



Land Use Compatibility - Air Quality Assessment

**Dain City- West Subdivision
Welland, Ontario**

SLR Project No: 241.20034.00000

July 2020



**Land Use Compatibility - Air Quality Assessment
Dain City West Subdivision, Welland
SLR Project No: 241.20034.00000**

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July 2020

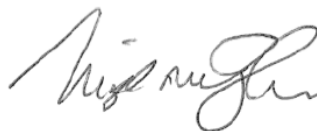
This document has been prepared by SLR Canada. The material and data in this report were prepared under the supervision and direction of the undersigned.

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TABLE OF CONTENTS

Executive Summary iii

1. Introduction 1

 1.1 Project Description 1

 1.2 Area Context..... 1

 1.3 Zoning..... 2

 1.4 Nearby Industries 2

2. Provincial Guidelines and Regulations 3

 2.1 Guideline D-6 Assessment Requirements..... 3

 2.1.1 Classification of Nearby Industries 5

 2.2 Potential Air Quality Impacts 6

 2.2.1 Air Quality Contaminants 7

 2.2.2 Odour 7

 2.3 Site Visit observations 7

 2.4 Local Meteorology..... 7

3. Potential Air Quality Impacts 8

 3.1 Verbio Diesel Canada..... 8

4. CONCLUSIONS..... 10

5. STATEMENT OF LIMITATIONS 11

TABLES

Table 1: Guideline D-6 – Potential Influence Areas and Recommended Minimum Setback Distances for Industrial Land Uses 4

Table 2: Guideline D-6 – Industrial Categorization Criteria 4

Table 3: Guideline D-6 – Potential Influence Areas and Recommended Minimum Setback Distances for Industrial Land Uses 5

CONTENTS (CONTINUED)

FIGURES

Figure 1: Context Plan	2
Figure 2: Surrounding Industries of Interest.....	3
Figure 3: Area of Influence for Proposed Development.....	6
Figure 4: Wind Rose; 1989-2018	8
Figure 5: Site Plan Drawing.....	10

APPENDICES

Appendix

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 Dain West Subdivision development located in Welland, Ontario.

A review of the existing industries surrounding the proposed Dain West Subdivision 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 Dain West Subdivision 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 Road 58A, and north of St. Clair Drive on the former John Deere lands located on Canal Bank Street. Open space, vacant industrial lands, and community commercial uses currently occupy the proposed site.

Detached residential homes, townhouses, a stormwater management pond, open space, park, and a school 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 The Dain West subdivision which is located west of the Welland Shipping Canal. A John Deere manufacturing plant was previously situated on this site. However, this facility was decommissioned in 2009 and demolished in August of 2019.

To the north, the subject lands are bound by Townline Tunnel Rd 58A with residential lands north of the road. To the east, the subject lands are bound by a rail corridor. Beyond the rail corridor there are an approved and a proposed residential subdivision. To the south east of the site 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.



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 general industrial / community and open space with an environmental conservation overlay. A copy of the relevant zoning map, obtained from The City of Welland's webpage, is 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**.

