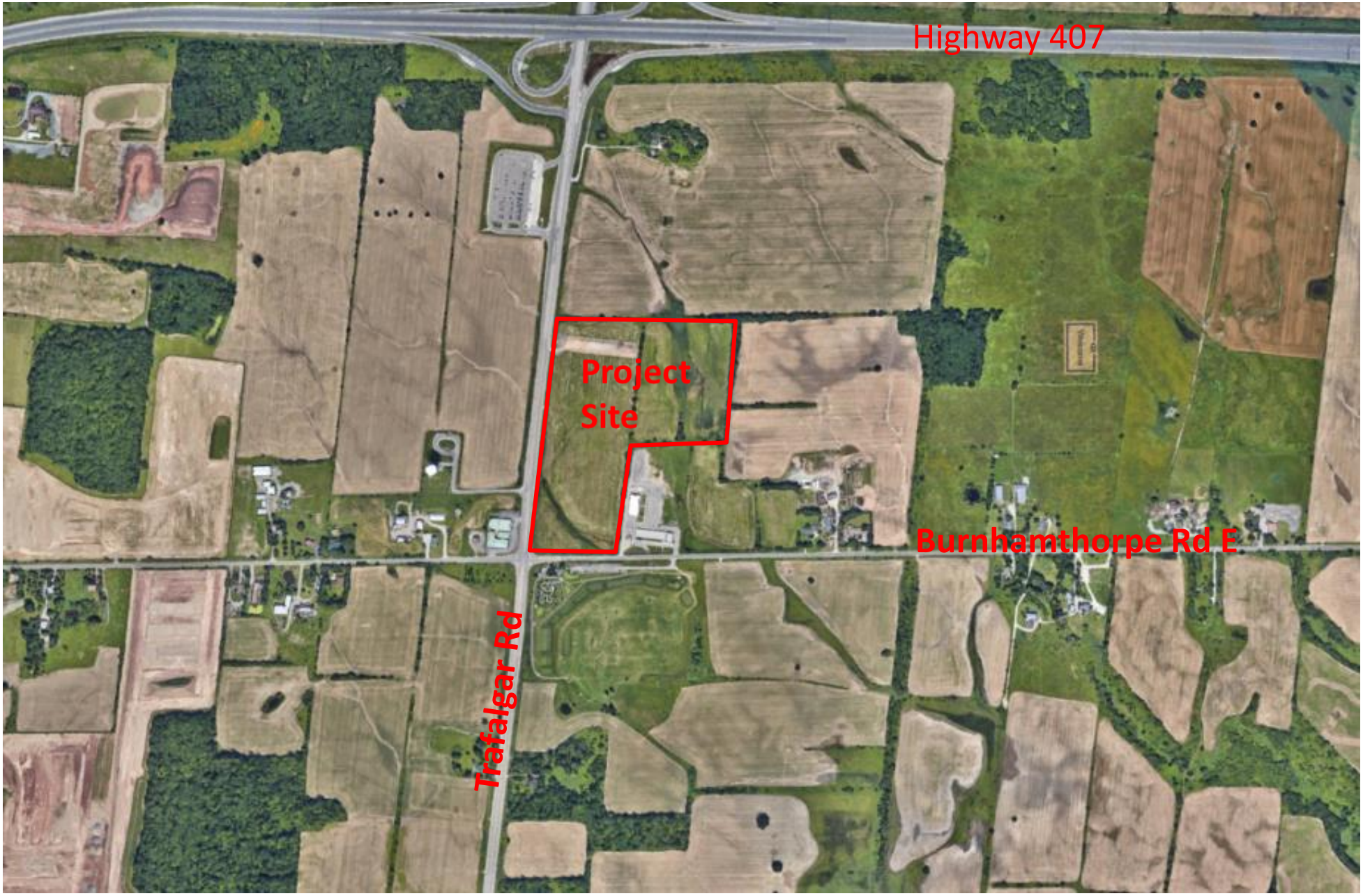
## Land Use Compatibility & Air Quality Assessment

**Part of Lot 12, Concession 2, NDS, Oakville**

**Argo Trafalgar Corporation**

SLR Project No. 241.030781.00001

June 2, 2023




**ARGO TRAFALGAR CORPORATION**

PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO

EXCERPTS FROM SITE PLAN

True North

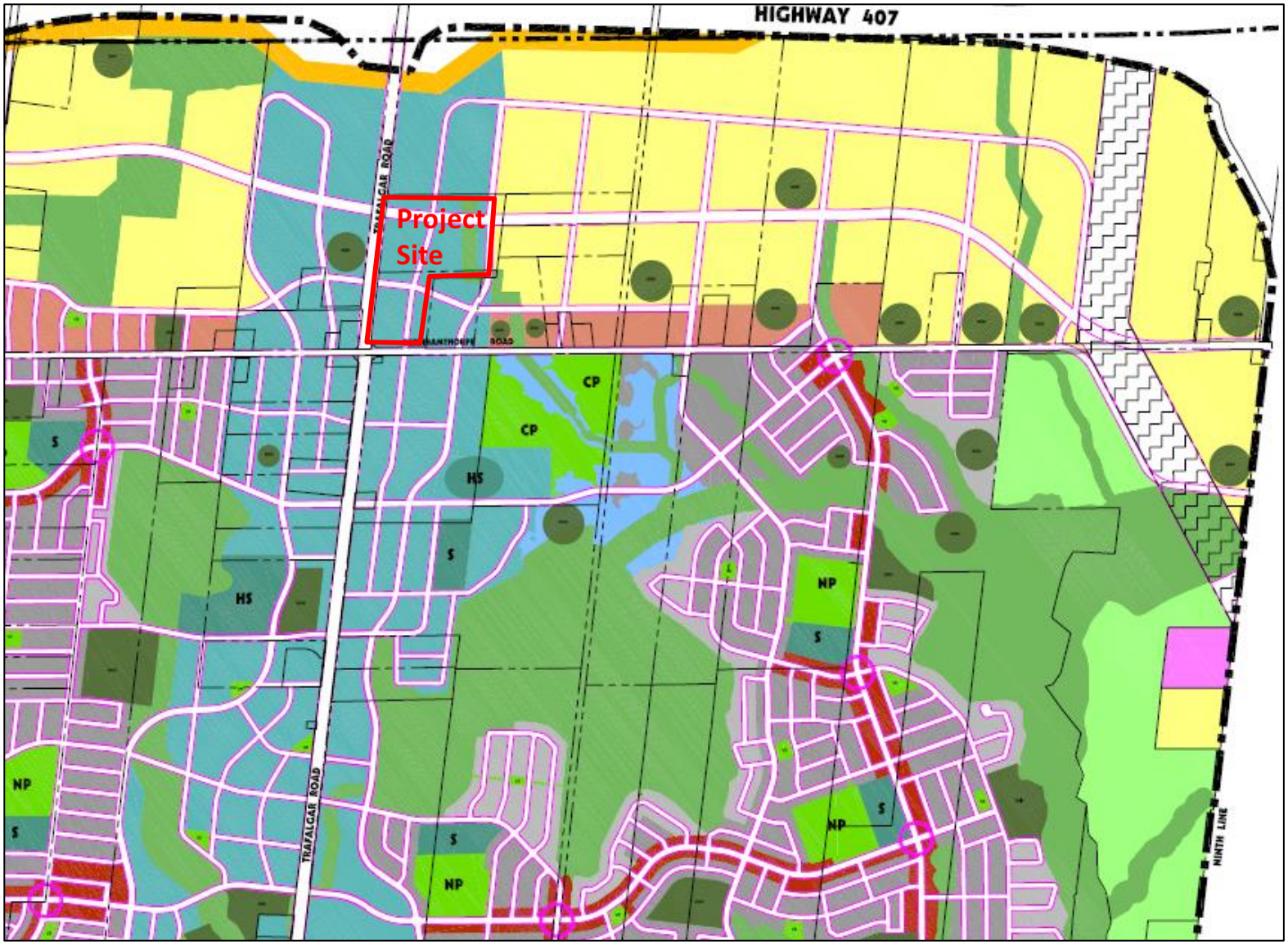
Scale: 1:3,000 METRES

Date: May 12, 2023 Rev 0.0

Project No. 241.030781.00001

Figure No. 1

SLR global environmental solutions




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
- TRANISITIONAL AREA
- EMPLOYMENT AREA
- NATURAL HERITAGE SYSTEM AREA
- INSTITUTIONAL AREA
- STORMWATER MANAGEMENT FACILITY (final location tbd)
- CP — COMMUNITY PARK AREA
- NP — 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

True North

**ARGO TRAFALGAR CORPORATION**

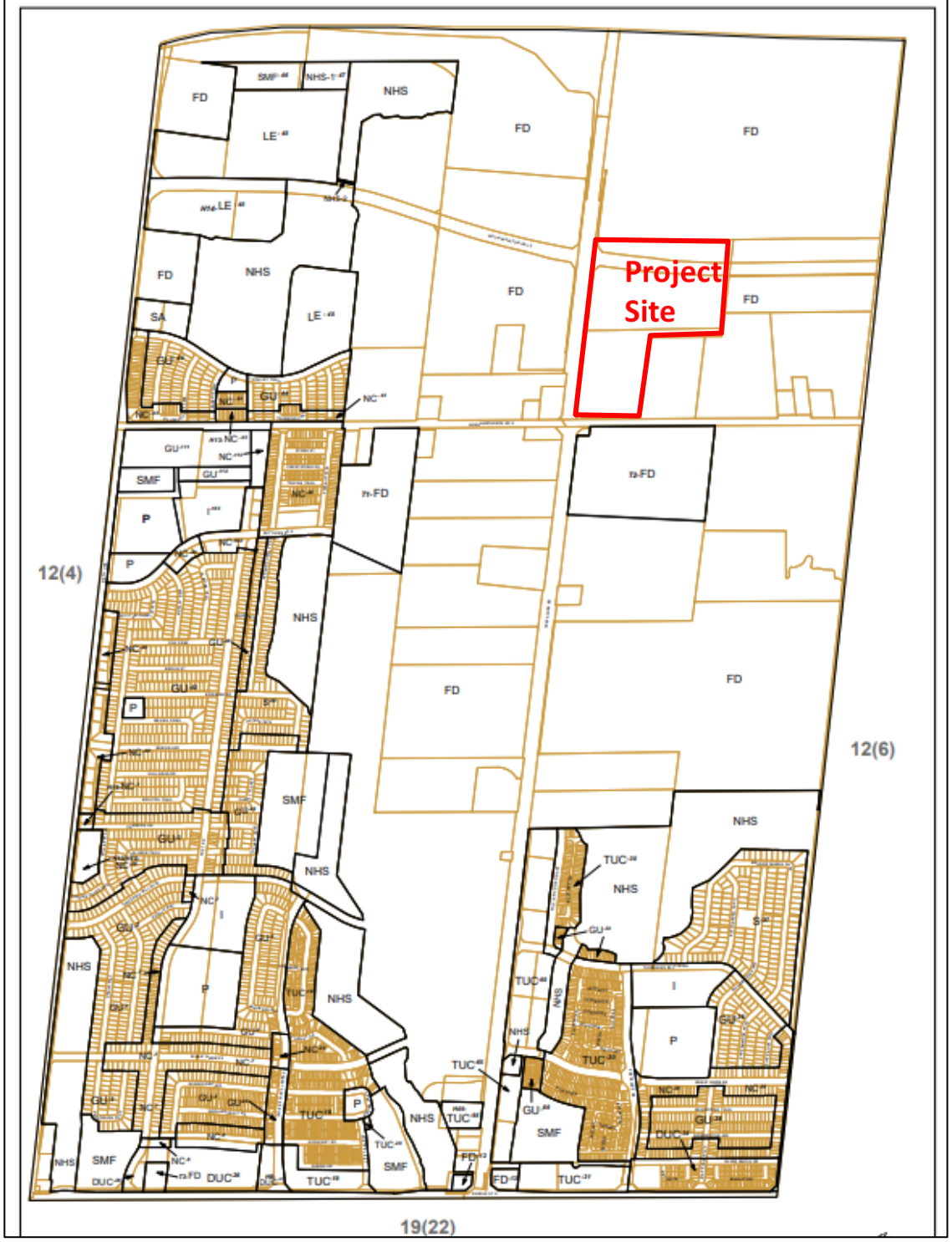
PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO

LAND USE DESIGNATIONS FROM NORTH OAKVILLE EAST SECONDARY PLAN

**Source:** North Oakville Secondary Plans

| | | |
|---|---|---|
| Scale: | n/a | METRES |
| Date: May 12, 2023 | Rev 0.0 | Figure No. **2A** |
| Project No. 241.030781.00001 | | |

SLR global environmental solutions




| 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 | Institutional |
| FD | Future Development (2022-007) |
| NHS | Natural Heritage System |
| CE | Cemetery |
| AS | Automobile Service Zone |
| SMF | Stormwater Management Facility |
| P | Park |

True North

**ARGO TRAFALGAR CORPORATION**

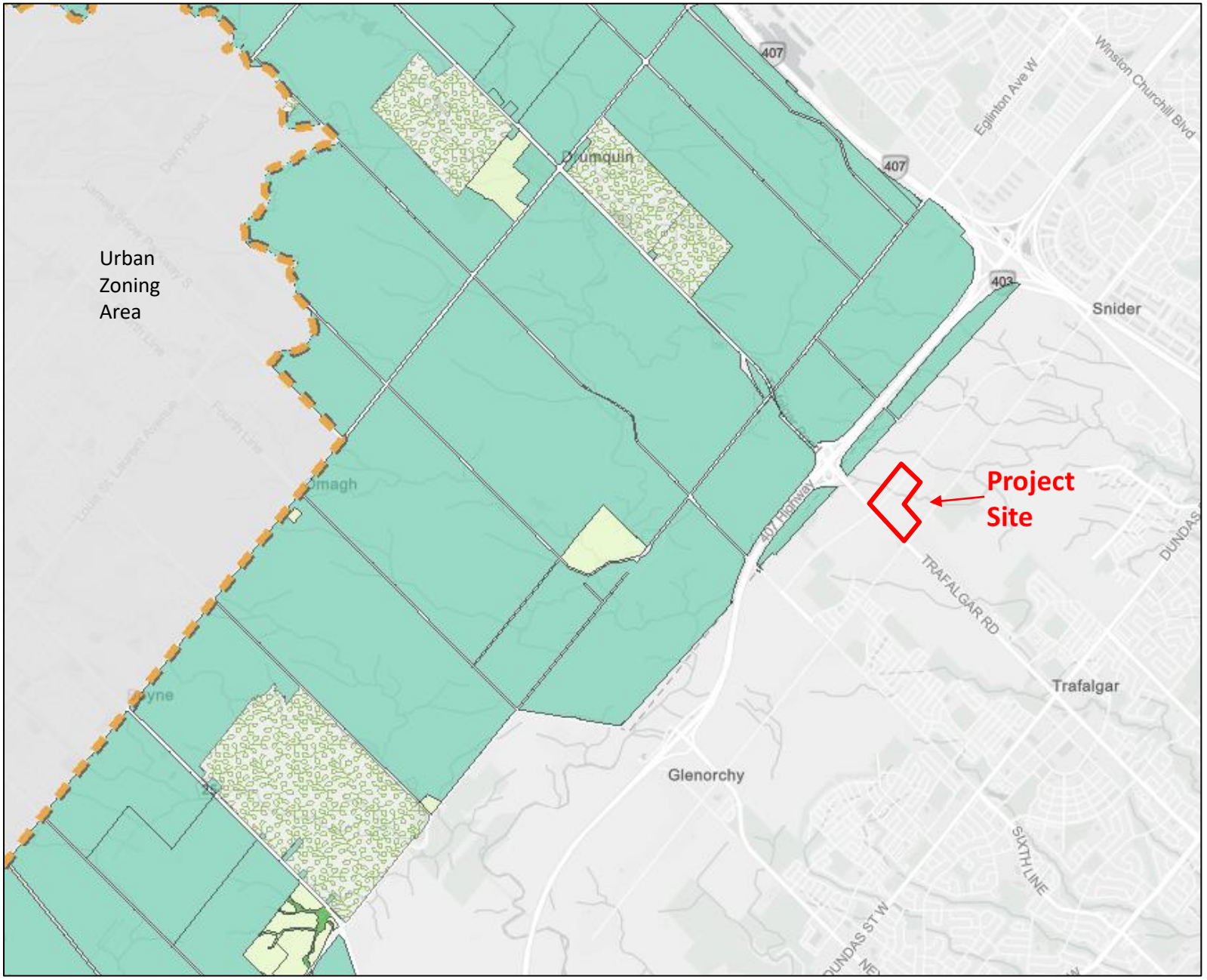
PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO

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

| | | |
|---|---|---|
| Scale: n/a | | METRES |
| Date: May 12, 2023 | Rev 0.0 | Figure No. **2B** |
| Project No. 241.030781.00001 | | |

**Source:**
zoning-by-law-2009-189-full-document.pdf (oakville.ca)

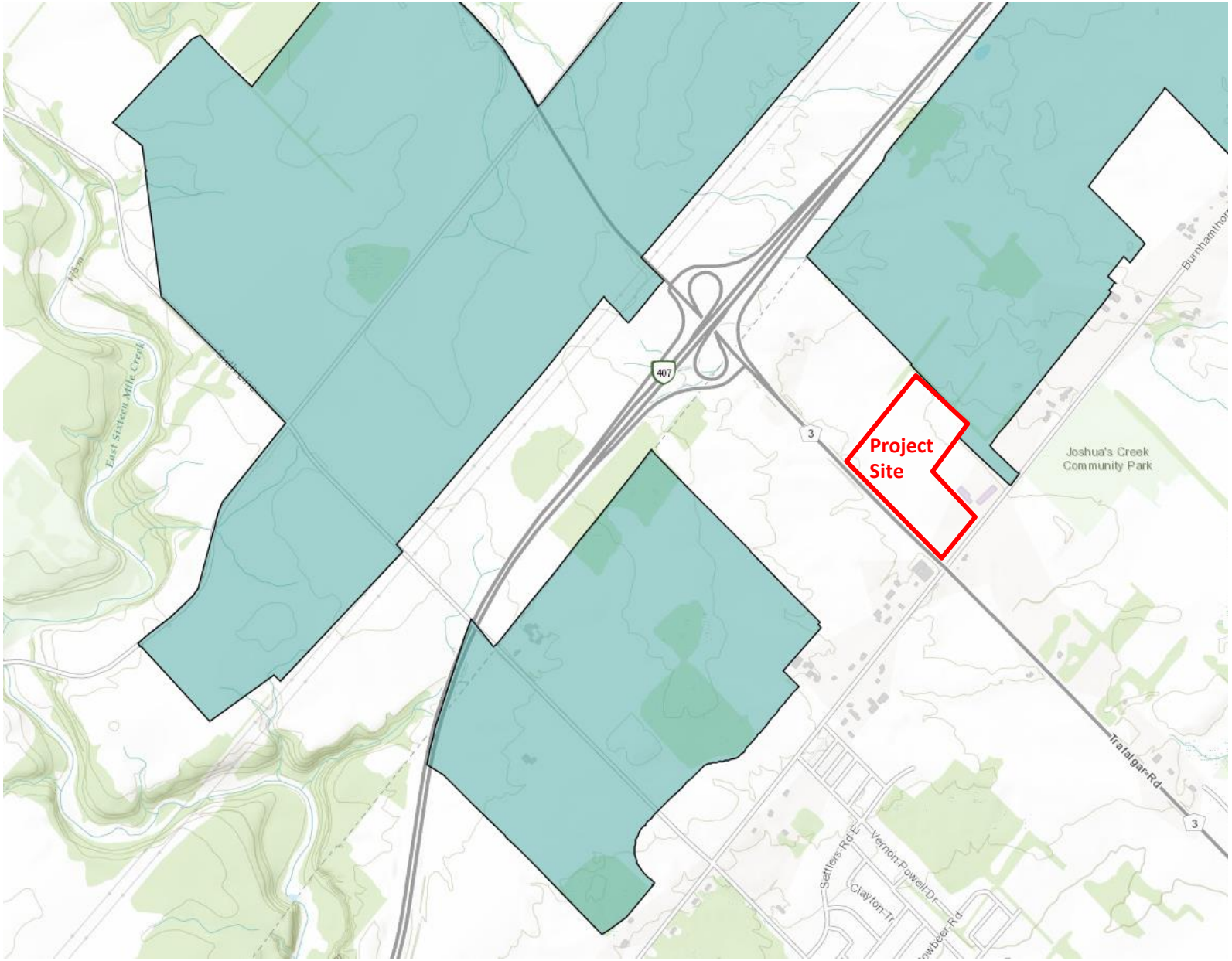
SLR global environmental solutions




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

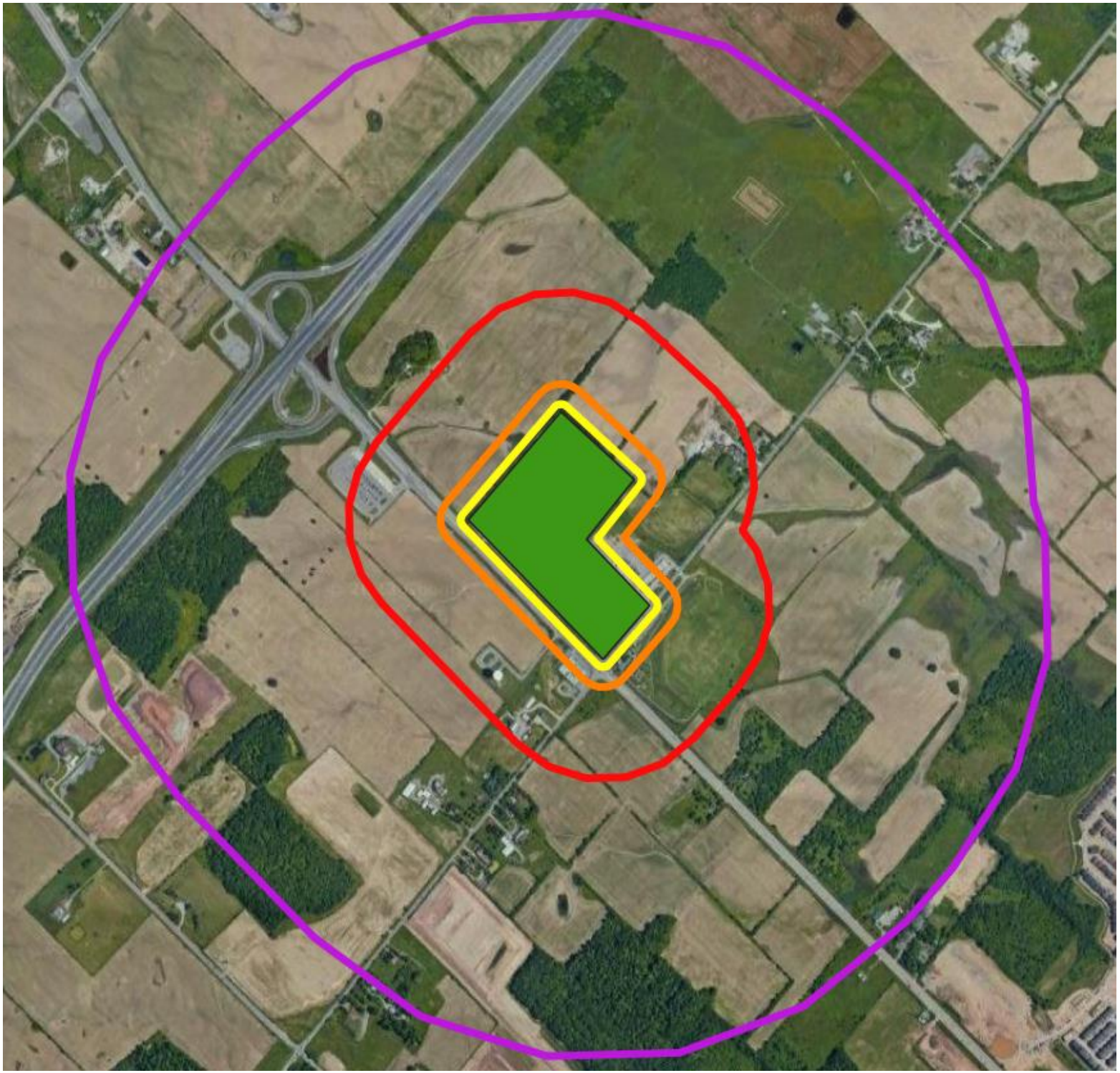
| | | | |
|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: n/a | METRES |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **2C** |
| ZONING DESIGNATIONS – TOWN OF MILTON ZONING BY-LAW 144-2003 | | Project No. 241.030781.00001 | |

