



Land Use Compatibility - Air Quality Assessment

401 Canal Bank Street
Welland, Ontario

SLR Project No: 241.19146.00000

March 2020



Land Use Compatibility - Air Quality Assessment
401 Canal Bank Street, Welland
SLR Project No: 241.19146.00000

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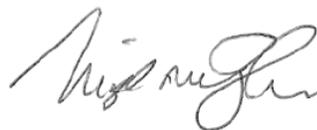
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EXECUTIVE SUMMARY

SLR Consulting (Canada) Ltd (SLR) was retained by 555 Canal Banks Development GP Inc. to conduct a land use compatibility assessment for their proposed 401 Canal Bank Street development located in Welland, Ontario.

A review of the existing industries surrounding the proposed 401 Canal Bank Street development with respect to air quality has been performed in accordance with the D-6 Guideline and The City of Wellands's Zoning By-Law Schedule "A". Based on the review completed, the surrounding Class II industry is not anticipated to be of concern from an air quality perspective with the appropriate setback and mitigation in place.

1. Introduction

SLR Consulting (Canada) Ltd (SLR) was retained by 555 Canal Banks Development GP Inc. to conduct a land use compatibility assessment for their proposed 401 Canal Bank Street development located in Welland, Ontario.

SLR has reviewed the surrounding land uses in the area with respect to Ministry of the Environment and Climate Change (MECP) Guideline D-6 – *Compatibility Between Industrial Facilities and Sensitive Land Uses* (MECP 1995) and The City of Welland’s Zoning By-Law Schedule “A”. This report addresses the potential for impacts due to air quality related emissions from surrounding industrial land uses. Acoustic related matters have been addressed in a separate report.

1.1 PROJECT DESCRIPTION

The proposed development is to be located south of Townline Tunnel Rd 58A, and north of Forks Road East. Open space and lands designated for residential currently occupy the proposed site. Detached residential homes, townhouses, a stormwater management pond, open space, and a park are proposed for the development site.

A copy of the current site plan is provided in **Appendix A**.

1.2 AREA CONTEXT

Figure 1 below shows a context plan of 401 Canal Bank Street subdivision which is located west of the Welland Canal. The subject lands comprise approximately 72.14 hectares.

To the north, the subject lands are bound by Townline Tunnel Rd 58A with residential lands north of the road. To the west, the subject lands are bound by a rail corridor. Beyond the rail corridor there is an industrial facility which is considered within this study. The industry is a Biodiesel production facility owned and operated by Verbio Diesel Canada Corporation.

Also, to the west are lands on which a John Deere manufacturing plant was located. However, this facility was decommissioned in 2009 and demolished in August of 2019. 555 Canal Banks Development GP Inc. owns what was the John Deere facility and their intention is to pursue approvals needed to develop a mixed-use community on these lands. It is understood that there is no future intention for the lands to remain as an industrial use and, therefore, has not been considered further in this study.

To the east, the subject lands are bound by the Welland Canal. South of the project site there are existing residential homes and the open space/agricultural lands.



Figure 1: Context Plan

1.3 ZONING

The City of Welland's Zoning By-law

As per the City of Welland's Zoning By-law Schedule "A", the development lands are currently zoned as low density residential and open space. A copy of the relevant zoning map, obtained from The City of Welland's webpage, is provided in **Appendix B**. Through this application, 555 Canal Bank is looking to change the zoning to support the proposed draft plan provided in Appendix A.

1.4 NEARBY INDUSTRIES

The area surrounding the proposed development site is a mix of residential, open space, and industrial properties. Industrial facilities of interest from an air quality perspective considered in this assessment include:

- 1) Verbio Diesel Canada

The location of the facility is identified in **Figure 2**.