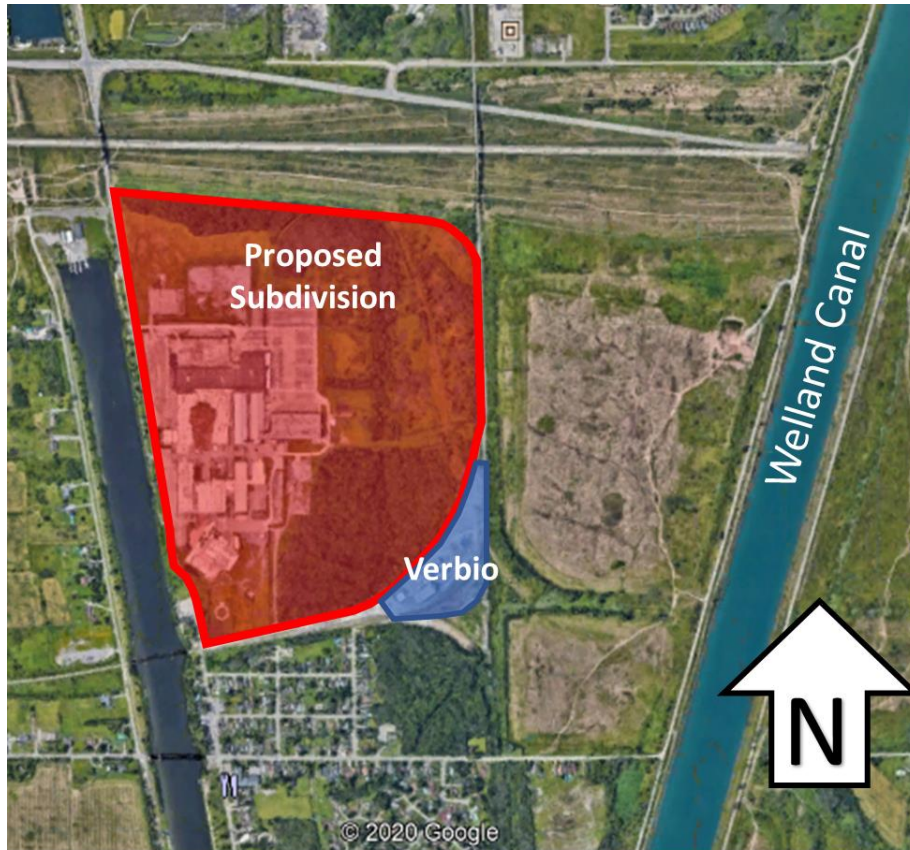


Figure 2: Surrounding Industries of Interest

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 	<ul style="list-style-type: none"> • Outside storage permitted 	<ul style="list-style-type: none"> • Open process • Periodic outputs of minor annoyance 	<ul style="list-style-type: none"> • Shift operations permitted 	<ul style="list-style-type: none"> • Magazine printing • Paint spray booths • Metal command • Electrical production

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
	<ul style="list-style-type: none"> 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"> Medium level of production allowed 	<ul style="list-style-type: none"> Low probability of fugitive emissions 	<ul style="list-style-type: none"> Frequent movements of products and/ or heavy trucks with the majority of movements during daytime hours 	<ul style="list-style-type: none"> 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 facility is shown in **Figure 3**. As can be seen in this image, the facility within this study is in the respective area of influence. Verbio Diesel Canada (Facility #1) is inside the Class II area of influence. An additional review of the facility is provided in **Section 2.2**.

