Cambridge Developments Inc.

130 Water Street North Development

Noise and Vibration Assessment

Cambridge, ON

SLR Project No: 241.20059.00000

October2020

SLR

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for 2-sided printing purposes

Noise and Vibration Assessment
Cambridge, ON

SLR Project No.: 241.20059.00000, Version 2.0

Prepared by
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for

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October 14, 2020

Reviewed by:

R. L. Scott Penton, P.Eng.
Principal, Technical Director

CANADA	)	In the Matter of the
	)	Environmental Protection
PROVINCE OF ONTARIO	)	Act and the Planning Act
	)	
	)	And in the Matter of 130 Water
	)	Street North in the City of Cambridge
	)	in the Regional Municipality
	)	of Waterloo

I, R. L. Scott Penton, P.Eng., of the City of Guelph, in the County of Wellington, SOLEMNLY DECLARE THAT:

1. I am a Professional Engineer employed by SLR Consulting (Canada) Ltd., which holds a Certificate of Authorization from the Association of Professional Engineers of Ontario and have personal knowledge of the matters set out below.
2. I was retained or employed as the principal consultant to undertake the assessment of noise impacts and recommendation of noise mitigation measures for the property described as 130 Water Street North Development in Cambridge, Ontario.
3. I have the expertise required to perform these services. Any assessment activities or recommendations requiring the application of engineering principles have been undertaken or supervised by an engineer qualified to perform such services.
4. The information used in the study entitled *Noise and Vibration Assessment, Cambridge Developments Inc., 130 Water Street North Development, Cambridge, Ontario, SLR Project No. 241.20059.00000* and dated October 14, 2020 is based on the best information available as of the date of the study.
5. The noise level calculations, the interpretation of noise attenuation requirements, and the recommended measures are in accordance with Ministry of Environment guidelines, Region Municipality of Waterloo policies, and any applicable policy or guidelines of the Area Municipality, and any other applicable policy or guideline.
6. The physical noise attenuation measures proposed in this study are feasible to implement and will provide the level of attenuation indicated in the study.
7. I acknowledge that this study may be subject to a peer review conducted at my cost.
8. I acknowledge that public authorities and future owners, occupants and others may rely on this statement.

AND I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

DECLARED before me at the)
City of Guelph, in the)
County of Wellington,)
this 14th day of Oct, 2020.)

Donna Marie Susan Dobbin, a Commissioner, etc.,
Province of Ontario, for SLR Consulting (Canada) Ltd.
Expires June 4, 2022

Donna Dobbin

CANADA	)	In the Matter of the
	)	Environmental Protection
PROVINCE OF ONTARIO	)	Act and the Planning Act
	)	
	)	
	)	And in the Matter of 130 Water
	)	Street North in the City of Cambridge
	)	in the Regional Municipality
	)	of Waterloo

I, MACKENZIE MEEK., of the City of KITCHENER, ON in the County of CANADA, SOLEMNLY DECLARE THAT:

1. I am the owner of the property, or the owner's agent, and that I understand and agree with the noise attenuation measures proposed in the study *Noise and Vibration Assessment, Cambridge Developments Inc., 130 Water Street North Development, Cambridge, Ontario, SLR Project No. 241.20059.00000* and dated October 14, 2020.

2. The application has been designed to avoid the use of berms or walls as noise attenuation features where feasible. Where berms or walls are recommended, the Noise Study provides economic, planning and engineering justification.

3. If the application is changed in a way that may affect the noise level calculations, I will have a revised noise study submitted to the Region.

AND I make this solemn Declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath.

DECLARED before me at the	)	
	)	
City of KITCHENER, in the	)	
	)	
County of CANADA,	)	
	)	
this 15th day of October, 2020.	)	

EXECUTIVE SUMMARY

SLR Consulting (Canada) Ltd. was retained by Cambridge Developments Inc. to conduct a compatibility noise and vibration assessment for their proposed mixed-use residential/ hotel development to be located at 130 Water Street North in Cambridge, Ontario. This assessment has been completed in support of the Official Plan Amendment and Zoning By-law Amendment applications with the City of Cambridge. This assessment has considered:

- Industry noise and vibration (stationary sources); and
- Transportation-related noise and vibration (road traffic).

Based on the assessment completed, the proposed development is anticipated to be compatible with the surrounding land uses from a noise and vibration perspective.

With the inclusion of the mitigation measures and warning clauses summarized in Appendix A of this report, no adverse impacts from noise or vibration are anticipated. There will be no negative impacts from the development.

Given the early stage of design and the conservative analysis that has been completed, the noise report should be updated to respond to any future changes in the submitted site plan.

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1. INTRODUCTION

SLR Consulting (Canada) Ltd. ("SLR") was retained by Cambridge Developments Inc. to conduct a compatibility noise and vibration assessment for their proposed mixed-use residential condominium/ hotel development, to be located at 130 Water Street North in Cambridge, Ontario ("the Project"). This assessment has been completed in support of the Official Plan Amendment ("OPA") and Zoning By-law Amendment ("ZBA") applications with the City of Cambridge.

The Regional Municipality of Waterloo ("RMOW") has confirmed the adoption of the MECP Publication NPC-300 guidelines. In keeping with the RMOW and the Ministry of the Environment, Conservation and Parks ("MECP") requirements, a stationary and transportation noise and vibration study have been completed.

In this assessment, SLR has reviewed the surrounding stationary and transportation sources in the area with respect to the following guidelines:

- MECP Guidelines D-1 and D-6; and
- MECP Publication NPC-300 noise guidelines for industrial and transportation.

This report identifies and evaluates options to achieve appropriate design between the proposed sensitive land uses, including residential uses, and nearby existing facilities. Recommended measures intended to eliminate or mitigate negative impacts and adverse effects are provided.

Appendix A summarizes the required mitigation measures and warning clause recommendations developed in this report.

2. DESCRIPTION OF DEVELOPMENT AND SURROUNDINGS

2.1 PROPOSED DEVELOPMENT

The subject property, 130 Water Street North (the "Site"), is located north of the Cambridge Mill restaurant and event centre. The development proposes that the northern portion of the site (currently a parking lot) will be a mixed-use residential/ hotel development with two towers on a common podium. The residential tower at the north will be 37-storeys, and the hotel tower will be 28-storeys. The common podium includes one and a half floors of parking, and one and a half floors that can house a spa, indoor amenity spaces, conference rooms, and offices areas. Residential suites start on Level 3 of both the hotel and residential towers. A 'belt line' on each of the hotel and residential tower are proposed at Level 8 and 13, respectively. The 'belt line' levels are reserved for amenity and commercial space which may include additional conference rooms, lounges, or party rooms.

One level of underground parking is proposed. The development also includes a separate 6-level open-air parking structure off-site on the opposite side of the road.

A context plan of the site and surroundings are shown in Figure 1. Excerpts from the site plan is shown in Figure 2. A communal outdoor amenity area is proposed on the podium terrace. The site plan and available concept plans are provided in Appendix B.

2.2 SURROUNDINGS

The site is bounded by Water Street North and Shoppers Drug Mart to the east, riverfront condominiums to the north, Park Hill Road West to the south, and Grand River to the west. Beyond the immediate surrounding is Regional Road 24/Ainslie Street North to the east, commercial uses farther south and across Grand River to the west, and existing residential uses.

2.3 LAND USE DESIGNATIONS IN THE AREA

The site is surrounded primarily by commercial and residential uses. The City of Cambridge Zoning Map for the area can be seen in **Figure 3**. Additional zoning information, maps and permitted uses are provided in **Appendix C**. The Project site is currently zoned as (H)(F)C1RM1, or Holding Flood Line Commercial/Residential zone, and is surrounded by a mix of commercial and residential uses.