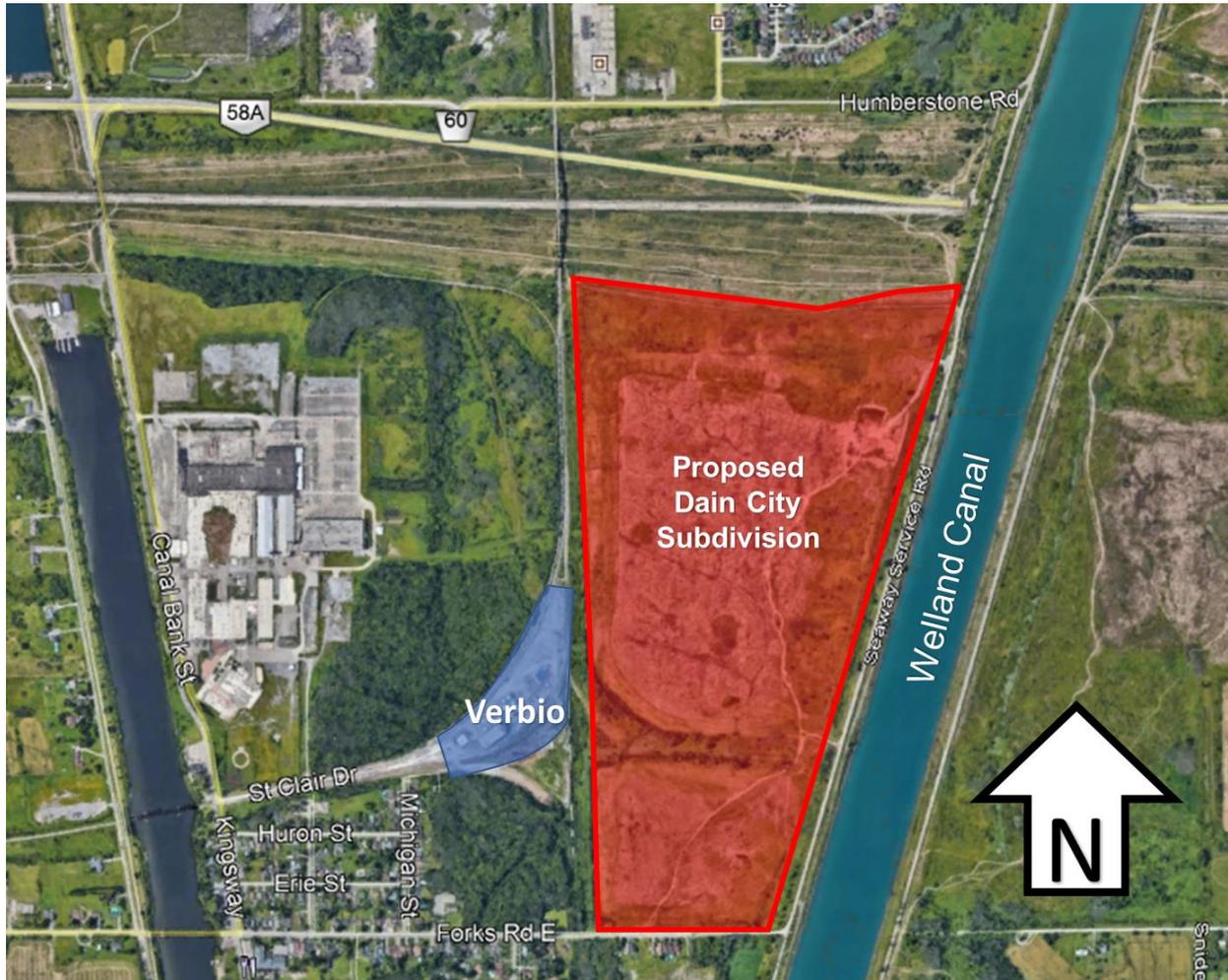


Figure 2: Surrounding Industries of Interest

2. Provincial Guidelines and Regulations

The Ministry of the Environment, Conservation and Parks (MECP) Guideline D-6 – Compatibility Between Industrial Facilities and Sensitive Land Uses was considered in this assessment. The D-series of guidelines were developed by the MECP in 1995 as guidance for recommended separation distances and other control measures for land use planning proposals to prevent or minimize ‘adverse effects’ from the encroachment of incompatible land uses where a facility either exists or is proposed. The D-6 guideline specifically addresses issues of odour, dust, noise and litter.

2.1 GUIDELINE D-6 ASSESSMENT REQUIREMENTS

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”.