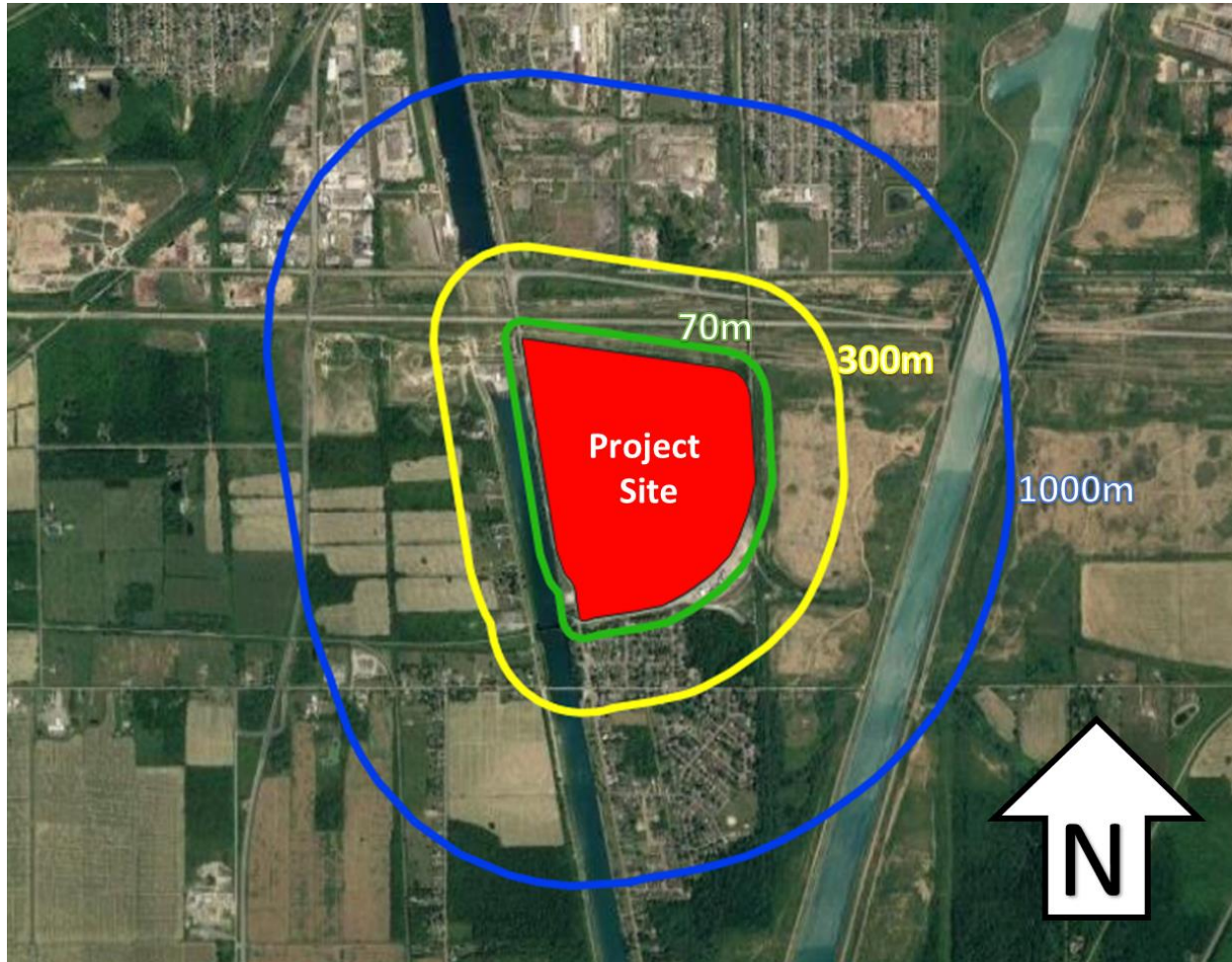


Figure 3: Area of Influence for Proposed Development

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 General 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 the mixed-use block could trigger a facility to re-assess compliance at new receptor locations, the current plans are for lower rise community commercial buildings that are not anticipated to trigger compliance issues for the existing industrial facility.

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 SITE VISIT OBSERVATIONS

A site visit was conducted by SLR on February 12, 2020. The visit was conducted to identify and observe operations of the facilities in the area surrounding the site from an air quality perspective. During the site visit, the surrounding area was observed from public sidewalks. Wind conditions during the visit were noted as 14km/hr from a south westerly direction.

During the site visit, surroundings were observed along Canal Bank Street which is adjacent to the proposed site. No odours were detected, and no visible dust was observed at the proposed development site.

The site visit continued into the surrounding areas and onto Huron Street to get a closer look at the Verbio Diesel Facility. Huron Street and its surrounding consisted of a residential subdivision and is currently the closest sensitive receptor for Verbio. The streets perpendicular to Huron Street were observed to get closer to the industry of interest, which included Bay Avenue, and Michigan Street. Although visual barriers were put in place, the diesel plant was still visible from some residences. During the site visit exhaust smoke from two visible stacks were observed. No odours were detected on the sidewalk closest to the Verbio Diesel facility.

2.4 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.