3. ASSESSMENT FRAMEWORK

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

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

- MECP D-series of guidelines set out methods to determine if assessments are required (areas of influence, recommended 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 D-SERIES OF GUIDELINES

The D-series of guidelines were developed by the MECP in 1995 as a means to assess recommended 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 guideline specifically addresses 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".

To minimize the potential to cause an adverse effect, areas of influence and recommended minimum setback distances are included within the guidelines. The areas of influence and recommended separation distances from the guidelines are provided in the table below.

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

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

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

Table 2: Guideline D-6 - Industrial Categorization Criteria

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

Category	Outputs	Scale	Process	Operations / Intensity	Possible Examples
Class III Heavy Industry	• Noise: Sound frequently audible off property • Dust: Persistent and/ or intense • Odour: Persistent and/ or intense • Vibration: Ground-borne vibration can frequently be perceived off-property	• Outside storage of raw and finished products • Large production levels	• Open process • Frequent outputs of major annoyances • High probability of fugitive emissions	• Continuous movement of products and employees • Daily shift operations permitted	• Paint and varnish manufacturing • Organic chemical manufacturing • Breweries • Solvent recovery plants • Soaps and detergent manufacturing • Metal refining and manufacturing

3.1.1 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 noise guidelines (Publications NPC-205 and LU-131). However, the D-Series of guidelines are still in force, 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., Publication NPC-300).

3.1.2 REQUIREMENTS FOR MINIMUM SEPARATION DISTANCES

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

4. NEARBY STATIONARY SOURCES OF NOISE

A screening level review has been completed for the potential impacts on the development from existing "stationary" commercial noise sources. SLR personnel conducted a site visit to the area on March 19, 2020 to the development lands and surrounding area. The purpose of the site visit was to identify local commercial establishments and to understand the potential for noise impacts on the proposed development. The site was found to be primarily surrounded by existing commercial and residential uses.

Based on D-6 guidelines, the existing commercial establishments are considered to be Class I facilities. Class I facilities are small scale, self-contained plants or buildings, which produce and/or store products in a package and have low probability of fugitive emissions. They have infrequent movements of products and/or heavy trucks. The recommended minimum setback of 20 m and an area of influence of 70 m are applicable for Class I. The proposed development is within 70 m of these existing commercial (i.e., Cambridge Mill and Shoppers Drug Mart) and residential (i.e., The Grand Condominium at 150 Water Street North) uses.

The Guideline D-6 setback distances from the Project are shown in **Figure 4**.

5. NOISE ASSESSMENT

The major noise sources in the vicinity with the ability to affect the development are:

- Stationary sources (industry): Shoppers Drug Mart to the east, riverfront condominiums to the north.
- Transportation sources (road traffic): Water Street North and Regional Road 24/Ainslie Street North.

5.1 STATIONARY (INDUSTRIAL) SOURCES

5.1.1 MECP PUBLICATION NPC-300 GUIDELINES FOR STATIONARY NOISE

The applicable MECP noise guidelines for new sensitive land uses adjacent to existing industrial/ commercial uses are provided in MECP Publication NPC-300. On-site and off-site noise impacts from all mechanical equipment, including but not limited to any required building ventilation, cooling towers, exhaust fans, and emergency systems, should also comply with NPC-300.

NPC-300 revokes and replaces the previous noise assessment guideline, Publication LU-131 and Publication NPC-205, which was previously used for assessing noise impacts as part of Certificates of Approval / Environmental Compliance Approvals granted by the MECP for industries.

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

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

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

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

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

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

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

Table 3: NPC-300 Exclusion Limits for Non-Impulsive Sounds (L_{eq} (1-hr), dBA)

Time of Day	Class 1 Area		Class 4 Area	
	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception
7 am to 7 pm	50	50	60	55
7 pm to 11 pm	50	50	60	55
11 pm to 7 am	45	n/a	55	n/a

Table 4: NPC-300 Exclusion Limits for Impulsive Sounds (L_{LM}, dBAI)

Time of Day	No. of Impulses in a 1-hour Period	Class 1 Area		Class 4 Area	
		Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception	Plane of Windows of Noise Sensitive Spaces	Outdoor Points of Reception
7 am to 11 pm	9 or more	50	50	60	55
	7 to 8	55	55	65	60
	5 to 6	60	60	70	65
	4	65	65	75	70
	3	70	70	80	75
	2	75	75	85	80
	1	80	80	90	85
11 pm to 7 am	9 or more	45	n/a	55	n/a
	7 to 8	50	n/a	60	n/a
	5 to 6	55	n/a	65	n/a
	4	60	n/a	70	n/a
	3	65	n/a	75	n/a
	2	70	n/a	80	n/a
	1	75	n/a	85	n/a

Notes:

n/a Not Applicable. Outdoor points of reception are not considered to be noise sensitive during the overnight period.

- Area classifications are: Class 1 - Urban Class 4 - Urban Redevelopment

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

Application of the NPC-300 Guidelines

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

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

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

Proposed Area Classification

Under the MECP Publication NPC-300 noise guidelines, noise sensitive receptors are defined using area classifications. The receptor areas are classified as either:

- Class 1 – Urban areas
- Class 2 – Suburban / semi-rural areas
- Class 3 – Rural areas
- Class 4 – Infill areas

Depending on the receptor area classification, different guideline limits apply. Classes 1, 2 and 3 were included in the predecessor guidelines to NPC-300, namely MECP Publications NPC-205, NPC-232, and LU-131. The Class 4 designation is a new designation, intended to allow for infill and redevelopment, whilst still protecting residences from undue noise.

Based on the nature of the area, the Class 1 area urban sound level limits apply.

Guideline Summary And Interpretation

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

- The applicable MECP noise guideline for assessing new residential development applications is Publication NPC-300, which has been adopted by the RMOW.
- The Class 1 (urban) Area limit for stationary sources have been adopted in this study.

5.1.2 NOISE MODELLING

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

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

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

- Temperature: 10°C
- Relative Humidity: 70%
- Ground Absorption G: G=0.0 (reflective) as default global parameter.
- Reflection: An order of reflection of 1 was used (accounts for noise reflecting from walls)
- Wall Absorption Coefficients: Set to 0.21-0.37 Cadna/A default for reflective-structured façade (21%-37% of energy is absorbed, 79%-67% reflected)
- Terrain: The site sits at a lower elevation than the surrounding area, with the ground sloping up
- towards the north, east and southeast. The Grand River is below grade to the west.

5.1.3 IMPACTS OF THE ENVIRONMENT ON DEVELOPMENT

This section examines the potential for noise impacts of the environment (surrounding stationary sources) on the proposed development.

Site Visits And Noise Observations

A site visit was conducted to the area on March 19, 2020 by SLR personnel to identify significant sources of noise and vibration in the Project neighbourhood. No significant sources of vibration were identified.

The acoustic environment in the neighbourhood is dominated by noise from road traffic along Water Street North and Regional Road 24/ Ainslie Street North. During the site visit, the kitchen exhaust at Cambridge Mill was audible over the background and measured. Those on the rooftops and high walls of surrounding commercial and residential uses were identified through aerial photography and the site visit.

Industry Sources

Based on the information obtained from our site visits, the significant sources of noise in the area of the project have been identified. Noise emission rates for the equipment/ activities were determined based on grade-level noise measurements and supplemented by information from SLR's in-house database. Modelled noise sources include:

- One (1) kitchen exhaust stack, two hoods combined (Cambridge Mill);
- Five (5) rooftop Heating, Ventilation and Air Conditioning (HVAC) units (Shoppers Drug Mart); and
- Numerous (138) Packaged Terminal Air Conditioner (PTAC) units (The Grand Condominium).