SLR global environmental solutions




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

| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: n/a | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **2D** | |
| EXCERPT OF THE PLACE TO GROW MAP - PROVINCIALLY SIGNIFICANT EMPLOYMENT ZONES | | Project No. 241.030781.00001 | | |



20 m Separation

70 m Separation

300 m Separation

1000 m Separation

True North

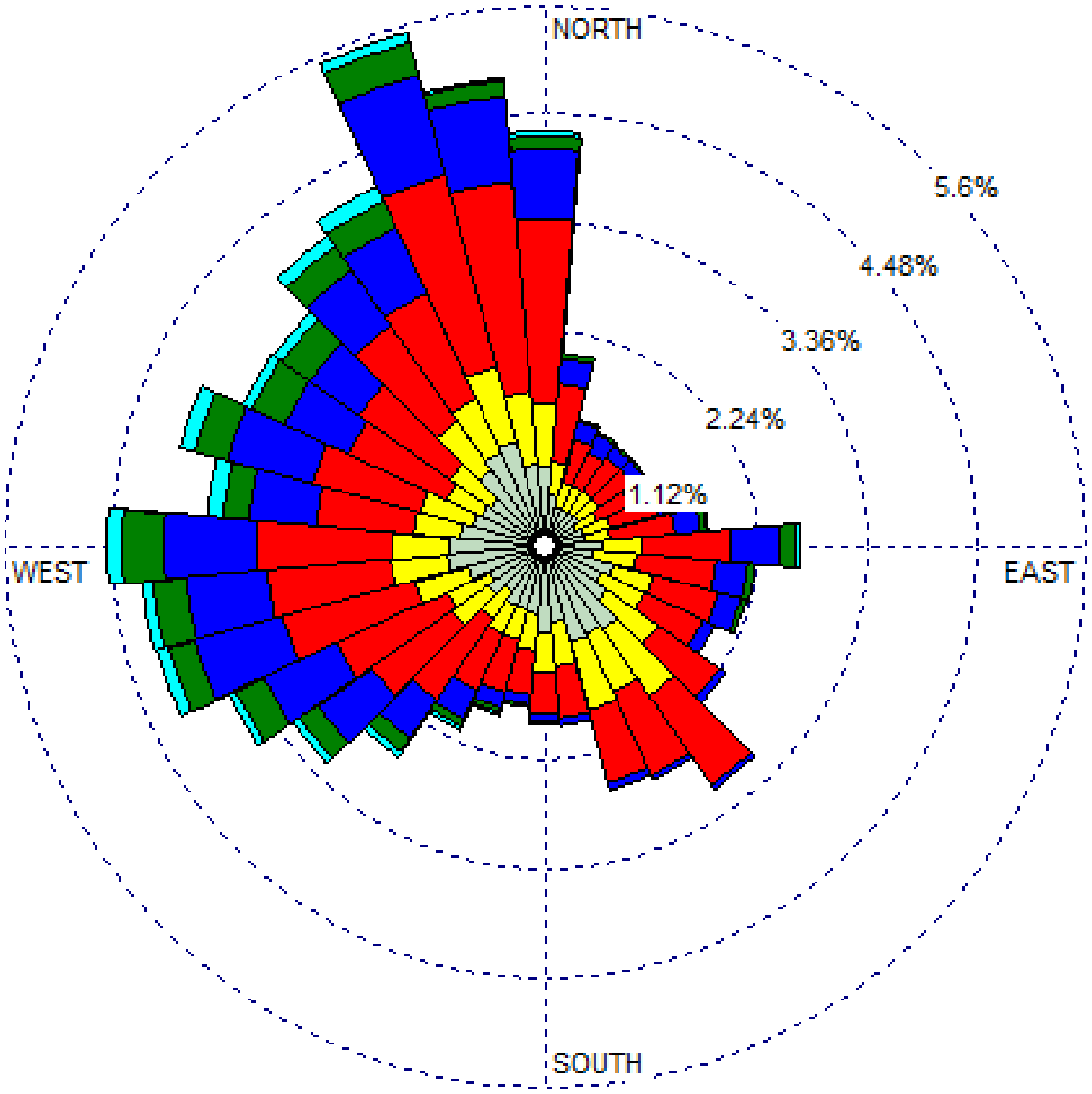
**ARGO TRAFALGAR CORPORATION**

PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO

GUIDELINE D-6 SEPARATION DISTANCES TO 1000 METRES

| | | |
|---|---|---|
| Scale: 1: 10,000 | | METRES |
| Date: May 12, 2023 | Rev 0.0 | Figure No. 3 |
| Project No. 241.030781.00001 | | |

SLR global environmental solutions




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

**ARGO TRAFALGAR CORPORATION**

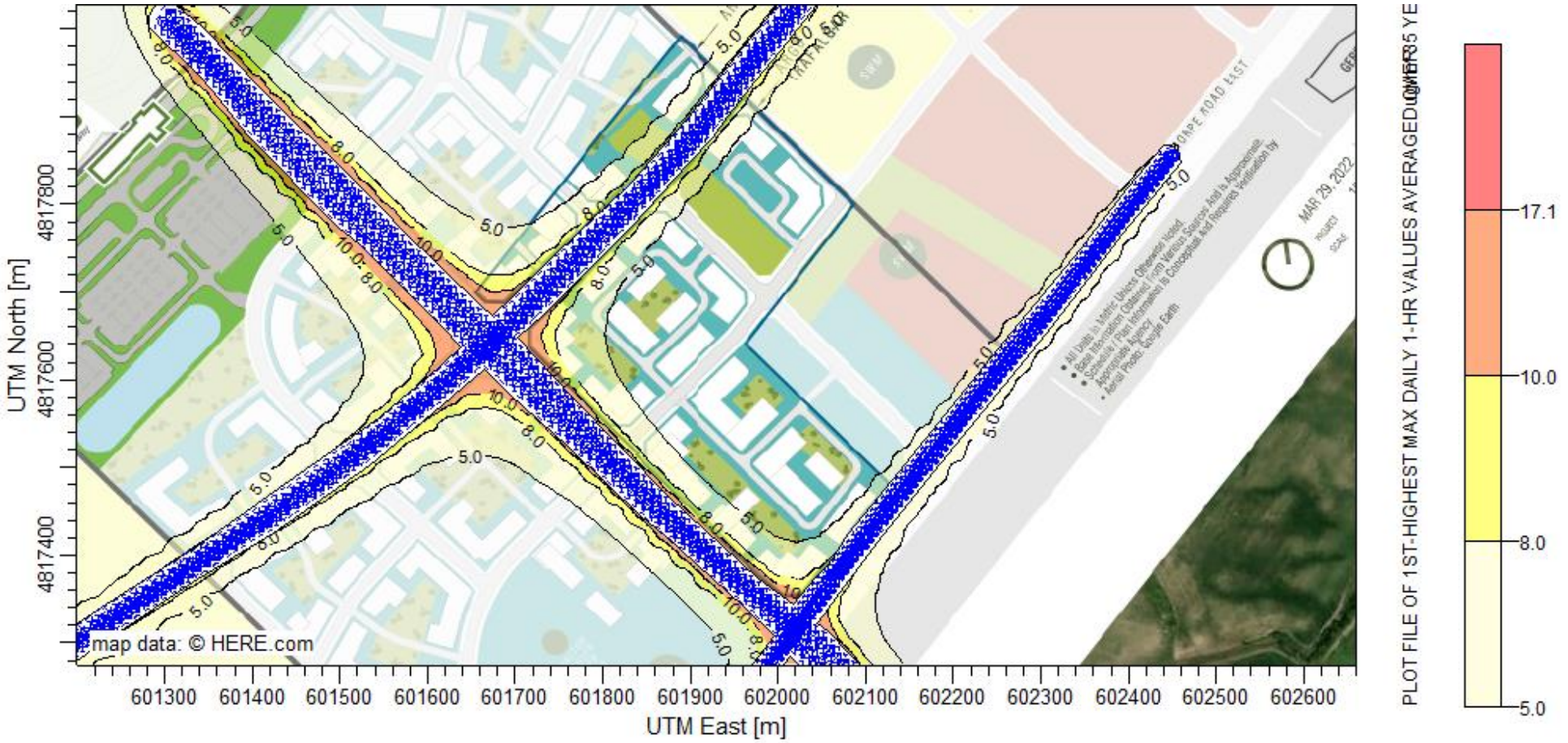
PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO

WIND FREQUENCY DISTRIBUTION DIAGRAM (WIND ROSE) TORONTO PEARSON INTERNATIONAL AIRPORT (1996-2000)

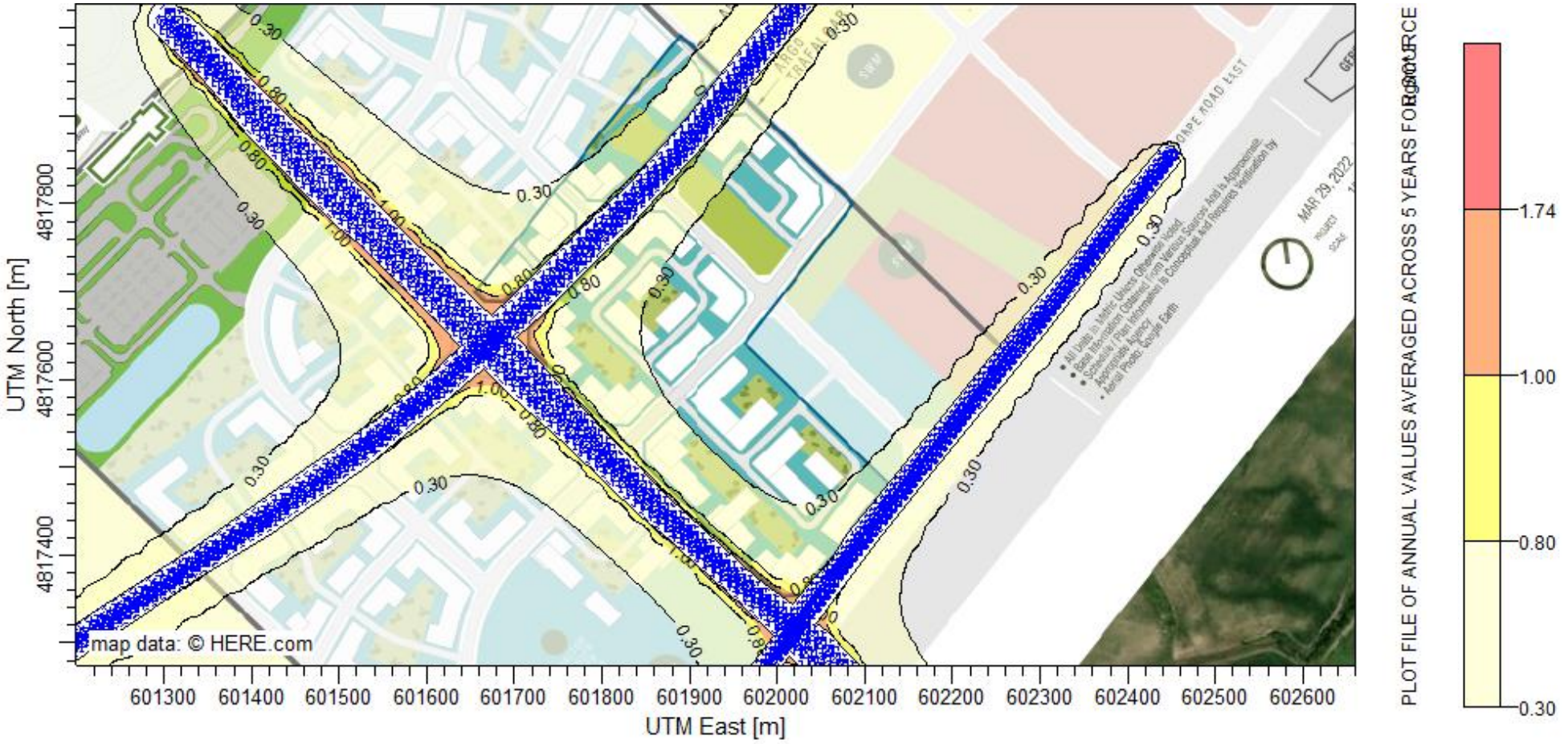
| | | |
|---|---|---|
| Scale: n/a | | METRES |
| Date: May 12, 2023 | Rev 0.0 | Figure No. **4** |
| Project No. 241.030781.00001 | | |