To minimize the potential to cause an adverse effect, areas of influence and recommended minimum setback distances are included within the guidelines. Guideline D-6 “Compatibility Between Industrial Facilities and Sensitive Land Uses” is specific to industrial uses in proximity to more sensitive land uses. The areas of influence and recommended separation distances from the guidelines are as follows:

Table 1: Guideline D-6 – Potential Influence Areas and Recommended Minimum Setback 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

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.

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 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.

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

Table 2: Guideline D-6 – Industrial Categorization Criteria

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

2.1.1 CLASSIFICATION OF NEARBY INDUSTRIES

Verbio Diesel Canada (Facility #1) is a renewable fuel facility. The facility produces biodiesel and high-grade glycerin. This facility has been identified as a Class II industry based on a review of the industrial activities associated with their sector type (Figure 2).

Figure 3 shows the area of influence corresponding to a Class II facility is 300 m, and the area of influence for a Class III facility is 1000m. Provided below is a further discussion of the industry classifications and setback distances to the proposed site.

Guideline D-6 Classification of Surrounding Land Uses

The locations and D-6 classifications of the facilities considered in this assessment from an air quality perspective are shown in Figure 3.

Table 3: Guideline D-6 – Potential Influence Areas and Recommended Minimum Setback Distances for Industrial Land Uses

Facility #	Address	Name	Type	ECA	Class	Within A of I? [1]
1	1 St. Clair Drive	Verbio Diesel Canada	Oil Refinery	Yes	II	Yes

Notes:

[1] A of I = Area of Influence

The area of influence and recommended minimum setbacks from the nearby facilities are shown in Figure 3. As can be seen in this image, both facilities within this study are in the respective area of influence. Verbio Diesel Canada (Facility #1) is inside the Class II area of influence. An additional review of these facilities is provided in Section 2.2.