All other equipment has been identified as insignificant contributors at the development site.

Figure 4 shows the location of all modelled off-site noise sources. Noise emission data used in the assessment can be found in Appendix D.

Hours of operation for both the Cambridge Mill and Shoppers Drug Mart are daytime (7 am – 7 pm) and evening hours (7 pm – 11 pm). The equipment on The Grand Condominium is anticipated to operate 24 hours a day. Diurnal variations of cooling equipment during the daytime, evening and night-time periods have been considered. Details on operating times for the 1-hour average sound exposure are provided in Appendix D.

Predicted Surrounding Noise on Development

Predicted façade sound levels due to surrounding industry sources are shown in Figure 5. The predicted worst-case sound levels are summarized for each façade and OLA in the following table:

Table 5: Overall Worst-Case Sound Levels From Off-Site Sources

Building	Worst-Case Location	Continuous Sources				
		Predicted Level		Guideline Limit		Meets Guideline?
		Day	Night	Day	Night	
Condominium	North Façade	49	44	50	45	Yes
	East Façade	50	34	50	45	Yes
	South Façade	47	22	50	45	Yes
	West Façade	43	34	50	45	Yes
	Podium OLA	29	n/a	50	n/a	Yes
Hotel	North Façade	34	24	50	45	Yes
	East Façade	50	14	50	45	Yes
	South Façade	46	13	50	45	Yes
	West Façade	45	20	50	45	Yes
	Podium OLA	28	n/a	50	n/a	Yes

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

5.1.4 IMPACTS OF THE DEVELOPMENT ON ITSELF

This section examines the potential for noise impacts of the development on itself (on-site).

Outdoor Noise Impacts From Ventilation Sources

The building ventilation, cooling, underground parkade exhaust fans, and emergency systems associated with the proposed development have not been designed at this time. Such equipment has the potential to result in noise impacts on residential spaces within the proposed development itself.

Building Equipment

Based on discussion with MartinSimmons Architects Inc., each tower may include: one (1) parkade exhaust system, two (2) air makeup units, two (2) cooling towers, and one (1) emergency generator. Emergency generator testing is recommended during daytime hours, generally after 9 am when background noise from road traffic is high to reduce the potential for impacts. Currently, the top penthouse levels of each tower are designated for mechanical space. The source locations have been assumed based on current drawings and available outdoor space on the mechanical penthouse levels. The assumed source locations are presented in Figures 6a and 6b.

A preliminary review of the potential for noise impacts from these mechanical systems have been assessed. The criteria can be met at all on-site receptors (i.e., façades to residential space and common outdoor amenity areas) by the appropriate selection of mechanical equipment and/or by incorporating control measures (e.g., silencers) into the design. As such, each equipment has been provided with a performance specification and assumed duty cycles, and provided in the table below.

Table 6: Equipment Performance Specification and Duty Cycles

Source	Maximum Allowable Sound Power Level (dBA)	Operation during Worst-Case Hour		
		Daytime 7 am – 7 pm	Evening 7 pm – 11 pm	Night-time 11 pm – 7 am
Hotel Emergency generator	94	60 minutes	n/a	n/a
Hotel cooling tower	82	60 minutes	45 minutes	30 minutes
Hotel air makeup	78	60 minutes	45 minutes	30 minutes
Condo Emergency generator	103	60 minutes	n/a	n/a
Condo cooling tower	91	60 minutes	45 minutes	30 minutes
Condo air makeup	86	60 minutes	45 minutes	30 minutes
Garage exhaust system	89	60 minutes	45 minutes	30 minutes

The final maximum allowable sound power levels and locations each mechanical system may be modified but should be reviewed by an Acoustical Consultant during detailed design.

Predicted Development Noise on Itself

On-site sound levels are predicted to comply with NPC-300 guidelines as shown in Figures 6a and 6b for normal operations and emergency generator testing, respectively. The worst-case predicted sound levels in each cardinal direction near the development are summarized in the following table.

Table 7: Overall Worst-case Development Sound Levels on Itself

Building	Worst-Case Location	Worst-Case Predicted Sound Level			Guideline Limit			Meets Guideline ?
		Continuous Sources		Generator Test	Continuous Sources		Generator Test	
		Day	Night	Day	Day		Day	
Condominium	North Façade	50	43	48	50	45	55	Yes
	East Façade	48	45	52	50	45	55	Yes
	South Façade	48	45	55	50	45	55	Yes
	West Façade	38	35	41	50	45	55	Yes
	Podium OLA	29	n/a	36	50	n/a	55	Yes
Hotel	North Façade	40	37	48	50	45	55	Yes
	East Façade	47	44	50	50	45	55	Yes
	South Façade	22	19	43	50	45	55	Yes
	West Façade	34	30	35	50	45	55	Yes
	Podium OLA	30	n/a	37	50	n/a	55	Yes

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

Noise levels from the building mechanical systems are not anticipated given the urban environment of the area, and the fact that the final systems will be designed and positioned to ensure that the applicable noise guidelines are met at off-site receptors.

Regardless, potential impacts will be assessed as part of the final building design to ensure compliance. The criteria can be met at all surrounding receptors through appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by

incorporating control measures (e.g., silencers) into the design.

The assumed source locations and predicted sound levels at on-site receptors are presented in Figures 6a and 6b. The source locations and equipment sound levels are to be assessed as part of the final design.

If required, an application for an Environmental Compliance Approval (ECA) should be made to the MECP at the Site Plan Approval stage, once building mechanical systems are fully designed. Alternatively, the equipment should be designed to meet the requirements of the applicable Environmental Activity and Sector Registry (EASR), and be registered with the MECP.

5.1.5 IMPACTS OF THE DEVELOPMENT ON SURROUNDING

This section examines the potential for noise impacts of the development on surrounding (off-site) noise-sensitive properties.

Road Traffic Noise

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

Predicted Development Noise on Surrounding

The building equipment associated with the development have been discussed in Section 5.1.4.2 and summarized in Appendix A. Off-site sound levels are predicted to comply with NPC-300 guidelines as shown in Figures 7a and 7b for normal operations and emergency generator testing, respectively. The worst-case predicted sound levels in each cardinal direction near the development are summarized in the following table.

Table 8: Overall Worst-Case Development Sound Levels on Surrounding Properties

Area	Worst-Case Predicted Sound Level			Guideline Limit			Meets Guideline?
	Continuous Sources		Generator Test	Continuous Sources		Generator Test	
	Day	Night	Day	Day	Night	Day	
North	44	36	34	50	45	55	Yes
Northeast	45	42	43	50	45	55	Yes
East	44	41	39	50	45	55	Yes
Southeast	46	43	35	50	45	55	Yes
South	46	43	35	50	45	55	Yes

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

Noise levels from the building mechanical systems are not anticipated given the urban environment of the area, and the fact that the final systems will be designed and positioned to ensure that the applicable noise guidelines are met at off-site receptors.

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

If required, an Environmental Compliance Approval (ECA) should be applied for with the MECP at the Site

Plan Approval stage, once building mechanical systems are fully designed. Alternatively, the equipment should be designed to meet the requirements of the applicable Environmental Activity and Sector Registry (EASR), and be registered with the MECP.