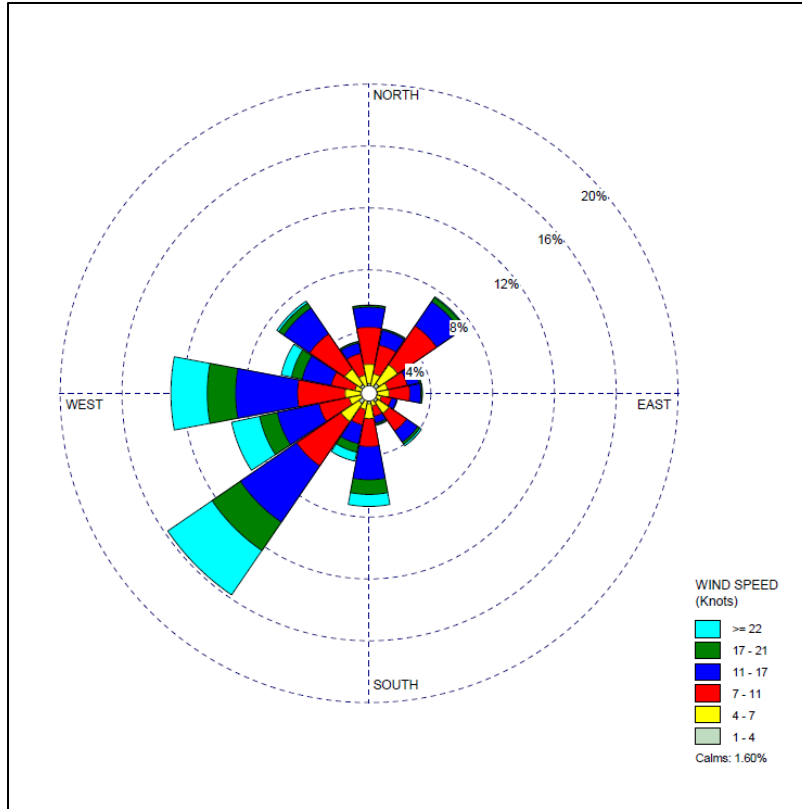


Figure 4: Wind Rose; 1989-2018

3. POTENTIAL AIR QUALITY IMPACTS

3.1 Verbio Diesel Canada

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 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 the mixed-use block could trigger a facility to re-assess compliance at new receptor locations, the current plans are for lower rise community commercial buildings that are not anticipated to trigger compliance issues for the existing industrial facility.

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. During the site visit no odours were detected from Michigan Street.

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 winds would be directed in the opposite direction of the Verbio Diesel facility away from the proposed development. Regardless, the proposed design has included (Block 72, Open Space) which acts as a buffer between the development and the industrial use. Please see **Figure 5** below:

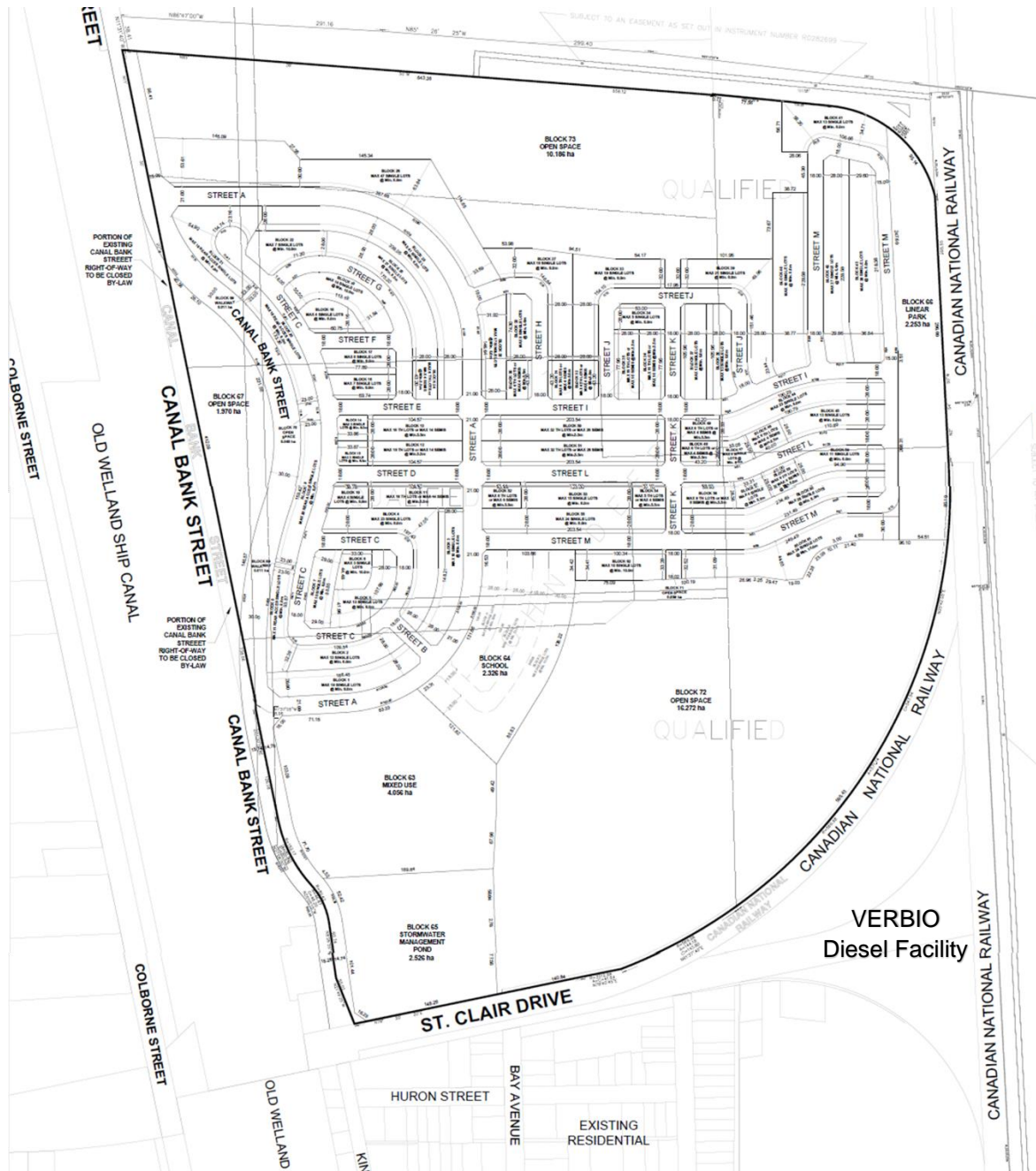


Figure 5: Site Plan Drawing

4. CONCLUSIONS

A review of the existing industries surrounding the proposed Dain City 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.

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 Empire Communities. 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 Dain City Subdivision
Welland, Ontario**