SLR global environmental solutions

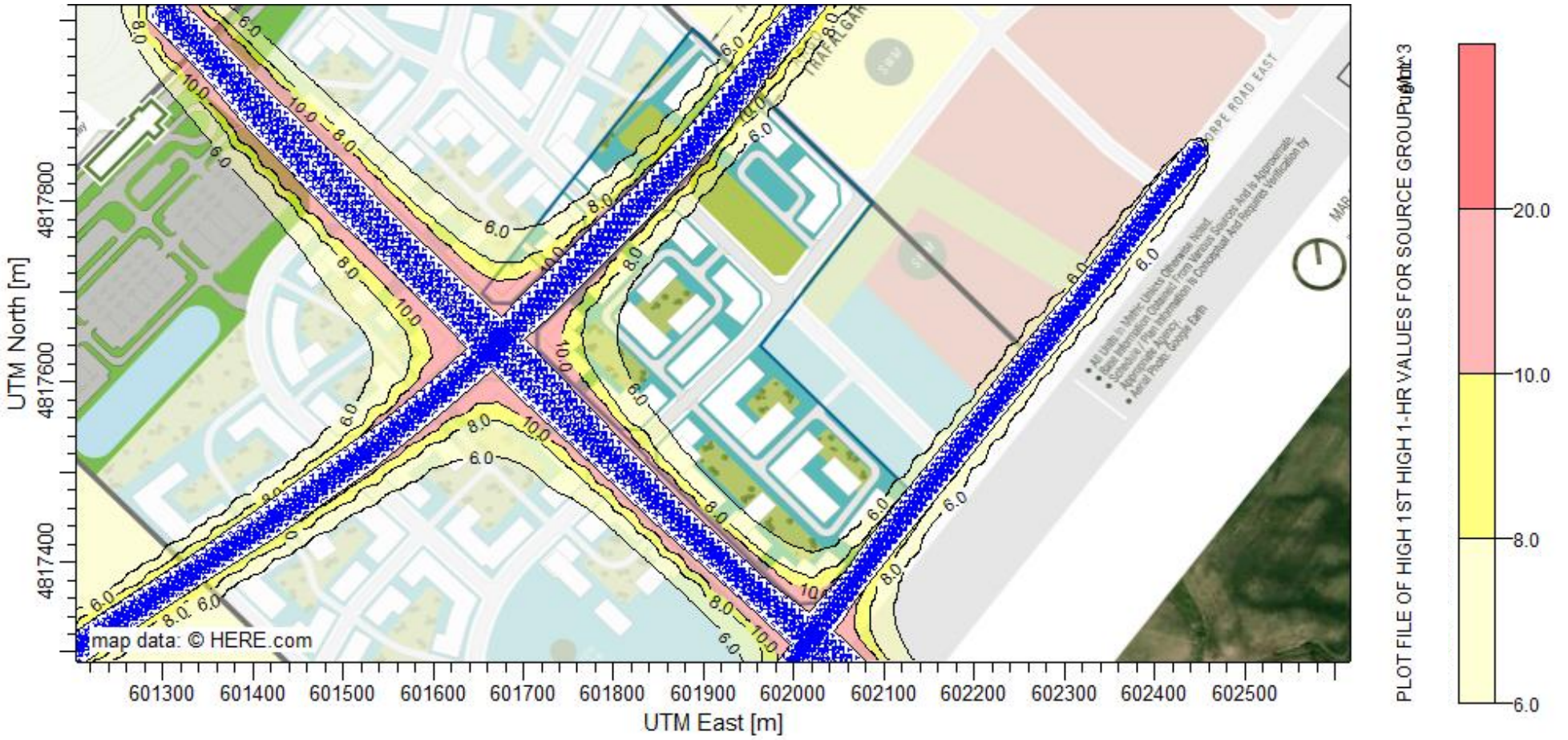

| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:7,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **5** | |
| MONITORING STATION LOCATION | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **6** | |
| 1- HOUR NO2 CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **7** | |
| ANNUAL NO2 CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
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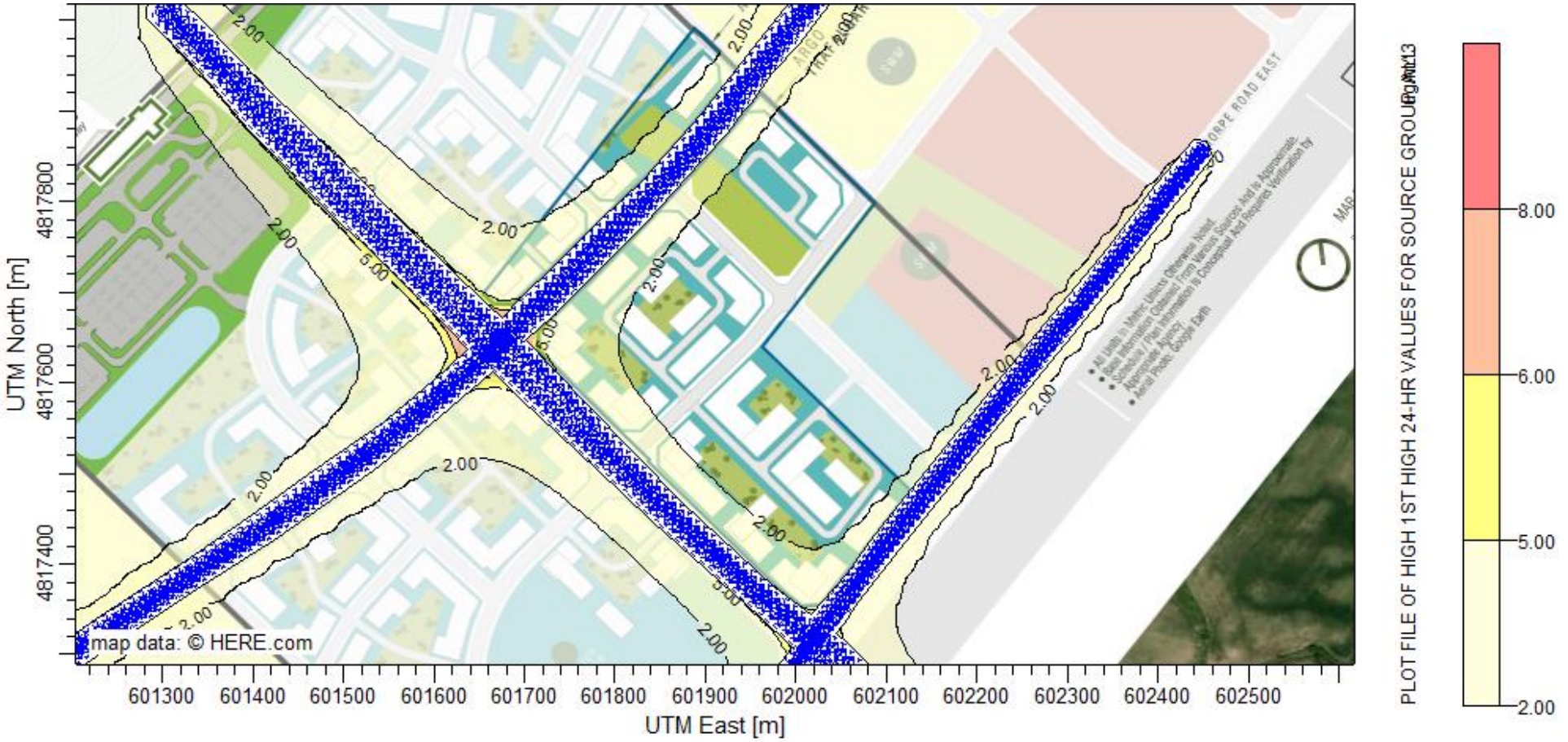
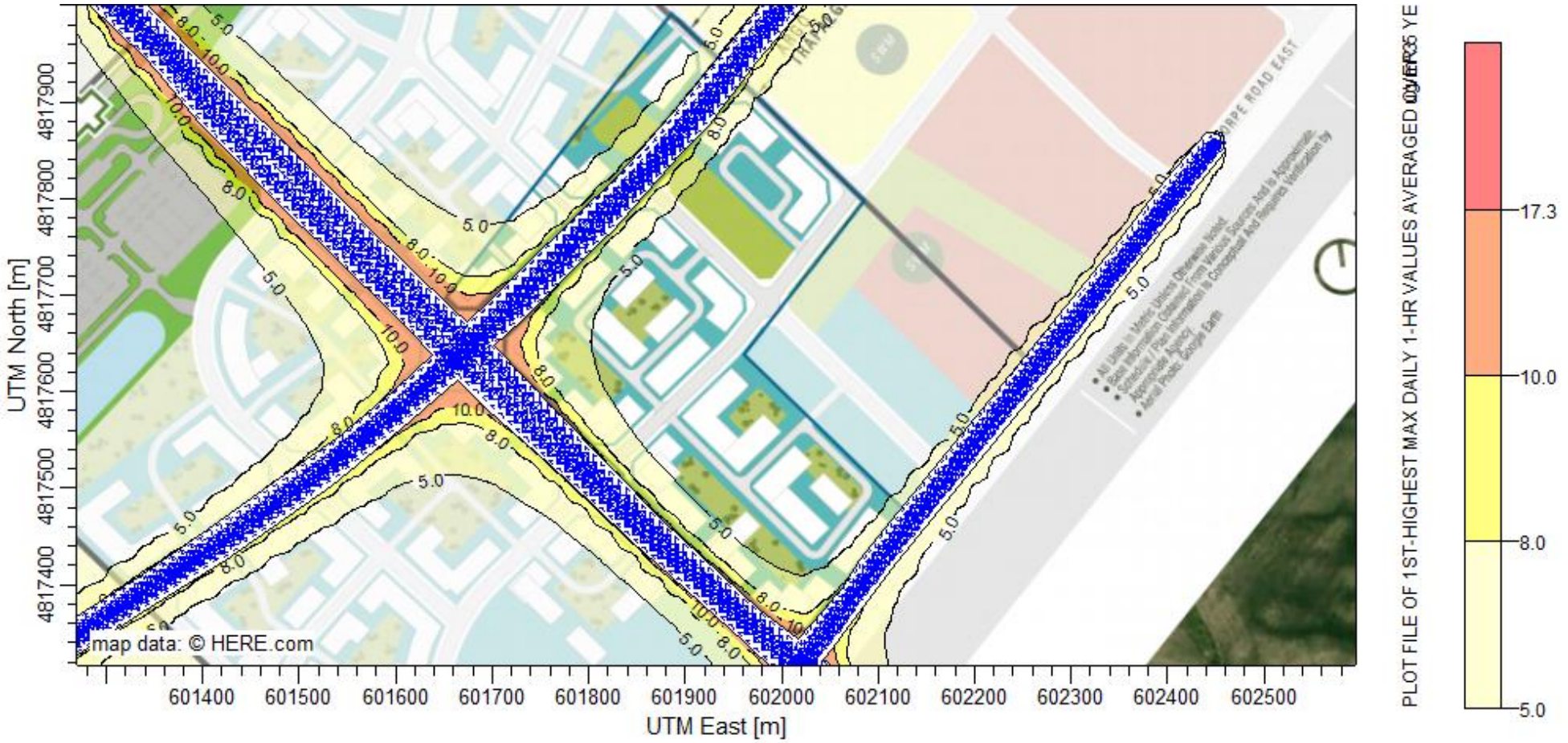
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **8** | |
| 1- HOUR NOX CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **9** | |