5.1.6 REQUIRED NOISE MITIGATION MEASURES FOR STATIONARY SOURCES

Noise Mitigation Measures

- No physical noise mitigation measures are required as predicted off-site and on-site sound levels from are at or below the applicable guideline limits.
- The maximum allowable sound power level for on-site mechanical systems should match values provided in Section 5.1.4.2 or in Appendix A. The final maximum allowable sound power levels and locations can be modified but should be reviewed by an Acoustical Consultant during detailed design.

Noise Waring Clauses

- A "Type E" noise warning clause is recommended based on proximity to existing stationary noise sources. See Appendix A for warning clause details. The warning clauses must be registered on Title and included in all agreements of purchase and sale or lease and all rental agreements.

5.2 TRANSPORTATION SOURCES

5.2.1 MECP PUBLICATION NPC-300 GUIDELINES FOR TRANSPORTATION SOURCES

Indoor Criteria

The following table summarizes the criteria in terms of energy equivalent sound exposure (L_{eq}) levels for specific indoor noise-sensitive locations. These indoor criteria vary with sensitivity of the space. As a result, sleep areas have more stringent criteria than Living / Dining room space.

Table 9: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L_{eq} (dBA) [1]		Assessment Location
		Road	Rail [2]	
Criteria for Residential Units				
Living / Dining Room	Daytime (7 am to 11 pm)	45	40	Indoors
	Night-time (11 pm to 7 am)	45	40	Indoors
Sleeping Quarters	Daytime (7 am to 11 pm)	45	40	Indoors
	Night-time (11 pm to 7 am)	40	35	Indoors
Supplementary Criteria for Non-Residential Uses				
General offices, reception areas, retail stores, etc.	Daytime (7 am to 11 pm)	50	45	Indoors
Living/dining areas of residences, hospitals, schools, nursing/retirement homes, day-care centres, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, reading rooms, etc.	Daytime (7 am to 11 pm))	45	40	Indoors
Sleeping quarters of hotels/motels	Night-time (11 pm to 7 am)	45	40	Indoors
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	Night-time (11 pm to 7 am)	40	35	Indoors

Notes: [1] Road and Rail noise impacts are to be combined for assessment of impacts.
[2] Whistle/warning bell noise is excluded for OLA noise assessments and included for indoor assessments, where applicable.

Ventilation and Warning Clauses

The following table summarizes requirements for ventilation where windows potentially would have to remain closed as a means of noise control. Despite the implementation of ventilation measures where required, some occupants may choose not to use the ventilation means provided, and as such, warning clauses advising future occupants of the potential excess over the indoor guideline limits are required.

Table 10: NPC-300 Ventilation and Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Ventilation and Warning Clause Requirements [2][3]
		Road	Rail [1]	
Plane of Window	Daytime (7am to 11 pm)	≤ 55		None
		56 to 65 incl.		Forced Air Heating with provision to add AC + Applicable Warning Clause(s)
		> 65		Central AC + Applicable Warning Clause(s)
	Night-time (11 pm to 7 am)	51 to 60 incl.		Forced Air Heating with provision to add AC+ Applicable Warning Clause(s)
		> 60		Central AC + Applicable Warning Clause(s)

Notes: [1] Whistle/warning bell noise is excluded.
[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

Building Shell Requirements

The following table provides sound exposure (L_{eq}) thresholds which if exceeded, require the building shell and components (i.e., wall, windows) to be designed and selected accordingly to ensure that the indoor location criteria are met.

Table 11: NPC-300 Building Component Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} (dBA)		Component Requirements
		Road	Rail [1]	
Facade	Daytime (7am to 11 pm)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements [2]
	Night-time (11 pm to 7 am)	> 60	> 55	

Notes: [1] Including whistle/warning bell noise.
[2] The resultant sound isolation parameter from Road and Rail are to be combined for determining the overall acoustic parameter.

Outdoor Sound Level Criteria

The following table summarizes criteria in terms of energy equivalent sound exposure (L_{eq}) levels for the outdoor noise-sensitive locations, with a focus of outdoor areas being amenity spaces, called Outdoor Living Areas (OLAs) per NPC-300.

Table 12: NPC-300 Outdoor Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Exposure Level L_{eq} (dBA) [1, 2]	Assessment Location
OLA	Daytime (0700-2300h)	55	Outdoors

Notes: [1] Excluding whistle/warning bell noise for OLA noise assessments
[2] Road and Rail noise impacts are to be combined for assessment of OLA impacts.

Mitigation and Warning Clauses

The following table summarizes mitigation and warning clause requirements for outdoor amenity spaces.

Table 13: NPC-300 Outdoor Living Area Mitigation & Warning Clause Requirements

Assessment Location	Time Period	Energy Equivalent Sound Exposure Level - L_{eq} [1][2] (dBA)	Mitigation and Warning Claus Requirements [3]
OLA	Daytime (0700-2300h)	≤ 55	None
		56 to 60 incl.	Noise Control Measures may be applied, **and/or** Applicable Warning Clause(s)
		> 60	Noise barrier to reduce noise to 55 dBA, **or** Noise barrier to reduce noise to 60 dBA and Applicable Warning Clause(s)

Notes: [1] Whistle/warning bell noise is excluded.
[2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.

As indicated in NPC-300, noise control measures may be applied to reduce sound levels to 55 dBA. If measures are not provided, potential purchasers/tenants are required to be informed of potential noise problems with the applicable Warning Clause(s).

If noise impacts are predicted to be greater than 60 dBA, noise control measures are required to reduce noise levels to 55 dBA. If noise control measures are not technically feasible for meeting 55 dBA, an excess of up to 5 dBA is allowed, with the inclusion of the applicable Warning Clause(s).

5.2.2 TRAFFIC DATA AND FUTURE PROJECTIONS

Road traffic data was obtained directly from the RMOW. The RMOW provided complete data in the form of forecasted 2030 Annual Average Daily Traffic (AADT), commercial vehicle percentages, posted speed limits, and day/night splits.

Copies of the traffic data and calculations can be found in Appendix E. The following summarizes the road traffic volume used in the analysis.

Table 14: Summary of Road Traffic Data Used in the Analysis

Roadway Link	Future Year 2030 Traffic Volume (AADT)	% Day / Night Volume Split		% Commercial Traffic Breakdown		Vehicle Speed (km/h)
		Daytime	Night-time	Medium Trucks	Heavy Trucks	
Water Street North	20,100	87	13	1.7	3.7	50
Ainslie Street North	20,800	90	10	1.6	3.8	50

Notes: [1] Traffic data provided by the RMOW.

5.2.3 PROJECTED SOUND LEVELS

Road traffic sound levels at the proposed development were predicted using Cadna/A, a commercially available noise propagation modelling software. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MECP. These predictions were validated and are equivalent to those made using the MECP's ORNAMENT or STAMSON v5.04 road traffic noise models.

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

Ground absorption was assessed as reflective surfaces, as the majority of the intervening ground is asphalt or concrete. In calculating road traffic noise levels to determine façade and outdoor amenity areas, no reflections from building surfaces were accounted for, in keeping with NPC-300 requirements (order of reflection set to 0).

The predicted sound levels are shown in Figure 8. Due to numerous building components, only the worst-case predicted sound levels are provided in the following table:

Table 15: Overall Worst-Case Projected Sound Levels

Building	Use	Façade	Road	
			Daytime [1] (7am to 11 pm)	Night-time (11 pm to 7 am)
Condominium	Lobby/ Indoor Amenity/ Restaurant/ Offices	North	62	n/a
		East	**66**	n/a
		South	59	n/a
		West	47	n/a
	Residential	North	62	56
		East	65	59
		South	62	55
		West	47	41
Hotel	Lobby/ Spa/ Fitness	North	57	n/a
		East	**66**	n/a
		South	63	n/a
		West	54	n/a
	Suites	North	58	51
		East	65	59
		South	63	56
		West	54	47

Notes: [1] Non-residential spaces are daytime only (7 am – 11 pm).