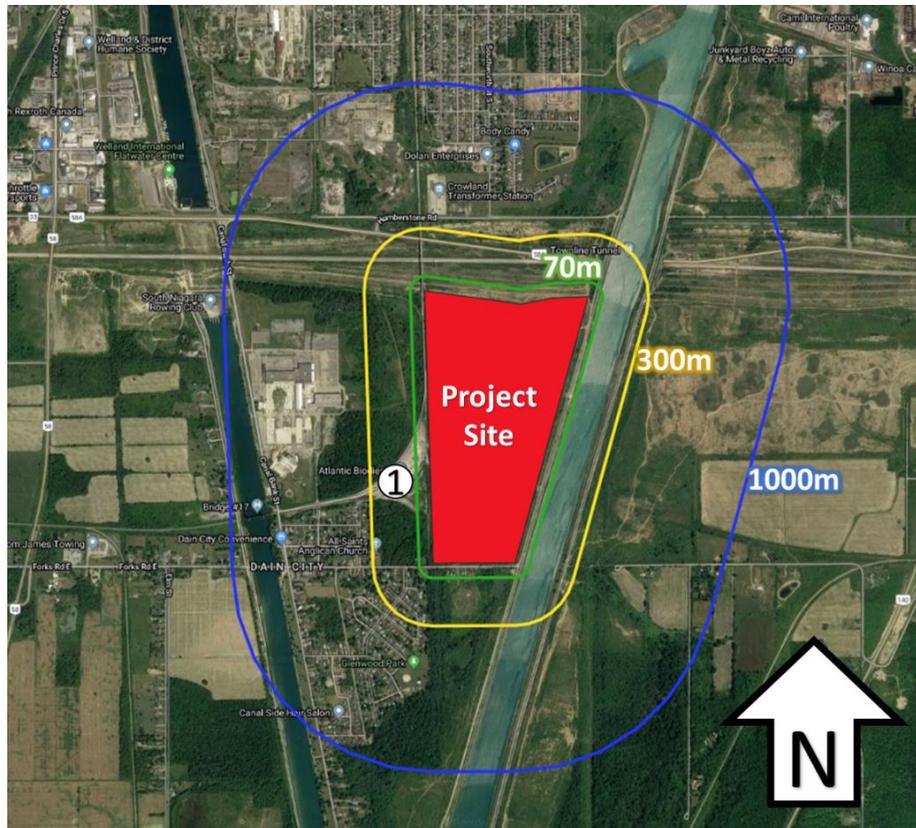


Figure 3: Area of Influence for Proposed Development

2.2 Potential Air Quality Impacts

Within Ontario, facilities which emit significant amounts of contaminants to the environment are required to obtain and maintain an Environmental Compliance Approval (an “ECA”) from the MECP or submit an Environmental Activity and Sector Registry (“EASR”). As shown in the table above, the Verbio Diesel facility has an ECA from the MECP for their operations. Facilities with an ECA are required to meet the MECP guidelines for air quality contaminants at their property line.

2.2.1 Air Quality Contaminants

Under O.Reg. 419/05, a facility is required to meet prescribed standards for air quality contaminants 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-rise residential properties could trigger a facility to re-assess compliance at new receptor locations, the introduction of new low-rise receptors does not introduce any new receptors, as the facility is already required to be in compliance at grade-level at their property line.

2.2.2 Odour

There are a select few compounds that are provincially regulated from an odour perspective; there is no formal regulation with respect to mixed odours.

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. Therefore, a new development introduces new sensitive receptors at which odour impacts could potentially occur.

As stated by the Environmental Commissioner of Ontario, 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).

2.3 LOCAL METEOROLOGY

Surface wind data was obtained to generate a wind rose from data collected for Dain City from 1989 through 2018. The wind rose, as shown in **Figure 4** below, represents the frequency of winds blowing from a certain wind direction. As can be seen in the wind rose, predominant winds are from the western and southwest quadrants, while winds from the north and southeast quadrants may be the least frequent.

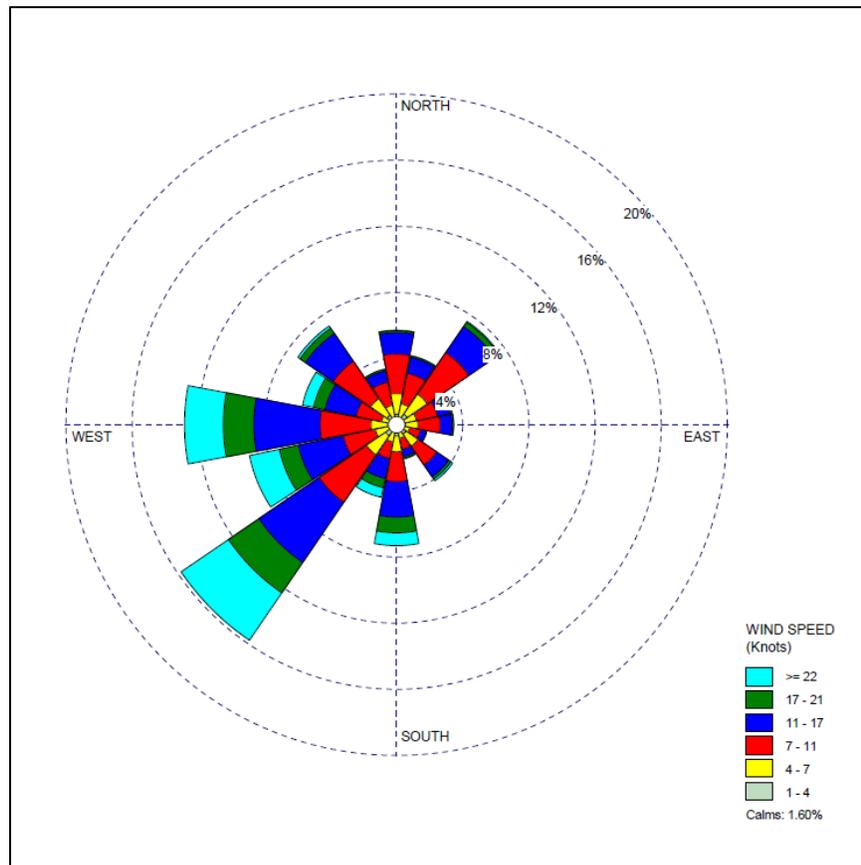


Figure 4: Wind Rose; 1989-2018

3. POTENTIAL AIR QUALITY IMPACTS

3.1 Verbio Diesel Canada Corporation

Verbio Diesel Canada Corporation (formerly known as Atlantic Biodiesel) is a Class II industry and is within the Class II potential area of influence of 300 m. An ECA for Atlantic Biodiesel was identified. The Verbio facility is required to meet the MECP guidelines for air quality contaminants at their property line. There are existing sensitive receptors, including residential properties in similar proximity as the proposed subdivision to the identified industrial facility. The existing residences are located south west of the facility, approximately 200 meters from the Verbio site.