| 24-NOX CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
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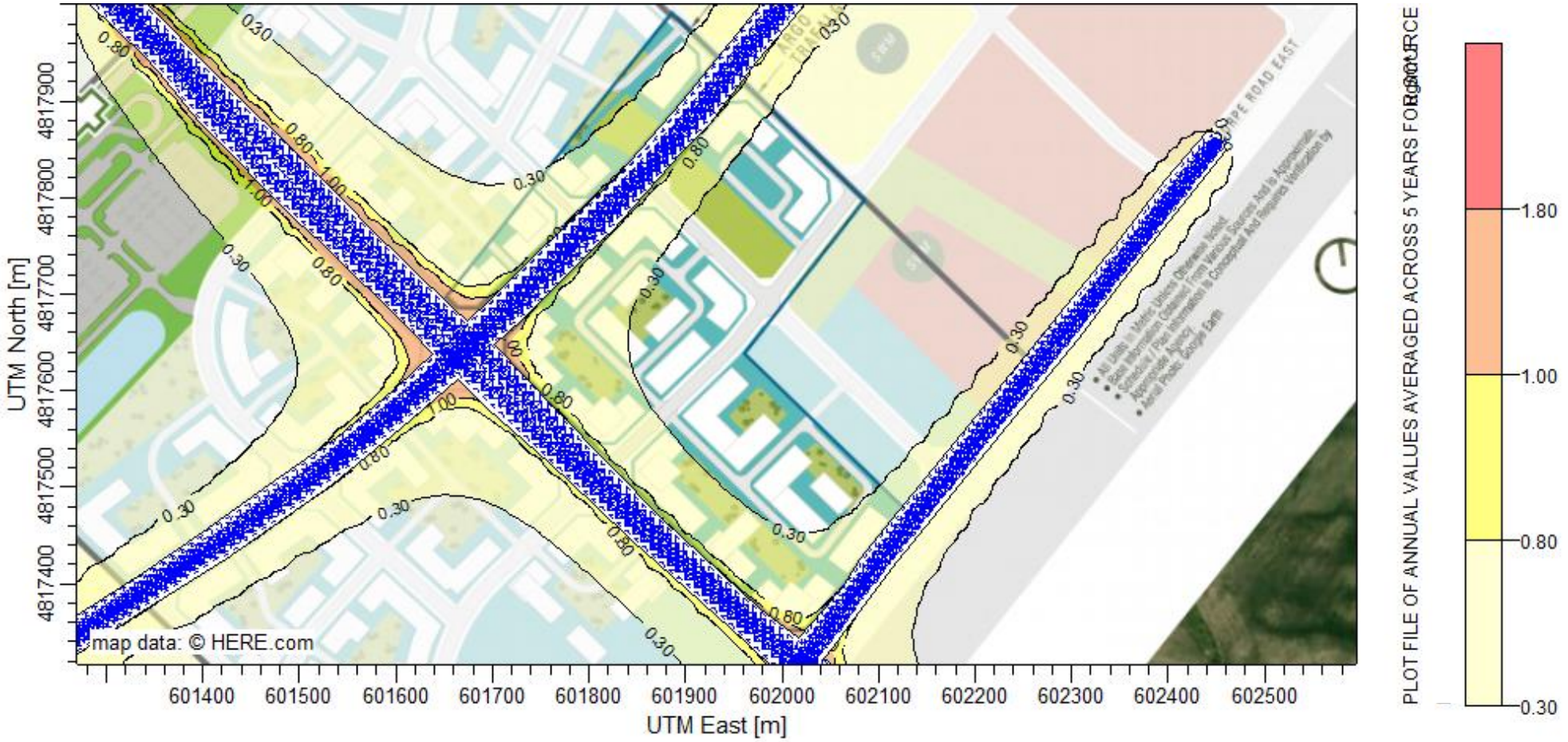
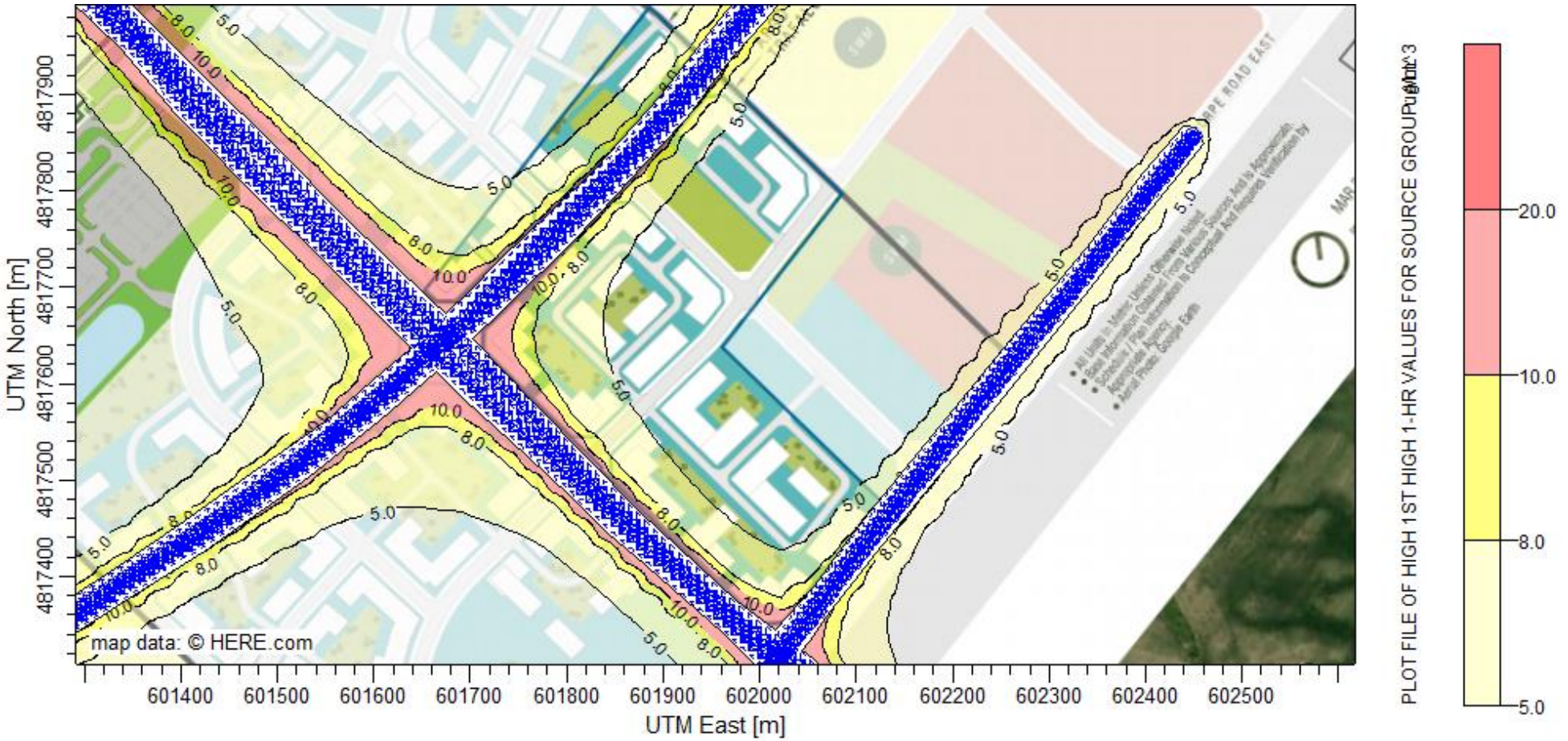
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **10** | |
| 1-HOUR NO2 CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **11** | |
| ANNUAL NO2 CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |

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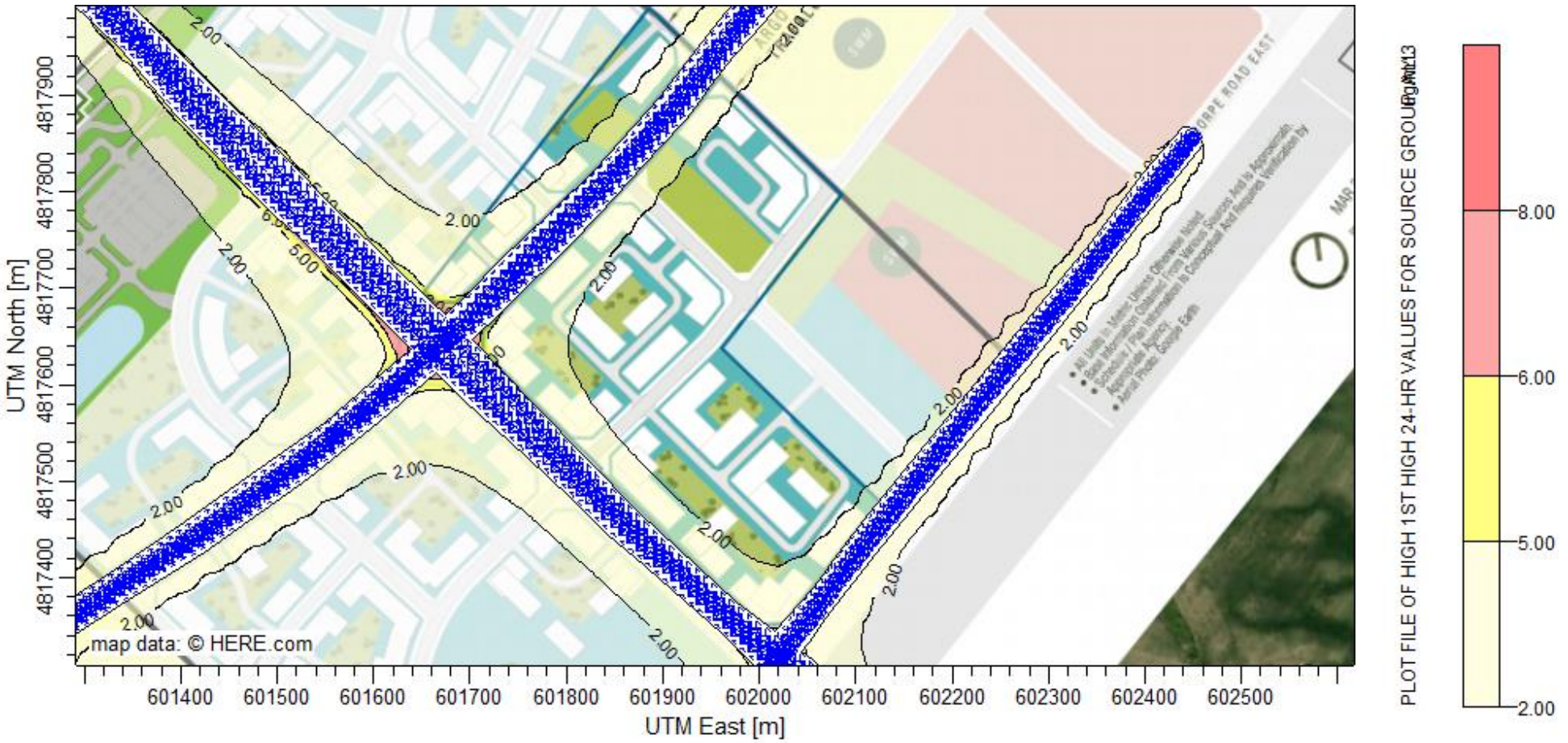
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **12** | |
| 1- HOUR NOX CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |

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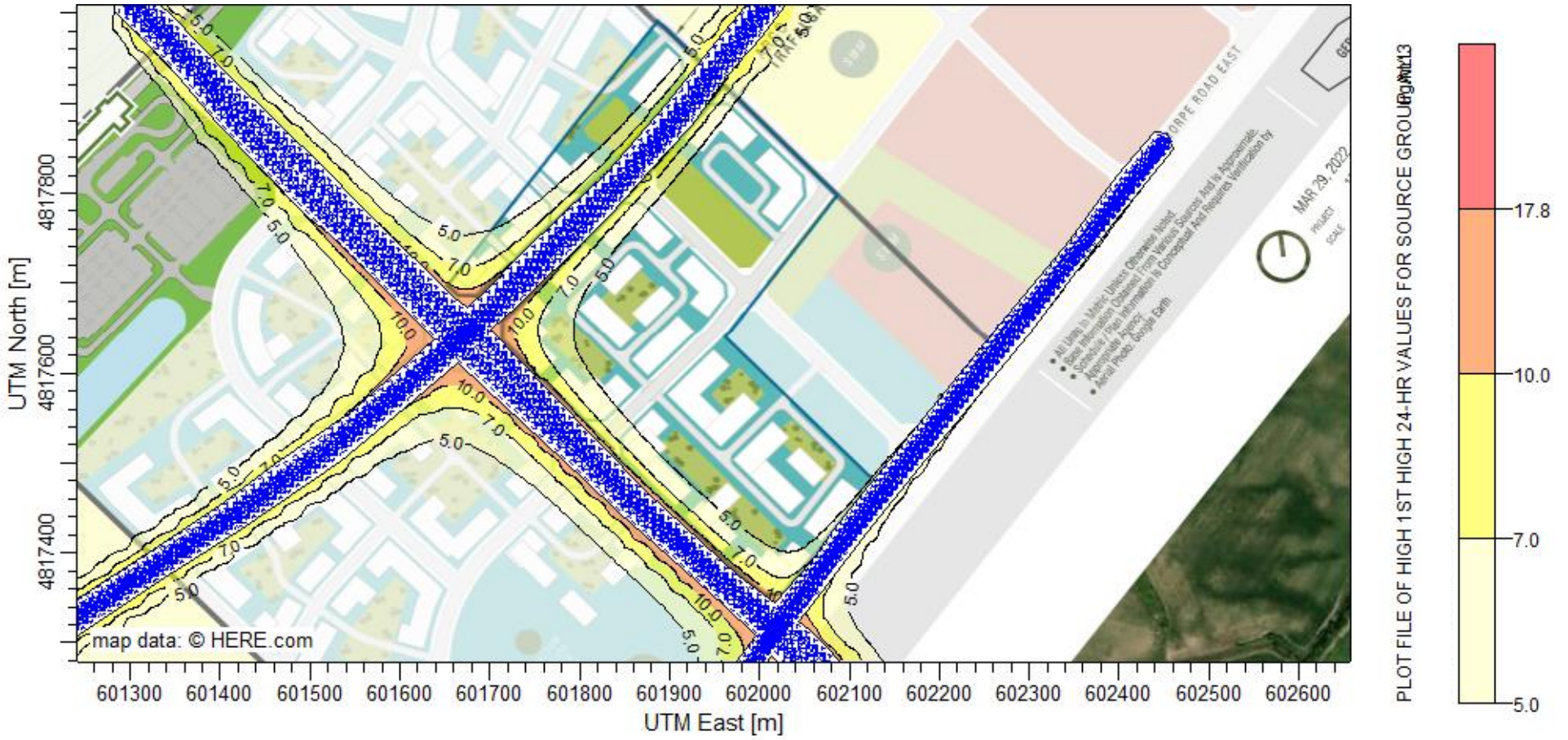
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **13** | |
| 24-NOX CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
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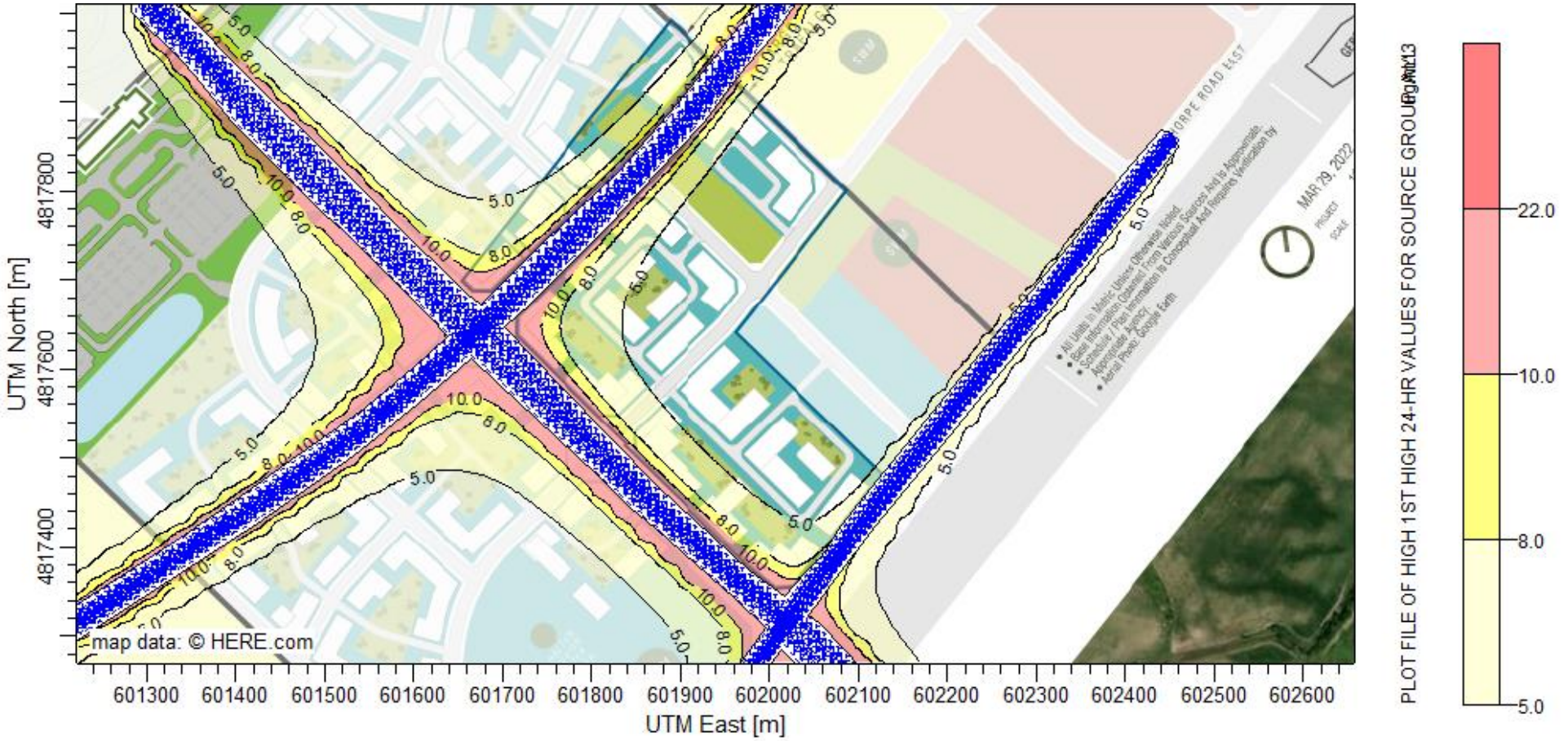
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **14** | |
| 24-HOUR PM10 CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
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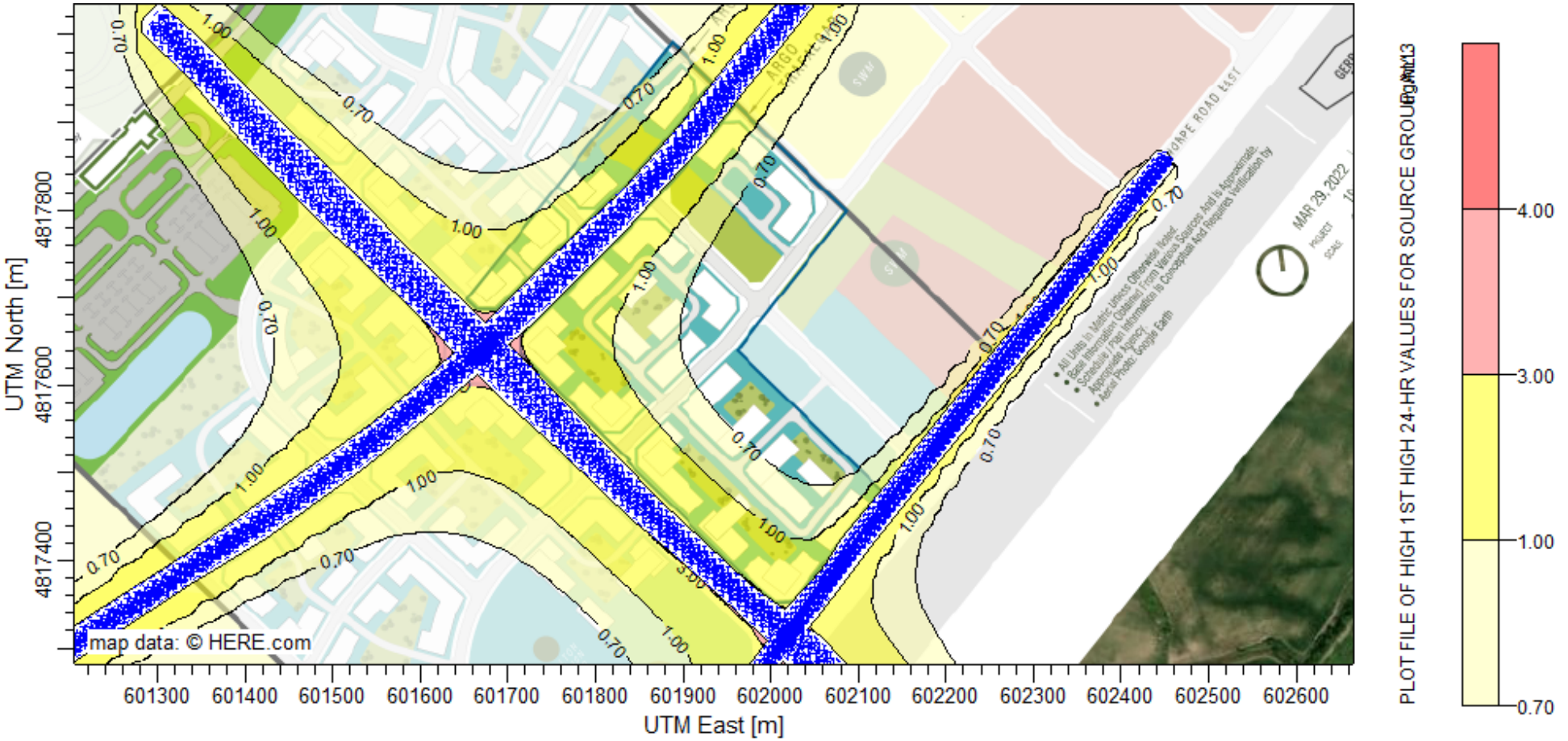
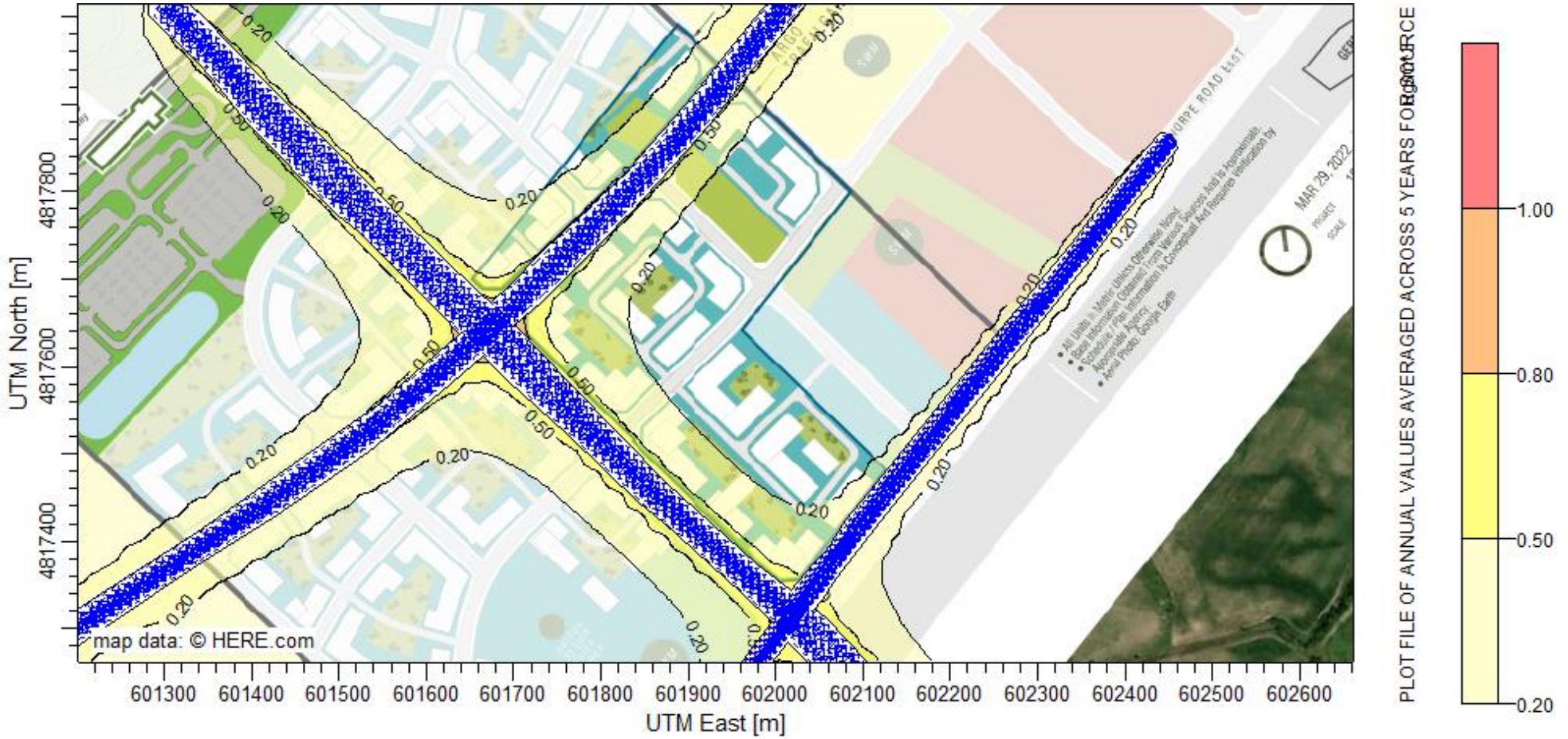
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **15** | |
| 24-HOUR PM10 CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **16** | |
| 24-HOUR PM2.5 CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |

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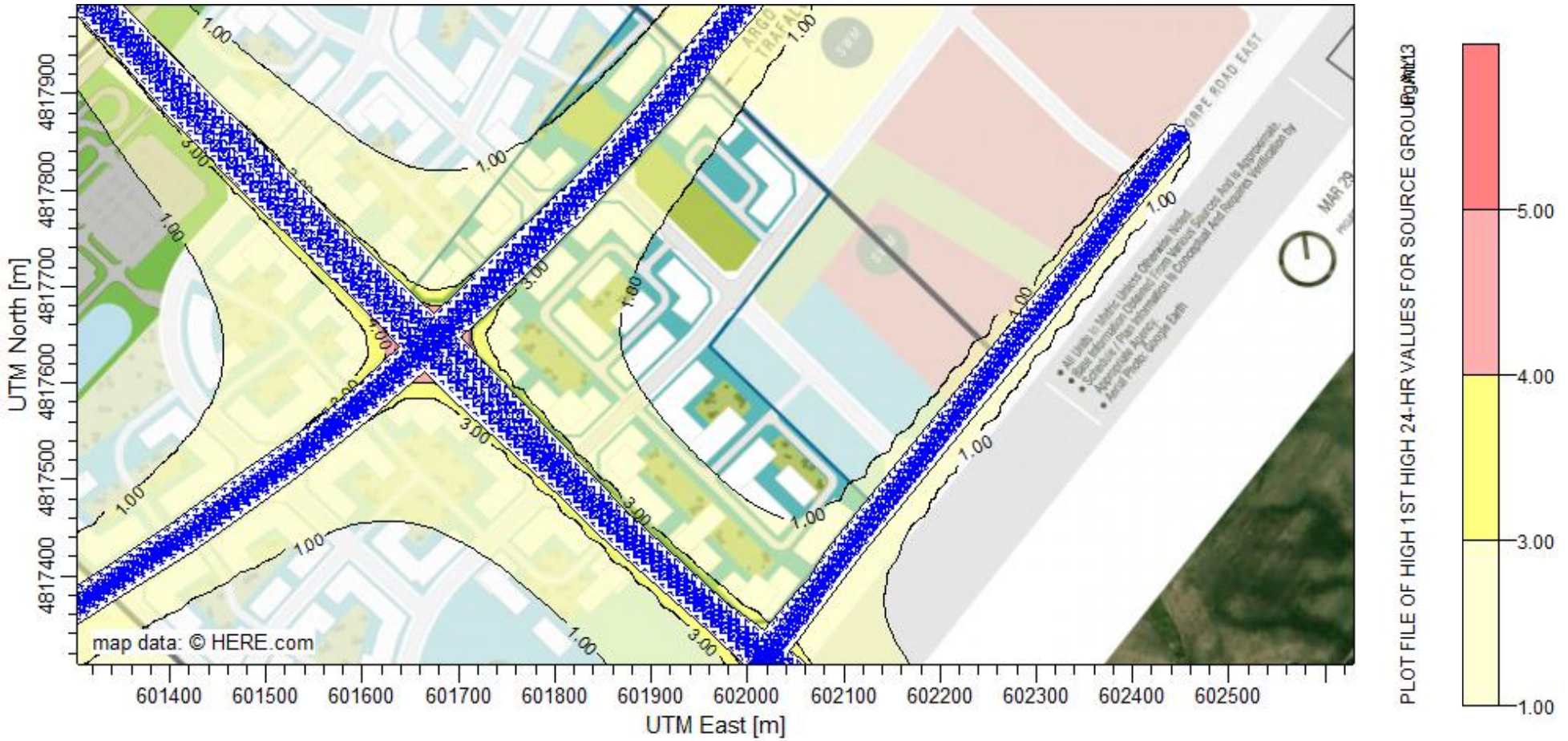
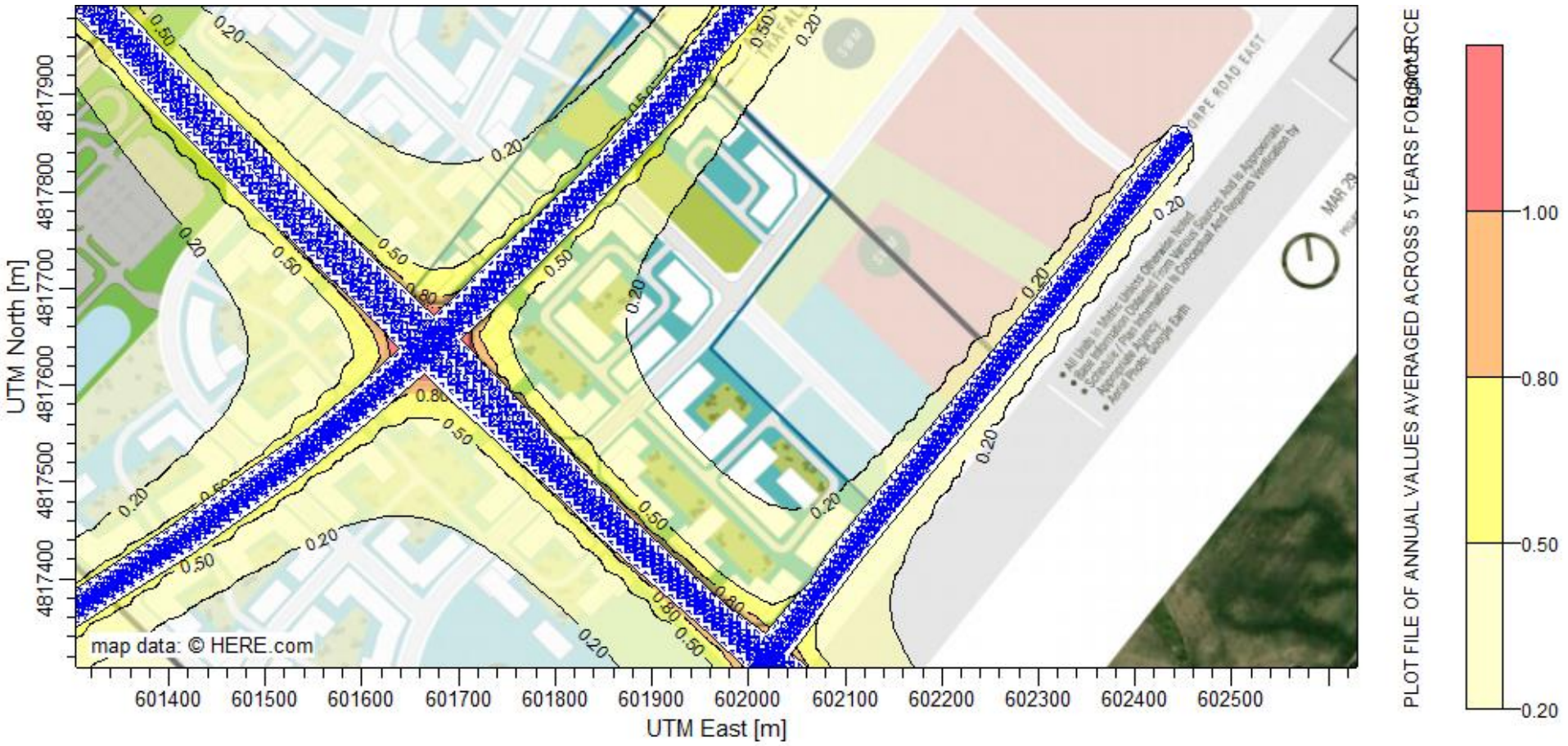
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **17** | |
| ANNUAL PM2.5 CONCENTRATIONS – 2031 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **18** | |
| 24-HOUR PM2.5 CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |




| | | | | |
|---|---|---|---|---|
| **ARGO TRAFALGAR CORPORATION** | True North | Scale: 1:2,000 | METRES | SLR global environmental solutions |
| PART OF LOT 12, CONCESSION 2, NDS, OAKVILLE, ONTARIO | | Date: May 12, 2023 Rev 0.0 | Figure No. **19** | |
| ANNUAL PM2.5 CONCENTRATIONS – 2041 EMISSIONS SCENARIO | | Project No. 241.030781.00001 | | |