Based on the above façade levels, central air conditioning system and a "Type D" warning clause are required for all residential units, as predicted sound levels are higher than 65 dBA during the daytime.

5.2.4 FAÇADE RECOMMENDATIONS

Based on the predicted sound levels shown in the above table, the roadway sound levels were predicted to be less than the 65 dBA daytime and 60 dBA night-time limits at most locations, except for the east façades. Therefore, an assessment of glazing requirements is completed for the east façades to meet the indoor sound level requirements. Areas where acoustical requirements are not outlined, a typical Ontario Building Code (OBC) glazing construction is expected to be sufficient. Glazing meeting the OBC minimum structural and safety requirements will provide a minimum STC 29 rating.

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

Detailed floor plans were not available at the time of this assessment. For the analysis, generic rooms have been considered and discussed with MartinSimmons Architects Inc. The following assumptions have been made:

- Non-Residential Rooms:
  - 80% glazing;
  - Dimensions were assumed 5 m x 10 m and acoustically reflective.
- Residential/Hotel Suites Living/Dining Rooms:
  - 70% glazing (including Patio Door);
  - Dimensions were assumed 3 m x 6 m and acoustically reflective.

- Residential/Hotel Suites Bedrooms:
    - 60% glazing;
    - Dimensions were assumed 3 m x 3 m and acoustically absorptive.
- Wall construction with glazing and glass spandrel panel elements.
- Non-glazing portions of the wall have an assumed STC rating of 45.

Façade STC requirements are summarized in the following table and detailed in **Appendix E**:

Table 16: Façade Sound Transmission Class (STC) Requirements

Building	Use	Façade	Minimum Required STC Rating [1][2]		
			Wall	Indoor Amenity Windows/Doors	Living/ Dining/ Bedroom Windows/Doors
Condominium	Lobby/ Indoor Amenity/ Restaurant/ Offices	All Façades	45	OBC	n/a
	Residential	All Façades	45	OBC	OBC
Hotel	Lobby/ Spa/ Fitness	All Façades	45	OBC	n/a
	Suites	All Façades	45	OBC	OBC

Notes: [1] Glazing (window and patio door) meeting minimum OBC requirements – generally STC 29 or greater. Detailed STC ratings are provided in **Appendix E**.
[2] Corner units with two exposed facades may require an increase in STC rating of up to 3 points. This effect should be reviewed by an Acoustical Consultant during detailed design.

5.2.5 OUTDOOR LIVING AREA REQUIREMENTS

The communal outdoor living areas (OLAs) are shown in **Figure 2**. Predicted overall sound level is provided in the following table and are also shown in **Figure 8**. The predicted sound level in the OLA meets the guideline limit. Noise warning clause and mitigation measures are not required.

Table 17: Predicted Outdoor Amenity Area Sound Levels

Amenity Area	Predicted Sound Level (dBA)	Guideline Limit [1] (dBA)	Warning Clause / Noise Mitigation Measure	Meets Guideline?
Communal Outdoor Amenity	38	60	None / None	Yes

Notes: [1] Sound levels up to 60 dBA are allowed with the use of a Type A or Type B Warning Clause.

5.2.6 VENTILATION REQUIREMENTS

Based on the predicted road sound levels in **Table 15**, the following are provided:

- Forced air heating with provision to add air conditioning system and a "**Type C**" warning clause are required for all residential units, as predicted sound levels at the façades of residential and hotel suites are less than 65 dBA and 60 dBA during the daytime and night-time, respectively.

See Appendix A for warning clause details.

5.3 SUMMARY OF NOISE CONCLUSIONS AND RECOMMENDATIONS

Impacts from the surrounding of the environment on the proposed development can be adequately controlled through the feasible mitigation measures and warning clauses detailed in this report. Based on the results of our studies:

- Adverse noise impacts from stationary industrial noise sources are not anticipated at the Project. The requirements of MECP Guideline D-6 are met.
- Impacts of the future on-site mechanical systems are expected to meet the applicable guideline limits off-site and the development itself through feasible controls.
- OBC construction is anticipated to be sufficient for meeting the MECP NPC-300 Building Component Requirements, as outlined in Section 5.2.4.
- Communal outdoor amenity areas have been assessed and no physical mitigation measures are required, as outlined in Section 5.2.5.

The recommended Warning Clause text and a summary of required mitigation measures can be found in Appendix A. The following table summarizes the warning clause requirements for the Project.

Table 18: Summary of Warning Clause Requirements

Building	Façade	Required Warning Clause					
		Transportation Noise [1]				Industry [1] (Stationary Noise)	
		A	B	C	D	E	F
Condominium	All Residential Façades			√		√	

Notes: [1] Warning clause text from MECP Publication NPC-300.

6. VIBRATION ASSESSMENT

There are no existing significant industrial vibration sources or railway within 75 m of the Project. A detailed vibration assessment is not required. Adverse vibration impacts are not anticipated.

7. CONCLUSIONS

A compatibility assessment has been completed, examining the potential for noise and vibration impacts from road sources and from nearby industrial land uses to affect the proposed development Project.

Based on our assessment, the Project, will not affect the industrial facilities' compliance with applicable Provincial environmental policies, regulations, approvals, authorizations and guidelines, including the City's Noise Bylaw. The requirements of MECP Guideline D-6 Publication NPC-300 are met.

Mitigation measures, including maximum allowable sound levels for on-site mechanical systems, façade upgrades, and various warning clauses are required to ensure that the applicable stationary and transportation noise guidelines are met.

Industrial and transportation vibration impacts are not anticipated.

The required mitigation measures and warning clauses are summarized in Appendix A. These measures can be secured as part of conditions for site plan approval.

Given the early stage of design and the conservative analysis that has been completed, the noise report should be updated to respond to any future changes in the submitted site plan.

8. REFERENCES

International Organization for Standardization (ISO), 1996, *9613-2: Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation, Geneva, Switzerland, 1996.*

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

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

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

Regional Municipality of Waterloo (RMOW), 2012, *Appendix F - Noise and Vibration Impact Assessment Report.*

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

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1996), Guideline D-2: *Compatibility Between Sewage Treatment and Sensitive Land Uses*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1994) Guideline D-3: *Environmental Considerations For Gas Or Oil Pipelines And Facilities*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1994), Guideline D-4: *Land Use On or Near Landfills and Dumps*

Ontario Ministry of the Environment, Conservation & Parks (MECP, 1996), Guideline D-5: *Planning for Sewage & Water Services*

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

9. 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 Cambridge Developments Inc., 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.