SLR Project No: 241.19146.00000

July 2020

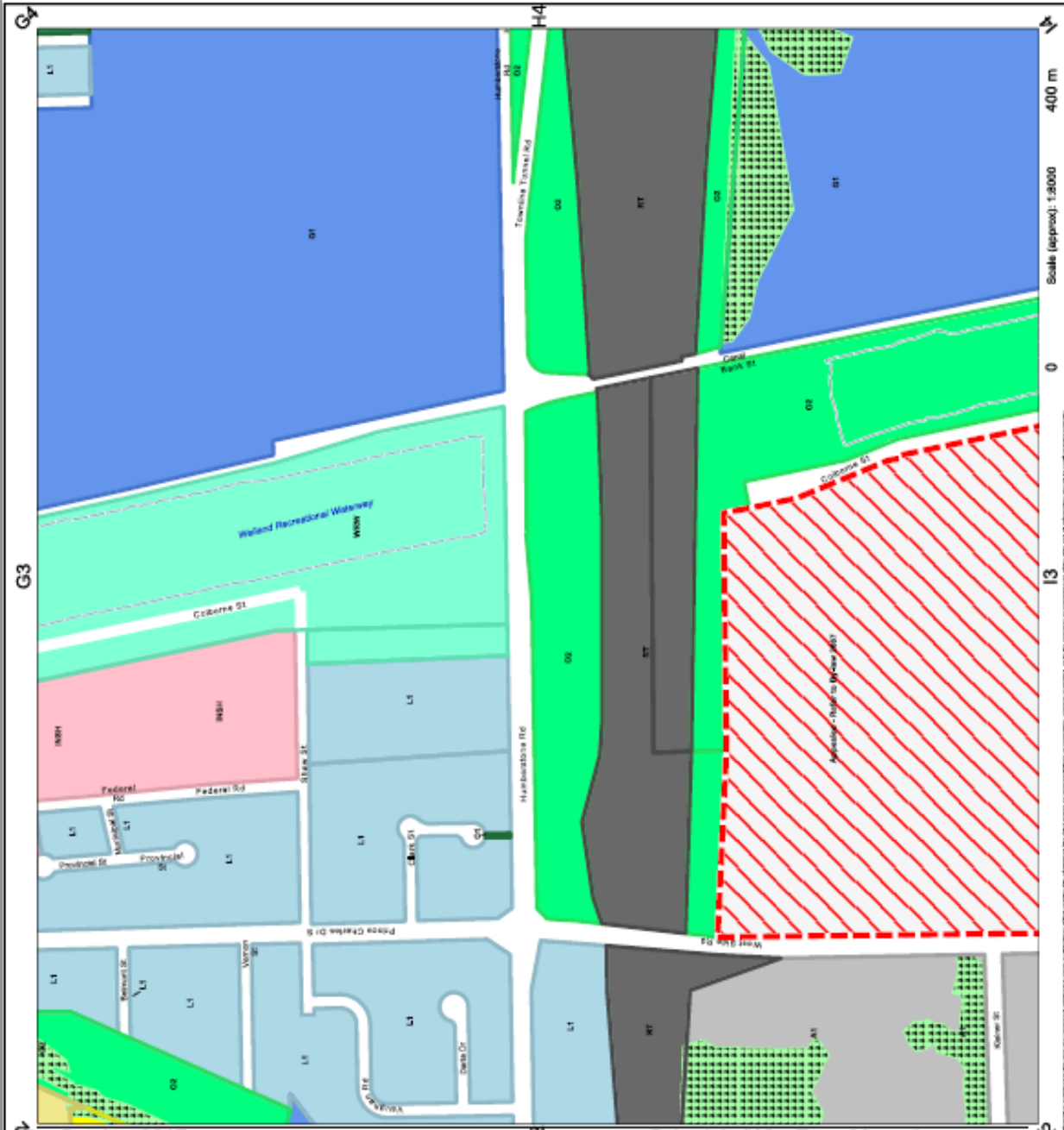


Zoning By-law 2017-117 SCHEDULE "A"

Zone Categories

- Residential Zones**
 - R1.1 Residential Low Density 1
 - R1.2 Residential Low Density 2
 - R1.3 Residential Medium Density
 - R1.4 Residential High Density
- Commercial Zones**
 - C2.1 Downtown Mixed Use Centre
 - C2.2 Regional Shopping Node
 - C2.3 Community Commercial Node
 - C2.4 Community Commercial Corridor
 - C2.5 Neighbourhood Commercial
- Open Space Zones**
 - OS1 Neighbourhood Open Space
 - OS2 Community Open Space
- WW Welland Recreational Waterway**
- EW Environmental Protection Overlay**
- EWV Welland Recreational Waterway**
- EWV Environmental Protection Overlay**
- Institutional and Community Wellness Zones**
 - IS1 Community Institutional
 - IS2 Health and Wellness
- Industrial Zones**
 - I1 Light Industrial
 - I2 General Industrial
 - I3 Gateway Economic Centre
- Agricultural and Rural Zones**
 - A1 Agricultural
 - R1 Rural Residential
 - R2 Rural Employment
- Other Zones**
 - OT Railway Transportation
 - OT Refer to Zoning By-law 2007