From a perspective of general air contaminants, the proposed development is planned to be low rise residential developments, with no high-rise elements that may be subject to emissions from raised stacks actively dispersing emissions from the biodiesel facility. Therefore, the biodiesel facility is expected to remain in compliance in respect to the emission of general air quality contaminants and is not anticipated to impact the proposed development.

With respect to odour, the Verbio Diesel facility has an Environmental Compliance Approval (ECA) that was issued on June 20, 2017 (Ref # 4229-AKPPXL). The biodiesel facility is expected to emit fugitive odours from the facility as well as from fixed stationary sources. Within the ECA it is stated that the facility should not exceed one odour unit at a sensitive point of reception. The closest existing points of reception are the residences located to the southwest of the site on Michigan Street. The closest residential receptor to the facility is at a similar distance as the proposed development receptors will be to the facility.

However, historical wind frequency analysis presented in **Figure 4** shows that the wind frequencies are predominantly from the west and southwest. This would indicate that the wind may be directed from the Verbio Diesel facility towards the proposed development at a greater than the existing residences.

Given the above, mitigation strategies have been applied to the current plans with the addition of the following:

- Setback from the biodiesel facility with the plans for a stormwater management pond between Verbio Diesel and the proposed development;
- A berm constructed eight meters in height, which will provide for increased separation and reduced line of sight to the biodiesel facility. The site illustration is provided in a large-scale site plan of a portion of the developments. See **Figure 5** below.