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FIGURES

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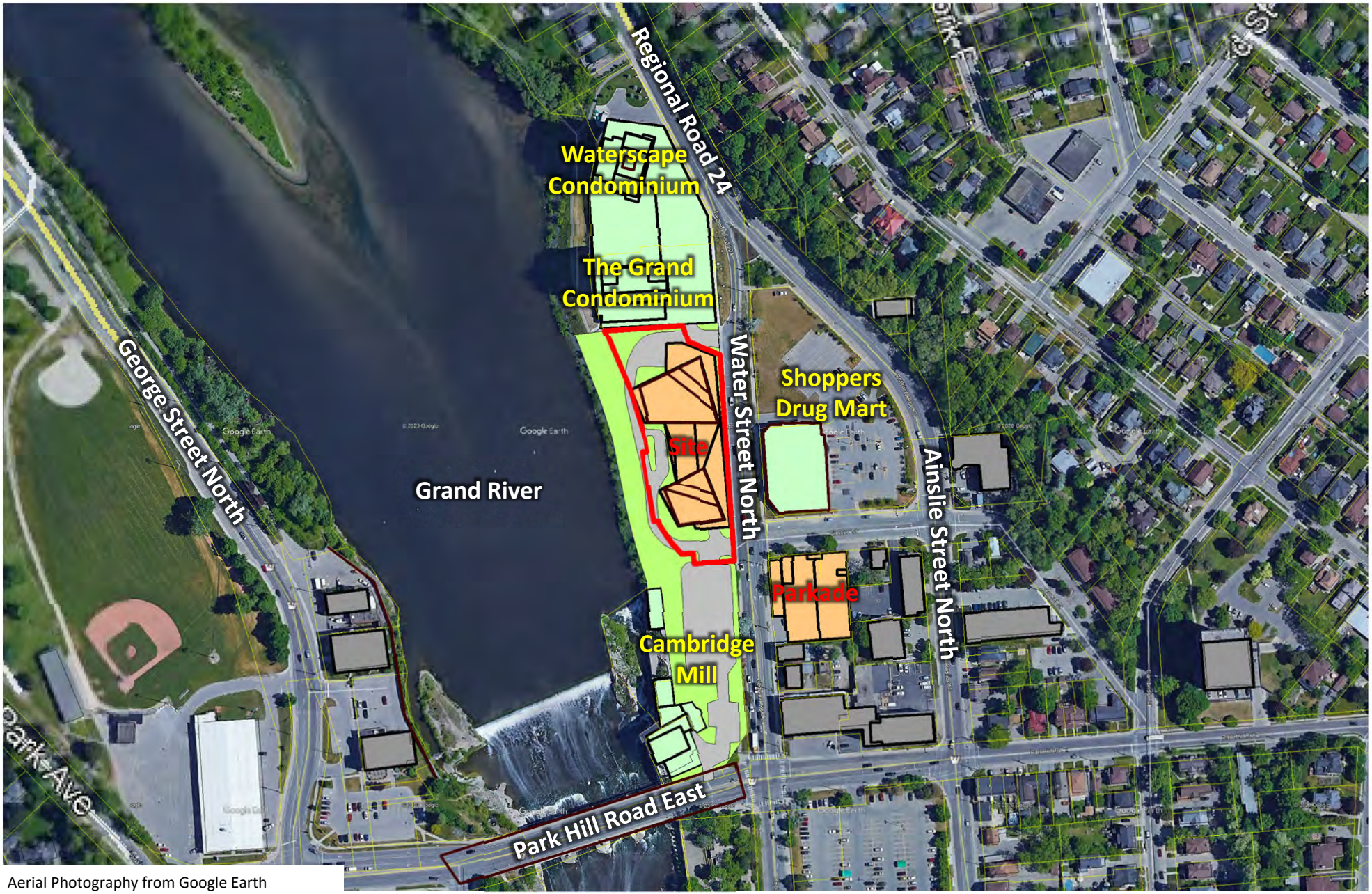

Aerial Photography from Google Earth

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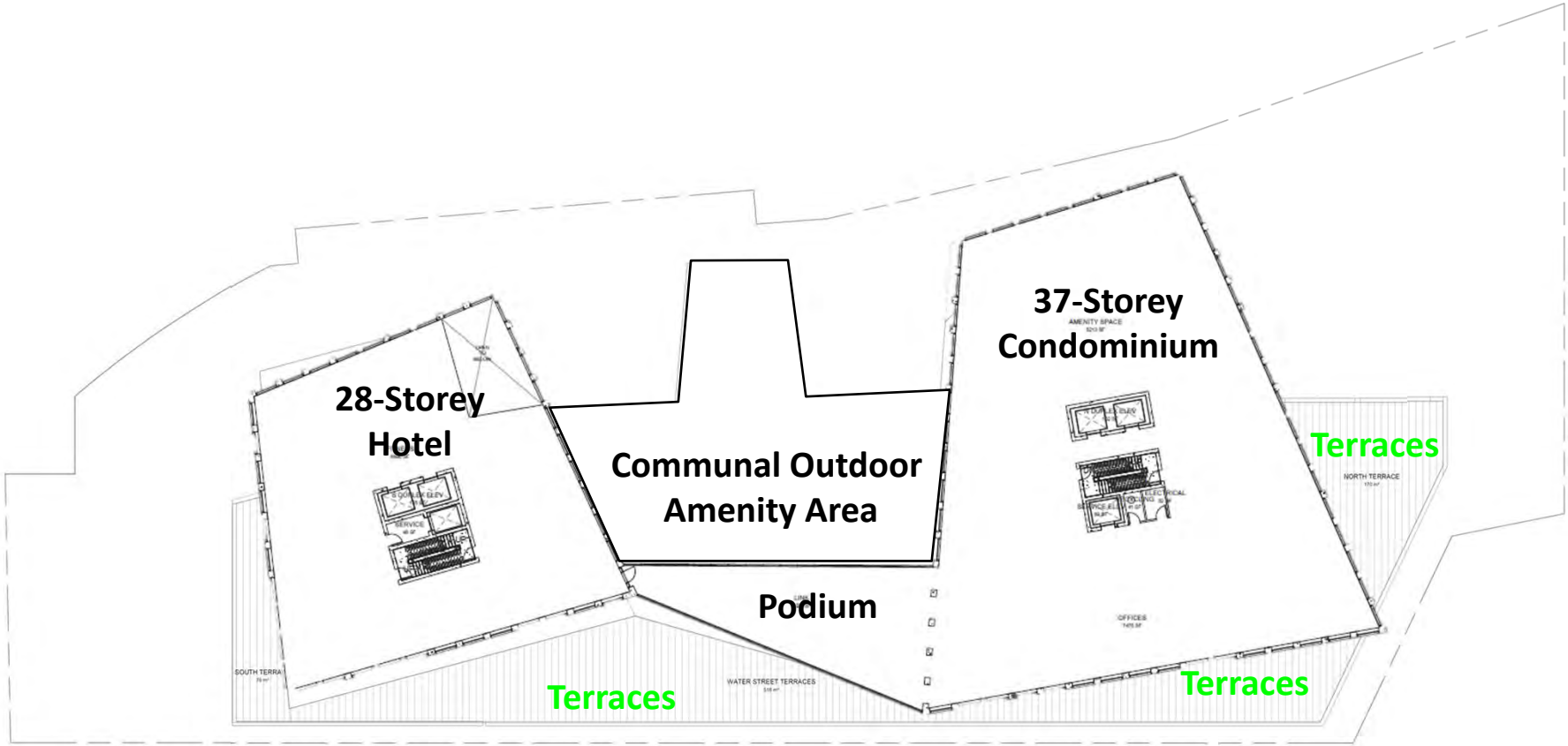
SITE AND CONTEXT PLAN		Project No. 241.20059.00000		