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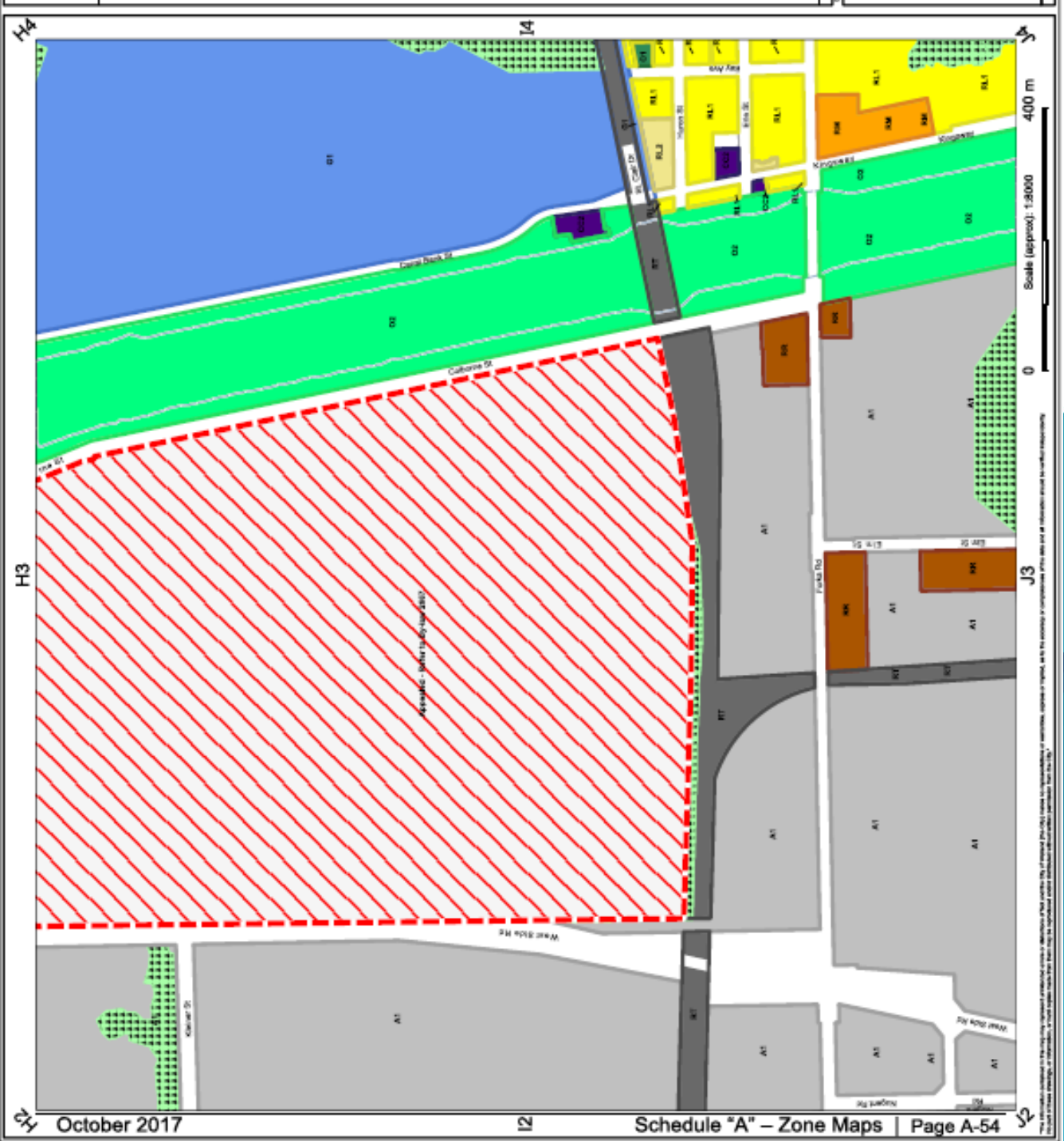
Zoning By-law 2017-117

SCHEDULE "A"

Zone Categories

- Residential Zones**
- RL1 Residential Low Density 1
- RL2 Residential Low Density 2
- RM Residential Medium Density
- RH Residential High Density
- Commercial Zones**
- COB Downtown Mixed Use Centre
- CS Regional Shopping Node
- CC1 Community Commercial Node
- CC2 Community Commercial Corridor
- NC Neighbourhood Commercial
- Open Space Zones**
- OS Neighbourhood Open Space
- OC Community Open Space
- WRW Wetland Recreational Waterway
- EP Environmental Protection Overlay
- AA Environmental Conservation Overlay
- Institutional and Community Wellness Zones**
- SI Community Institutional
- HW Health and Wellness
- Industrial Zones**
- L1 Light Industrial
- GI General Industrial
- SEB Gateway Economic Centre
- Agricultural and Rural Zones**
- A1 Agricultural
- RR Rural Residential
- RE Rural Employment
- Other Zones**
- RT Railway Transportation
- RI Refer to Zoning By-law 2007