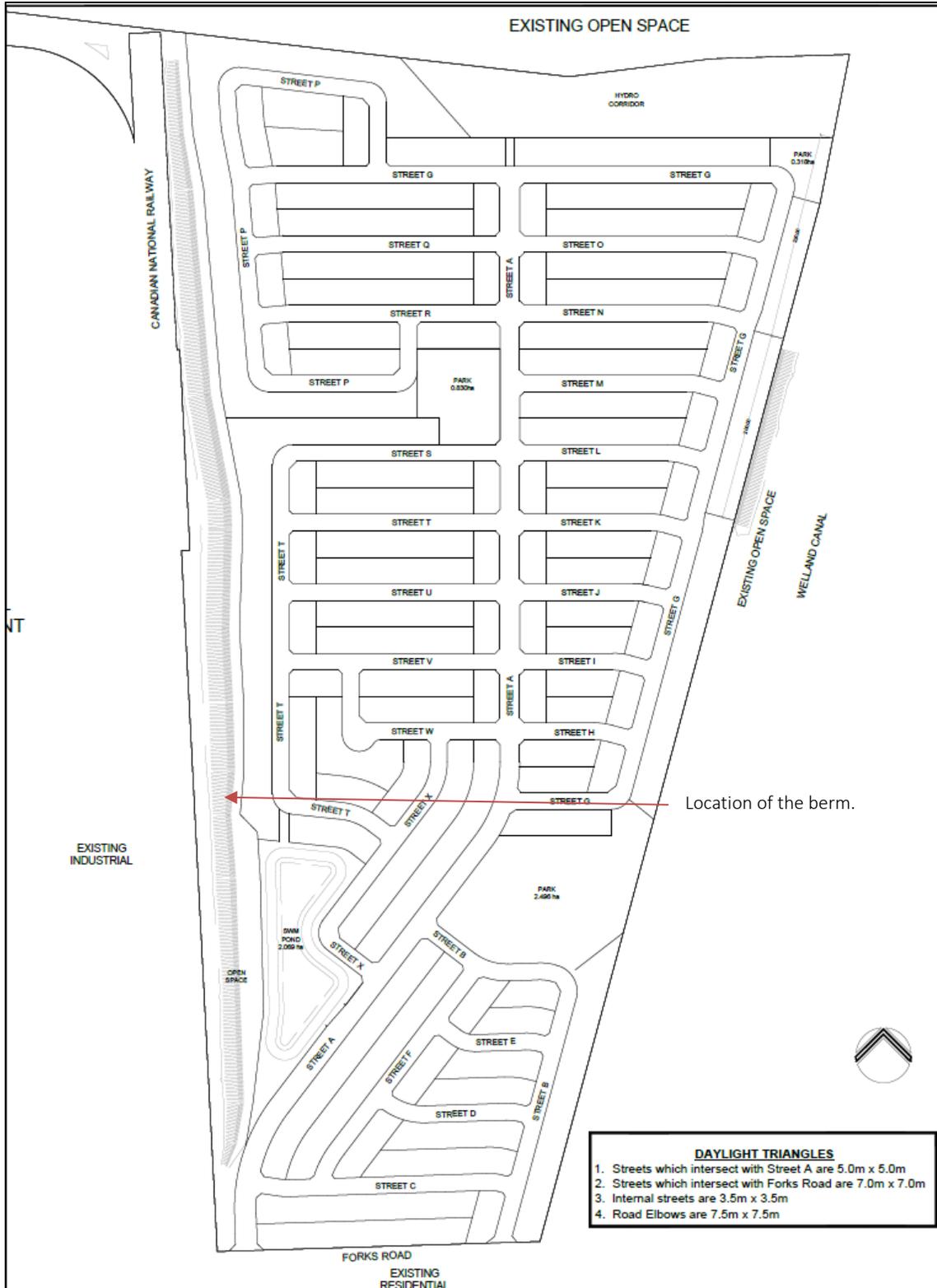


Figure 5: Final Block Plan (Provided by 555 Canal Bank)

4. CONCLUSIONS

A review of the existing industries surrounding the proposed 401 Canal Bank Street subdivision with respect to air quality has been performed in accordance with the D-6 Guideline and The City of Wellands's Zoning By-Law Schedule "A". Based on the review completed, the surrounding Class II industry is not anticipated to be of concern from an air quality perspective with the appropriate setback and mitigation in place.

5. 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 555 Canal Bank Developments GP Inc., hereafter referred to as the “Client”. It is intended for the sole and exclusive use of 555 Canal Banks Developments GP Inc. 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.

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 **Appendix A**
Land Use Compatibility - Air Quality Assessment