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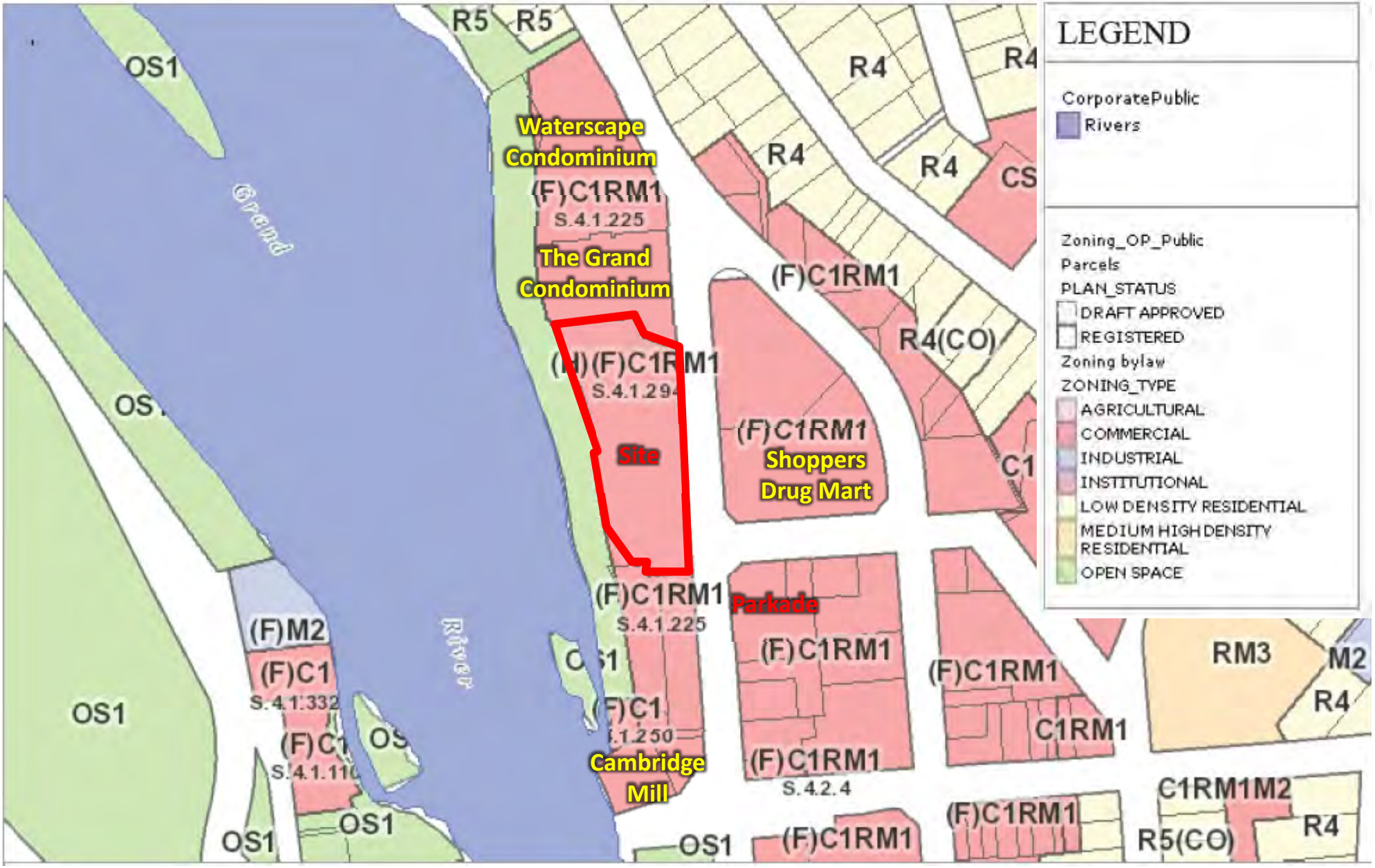
EXCERPTS FROM SITE PLAN		Project No. 241.20059.00000		



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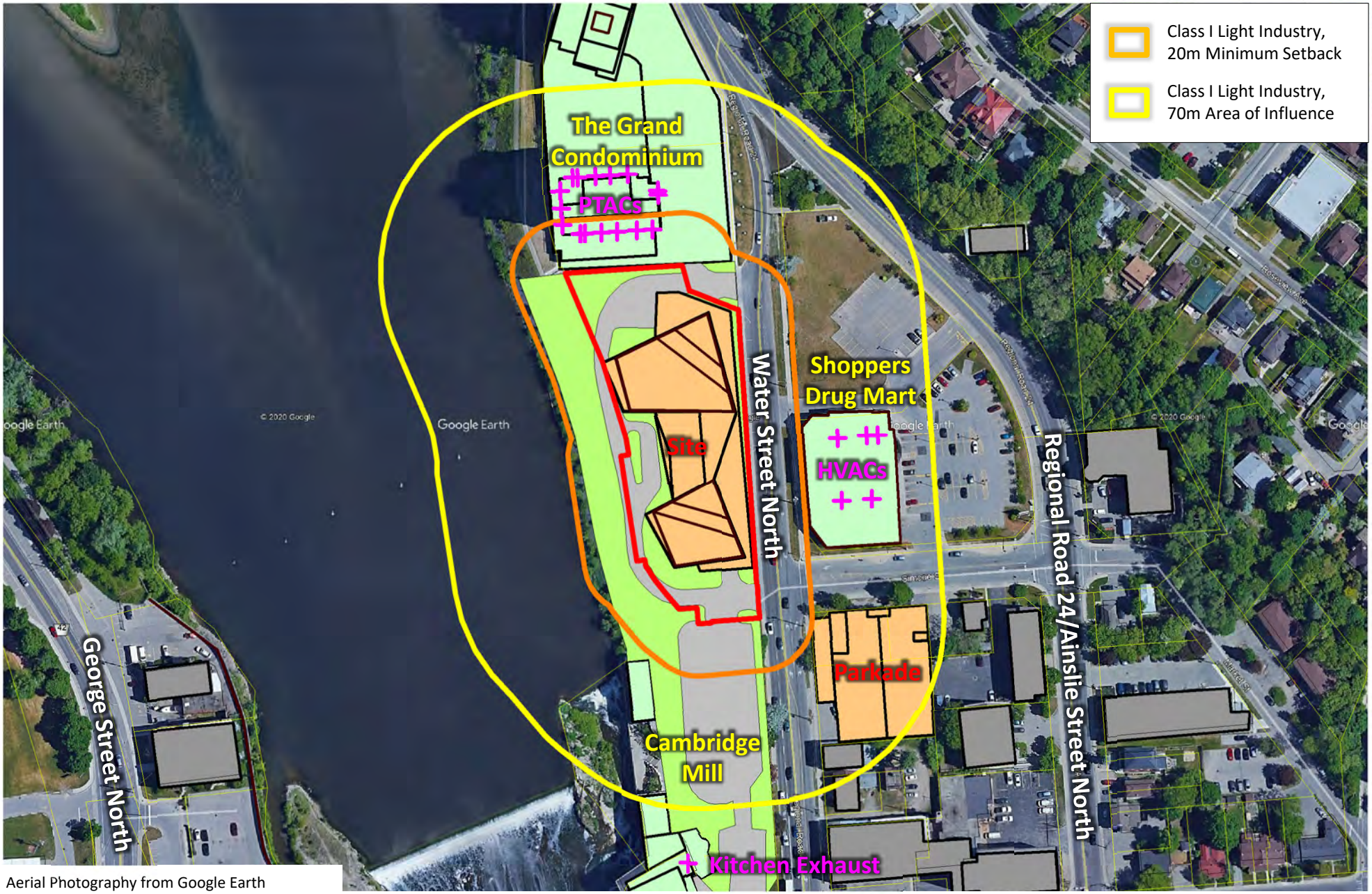