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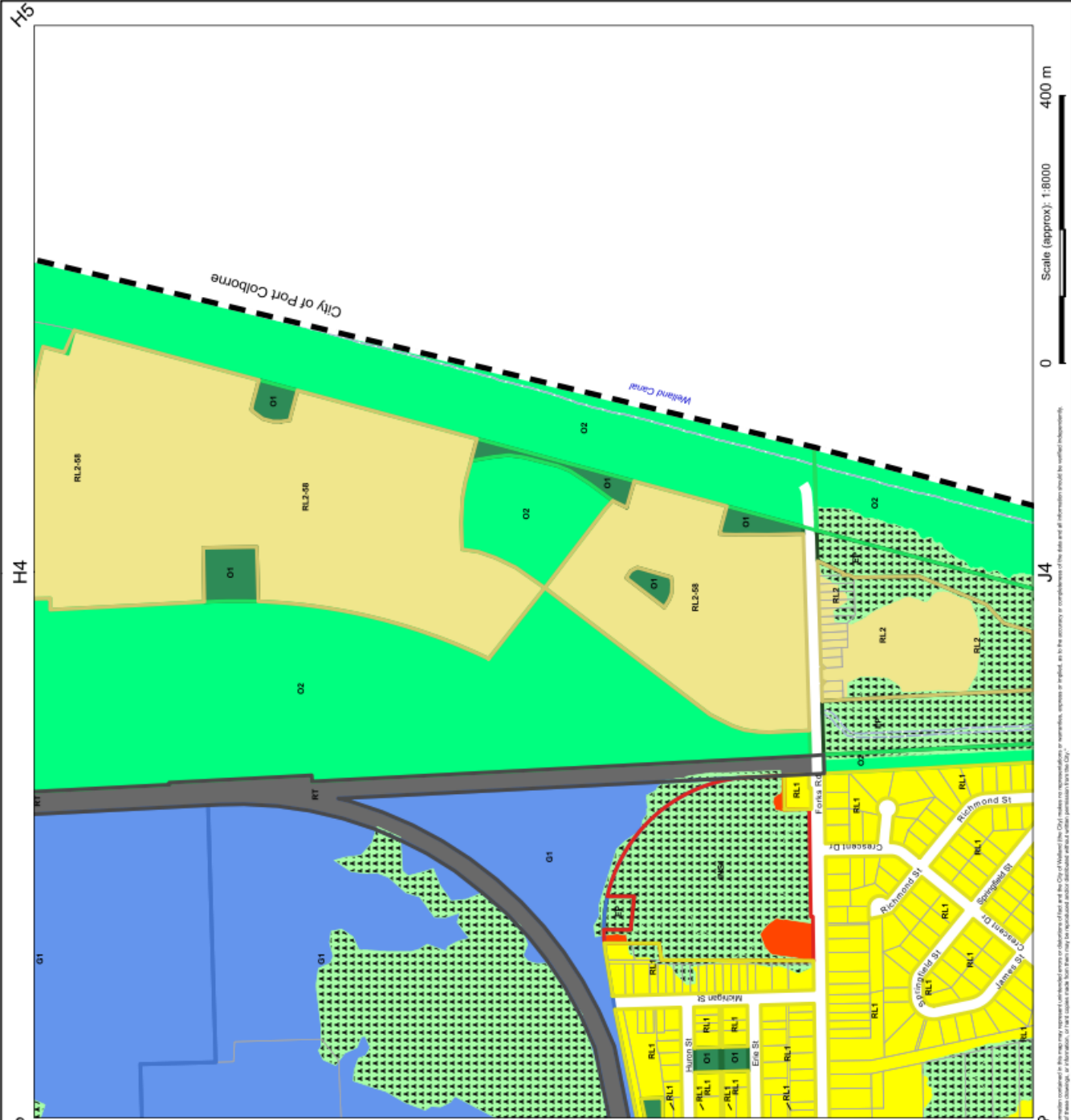
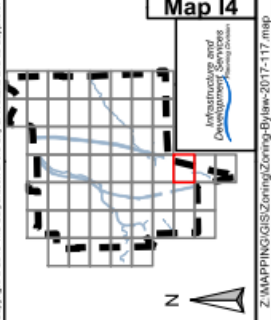




Zoning By-law 2017-117
SCHEDULE "A"
Zone Categories

- Residential Zones**
- RL1 Residential Low Density 1
- RL2 Residential Low Density 2
- RM Residential Medium Density
- RD Residential High Density
- Commercial Zones**
- CC1 Downtown Mixed Use Centre
- RS Regional Shopping Node
- CC2 Community Commercial Node
- CC3 Community Commercial Corridor
- NC Neighbourhood Commercial
- Open Space Zones**
- O1 Neighbourhood Open Space
- O2 Community Open Space
- WRW Welland Recreational Waterway
- EP Environmental Protection Overlay
- EC Environmental Conservation Overlay
- Institutional and Community Wellness Zones**
- INS Community Institutional
- INSR Health and Wellness
- Industrial Zones**
- L1 Light Industrial
- G1 General Industrial
- GE1 Gateway Economic Centre
- Agricultural and Rural Zones**
- A1 Agricultural
- RR Rural Residential
- RE Rural Employment
- Other Zones**
- RT Railway Transportation
- RT1 Refer to Zoning By-law 2667

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