# Appendix A Development Drawings

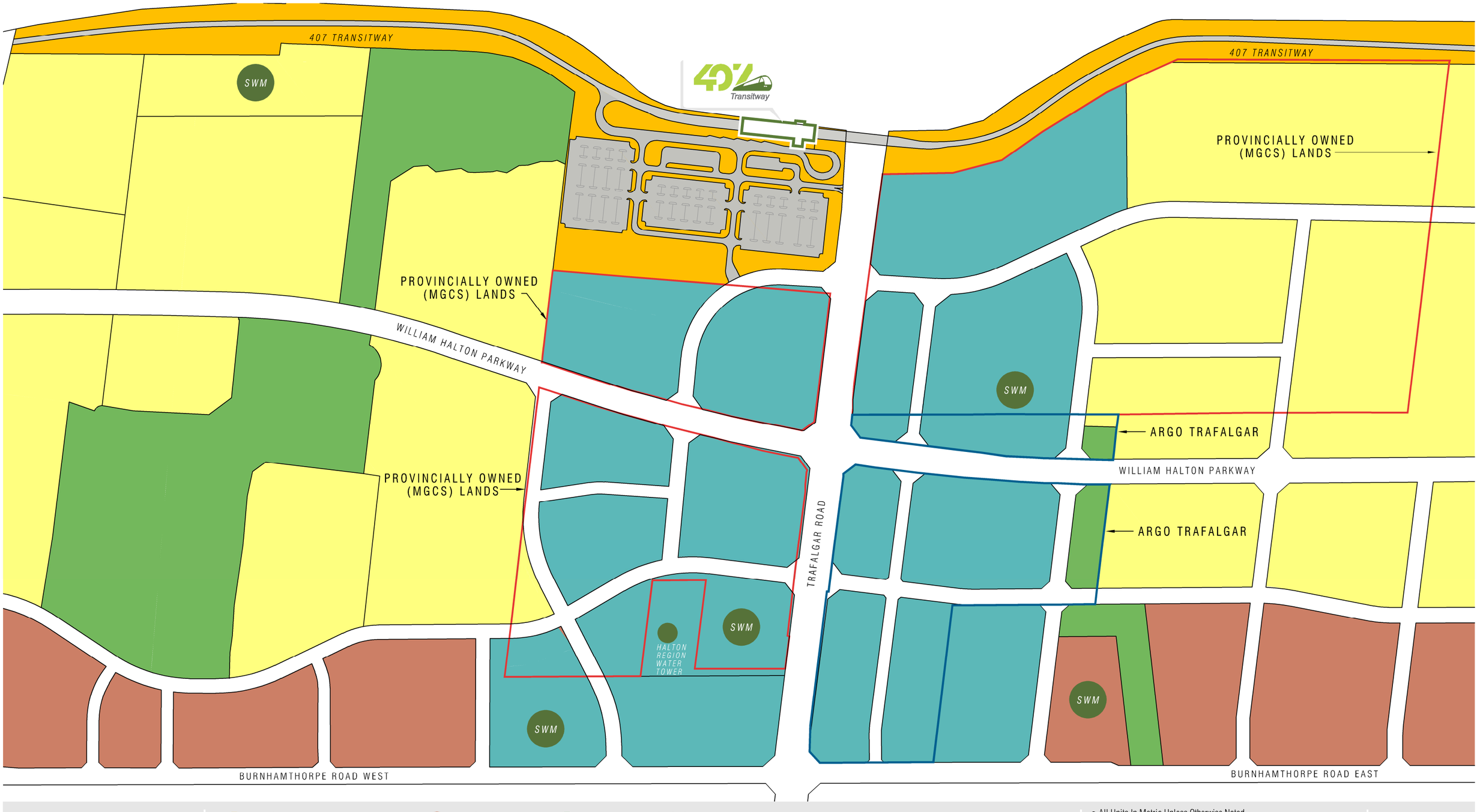
## Land Use Compatibility & Air Quality Assessment

**Part of Lot 12, Concession 2, NDS, Oakville**

**Argo Trafalgar Corporation**

SLR Project No. 241.030781.00001

June 2, 2023




**DRAFT**

- TRANSITWAY
- TRANSITIONAL AREA
- NATURAL HERITAGE SYSTEM AREA
- TRAFALGAR ROAD URBAN CORE AREA
- EMPLOYMENT AREA
- STORM WATER MANAGEMENT FACILITY (LOCATION TBD)

- All Units In Metric Unless Otherwise Noted.
- Base Information Obtained From Various Sources And Is Approximate.
- Schedule / Plan Information Is Conceptual And Requires Verification by Appropriate Agency.

GERRARD DESIGN

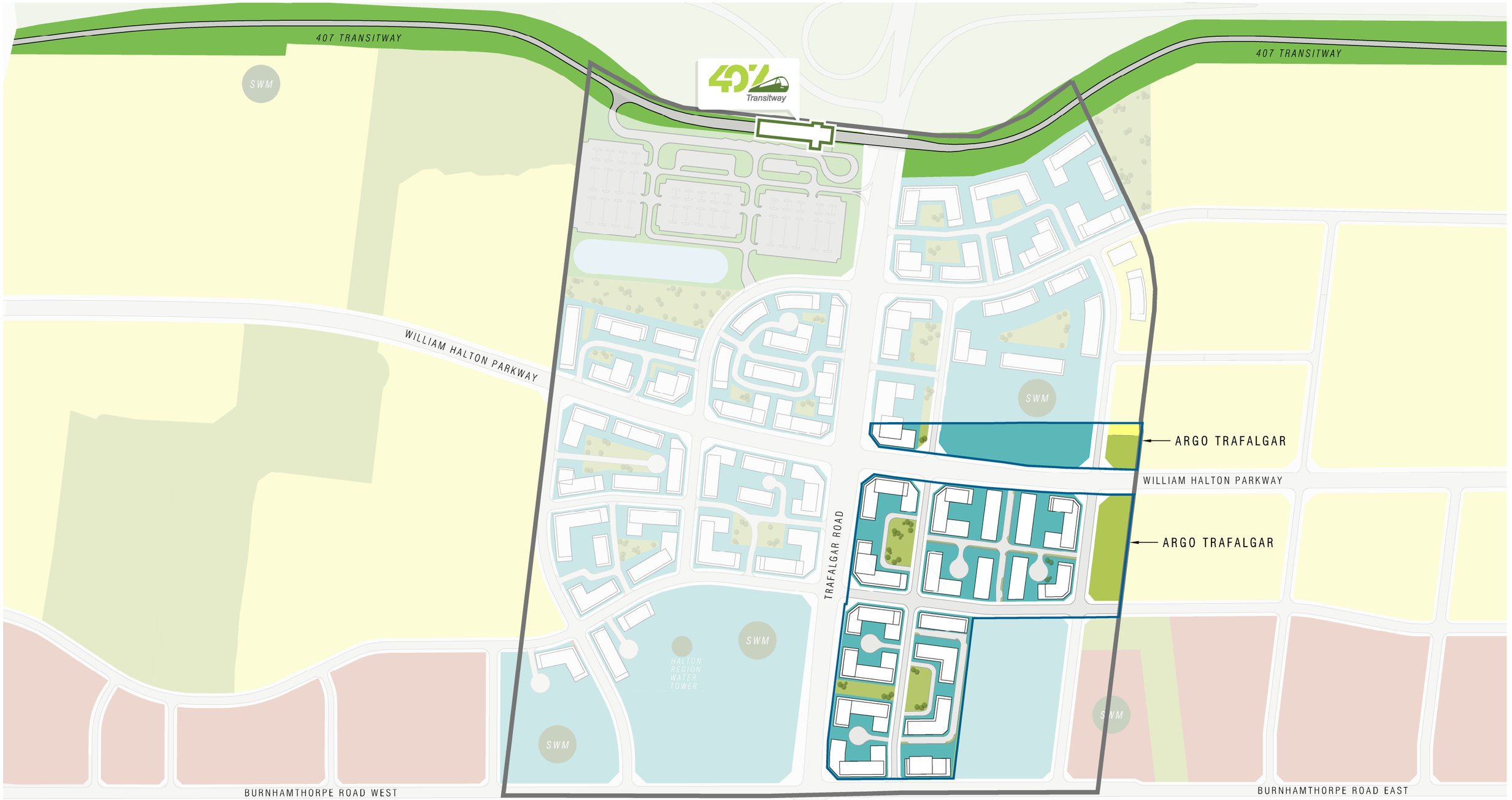
TRAFALGAR I & II | Oakville, Ontario

# PRELIMINARY LAND USE PLAN

MAY 26, 2023

PROJECT 1912

SCALE 1:5000




**DRAFT**

- MIXED USE - RETAIL/OFFICE/RESIDENTIAL
- EMPLOYMENT
- TRANSITIONAL AREA
- PARK / OPEN SPACE (PUBLIC & PRIVATE)
- STUDY AREA
- ARGO LANDS

- All Units In Metric Unless Otherwise Noted.
- Base Information Obtained From Various Sources And Is Approximate.
- Schedule / Plan Information Is Conceptual And Requires Verification by Appropriate Agency.
- Aerial Photo: Google Earth

GERRARD DESIGN

TRAFALGAR I & II | Oakville, Ontario

# PRELIMINARY BLOCK PLAN CONCEPT - FOR ILLUSTRATIVE PURPOSES ONLY

MAY 26, 2023

PROJECT 1912

SCALE 1:5000

# Appendix B Industries within 1000m

## Land Use Compatibility & Air Quality Assessment

**Part of Lot 12, Concession 2, NDS, Oakville**

**Argo Trafalgar Corporation**

SLR Project No. 241.030781.00001

June 2, 2023

| Name | Address | Description | MECP ECA or EASR No. (Date) | MECP Guideline D-6 | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Class | Area of Influence | Recommended Separation Distance | Actual Distance | Within Area of Influence? | Within Recomended Setback |
| Al Falah Islamic Centre | 391 Burnhamthorpe Rd E | Mosque | N/A | I | 70 | 20 | 20 | Yes | Yes |
| Onofre Garden Supplies | 489 Burnhamthorpe Rd E | Garden Centre | N/A | I | 70 | 20 | 330 | - | - |
| Ren's Pets Oakville | 4002 Trafalgar Rd | Pet Supply Store | N/A | I | 70 | 20 | 30 | Yes | - |
| Vic Hadfield Golf & Learning Centre | 340 Burnhamthorpe Rd E | Golf Centre | | n/a | n/a | n/a | 20 | | |
| 4180 Trafalgar Rd Parking | 4180 Trafalgar Rd | Parking lot | - | n/a | n/a | n/a | 170 | | |
| Silver Swords Armories | 180 Burnhamthorpe Rd E | Archery range | | n/a | n/a | n/a | 700 | | |
| Medeiros Boat Works Ltd | 210 Burnhamthorpe Rd E | Boat builder | - | II | 300 | 70 | 450 | - | - |
| Petrie's Quality Topsoil Ltd. | 4321 Sixth Line | Landscaping Company | N/A | III | 1000 | 300 | 1005 | - | - |

# Appendix C Traffic Data and Correspondence

## Land Use Compatibility & Air Quality Assessment

**Part of Lot 12, Concession 2, NDS, Oakville**

**Argo Trafalgar Corporation**

SLR Project No. 241.030781.00001

June 2, 2023

| LINKS / VOLUMES | | 2031 | 2036 | 2041 | 2022 |
|---|---|---|---|---|---|
| | | TOTAL | TOTAL | TOTAL | EXISTING TRUCK% |
| WILLIAM HALTON PARKWAY | WEST OF SIXTH LINE | 12630 | 13310 | 13770 | - |
| | SIXTH LINE TO TRAFALGAR | 24575 | 26615 | 32290 | 1% |
| | TRAFALGAR TO BURNHAMTHORPE | 26235 | 28005 | 32350 | 2% |
| | EAST OF BURNHAMTHORPE | 35420 | 37280 | 43510 | 2% |
| TRAFALGAR | NORTH OF WHP | 39240 | 42060 | 52980 | 3% |
| | WHP TO BURNHAMTHORPE | 40470 | 42865 | 51765 | 2% |
| | SOUTH OF BURNHAMTHORPE | 39640 | 42230 | 48720 | 2% |
| NHAMTHO | WEST OF SIXTH LINE | 11210 | 11540 | 13290 | 1% |
| | SIXTH LINE TO TRAFALGAR | 11535 | 11800 | 13095 | 1% |
| | TRFALGAR TO WHP | 10705 | 11150 | 13060 | 4% |
| SIXTH LINE | NORTH OF WHP | 18250 | 19540 | 21270 | 1% |
| | WHP TO BURNHAMTHORPE | 12225 | 12845 | 13525 | 1% |
| | SOUTH OF BURNHAMTHORPE | 13670 | 14090 | 13970 | 0% |