**Proposed 401 Canal Bank Street Development
Welland, Ontario**

SLR Project No: 241.19146.00000

February 2020



 **Appendix B**
Land Use Compatibility - Air Quality Assessment

**Proposed 401 Canal Bank Street Development
Welland, Ontario**

SLR Project No: 241.19146.00000
February 2020

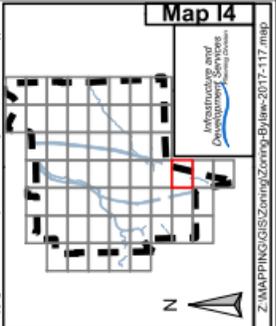


Zoning By-law 2017-117

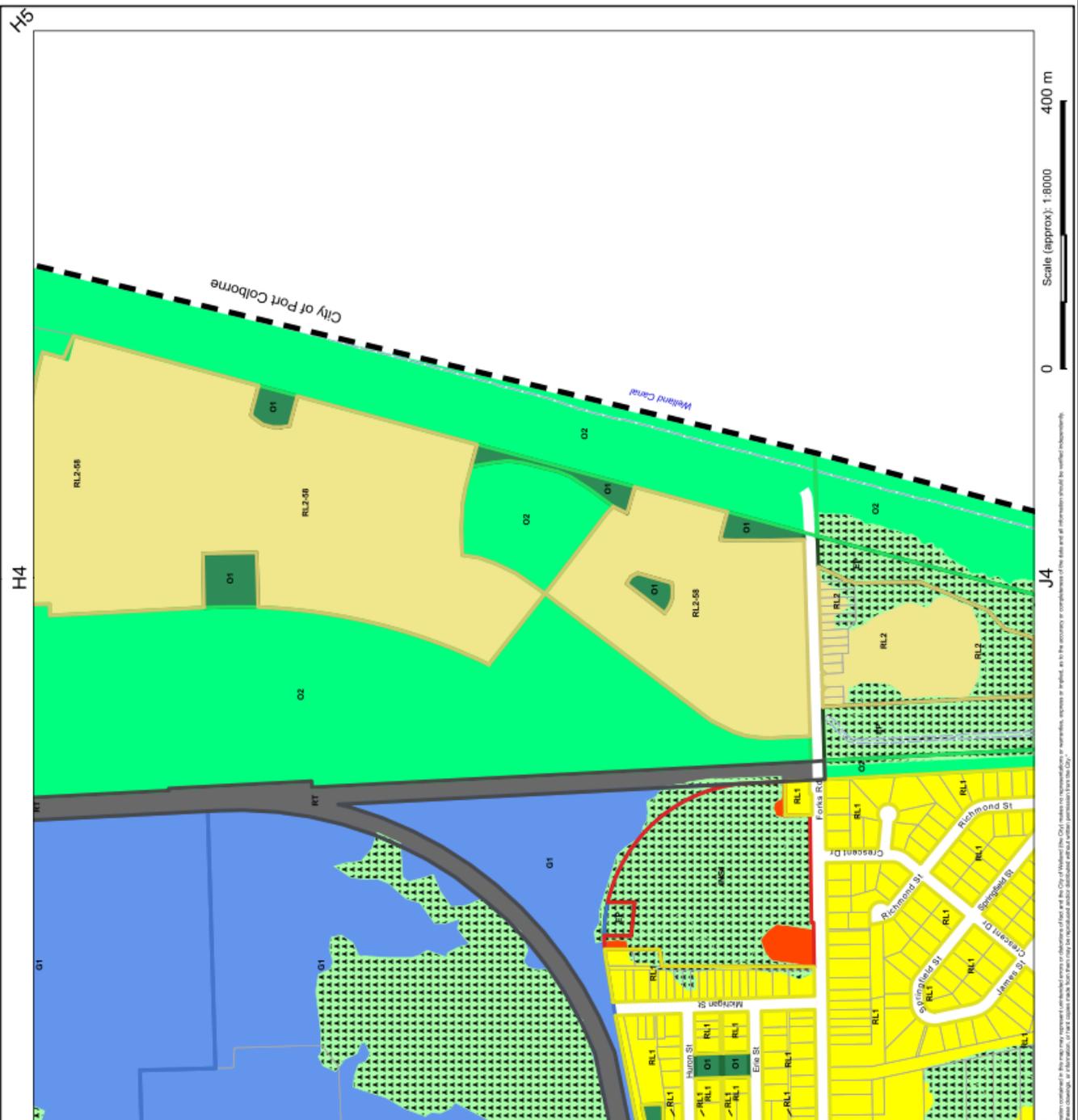
SCHEDULE "A"
Zone Categories

- Residential Zones**
 - RL1 Residential Low Density 1
 - RL2 Residential Low Density 2
 - RM Residential Medium Density
 - RD Residential High Density
- Commercial Zones**
 - CD Downtown Mixed Use Centre
 - RS Regional Shopping Node
 - CC1 Community Commercial Node
 - CC2 Community Commercial Corridor
 - NC Neighbourhood Commercial
- Open Space Zones**
 - O1 Neighbourhood Open Space
 - O2 Community Open Space
- Welland Recreational Waterway**
 - WRW Welland Recreational Waterway
- Environmental Protection Overlay**
 - PE Environmental Protection Overlay
- Institutional and Community Wellness Zones**
 - INSI Community Institutional
 - INSH Health and Wellness
- Industrial Zones**
 - L1 Light Industrial
 - GI General Industrial
 - GEI Gateway Economic Centre
- Agricultural and Rural Zones**
 - A1 Agricultural
 - RR Rural Residential
 - RE Rural Employment
- Other Zones**
 - RT Railway Transportation
 - RT Refer to Zoning By-law 2067

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Infrastructure and Development Services
Planning Division



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