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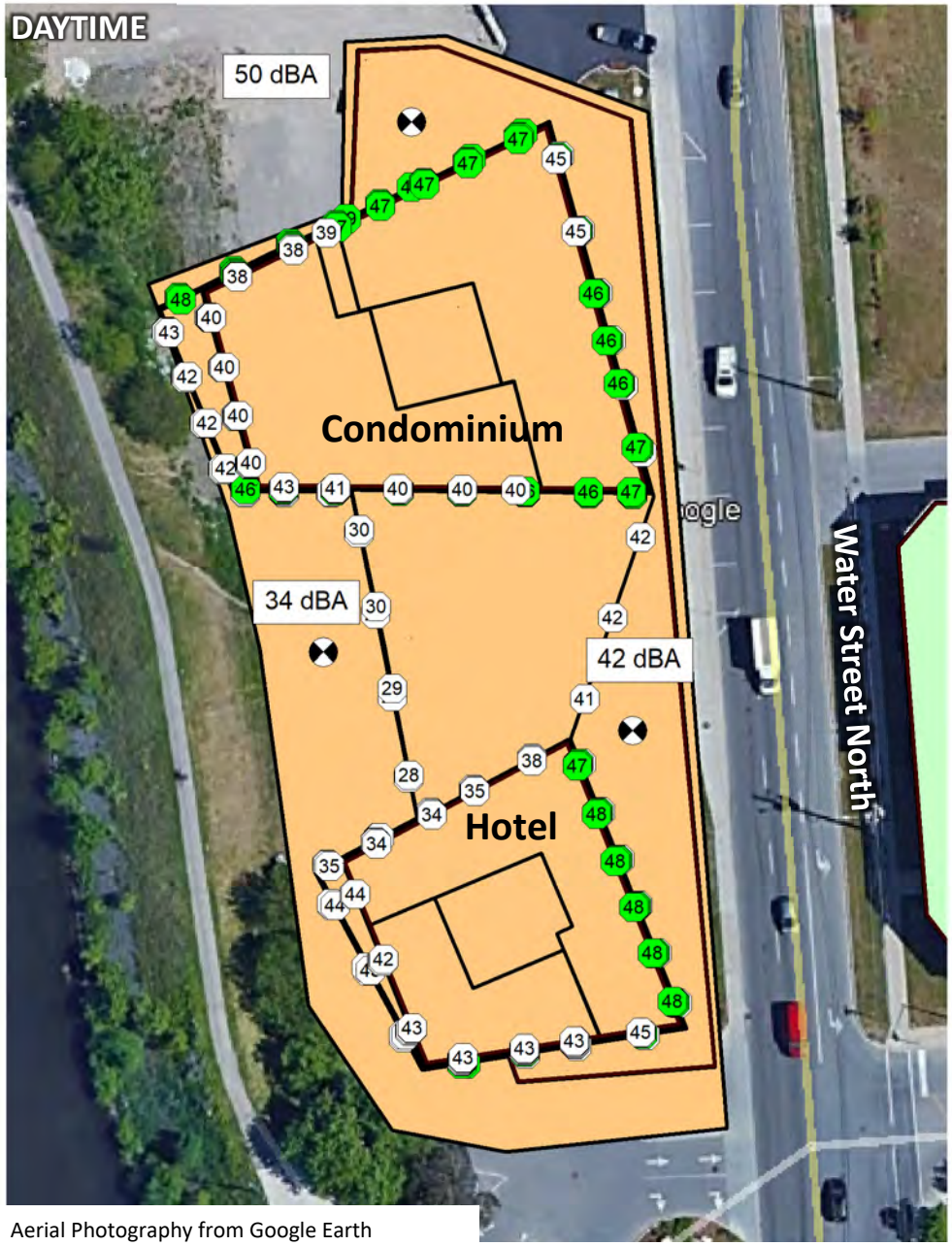
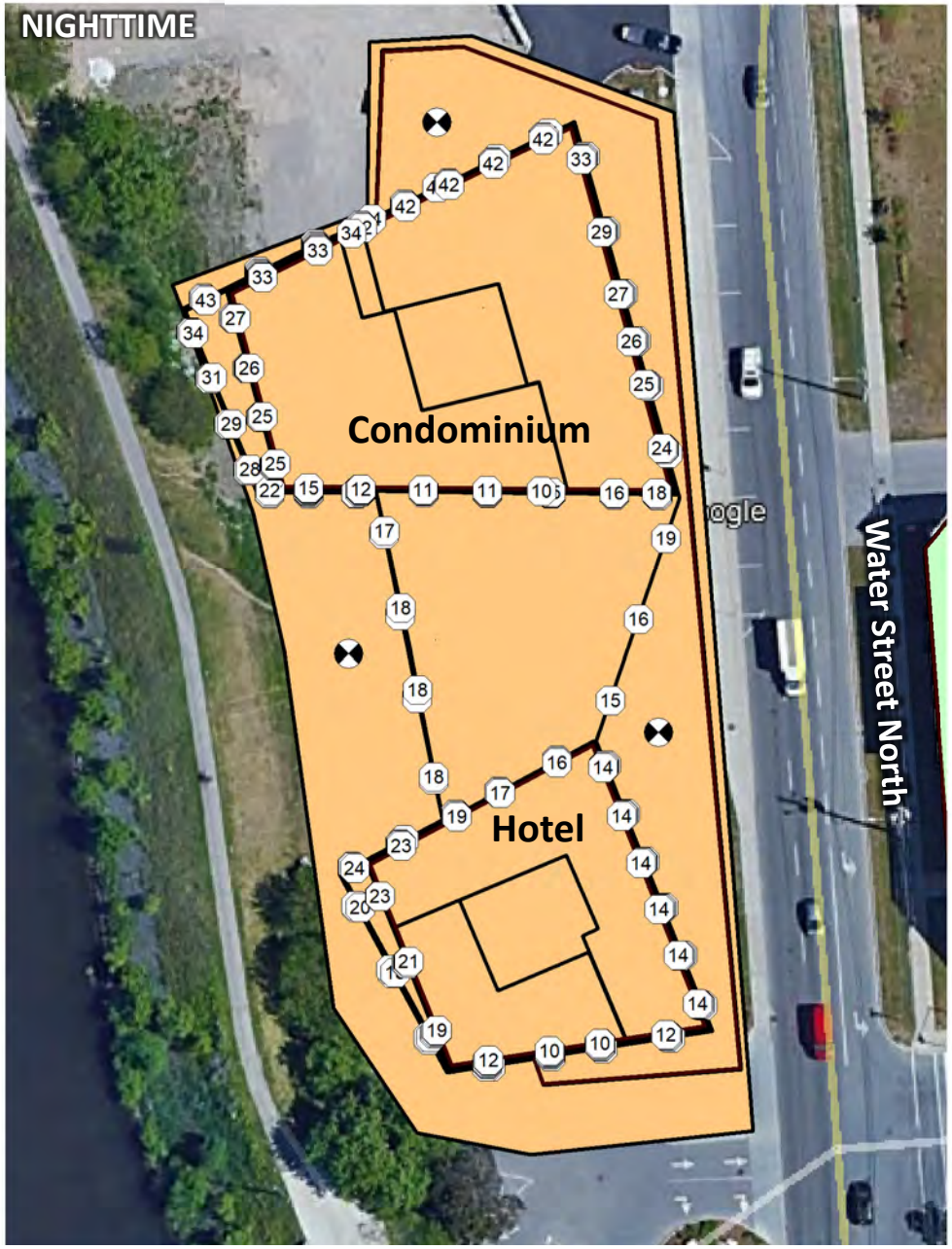
GUIDELINE D-6 SEPARATION DISTANCES AND INDUSTRY NOISE SOURCE LOCATIONS		Project No. 241.20059.00000	

SLR global environmental solutions





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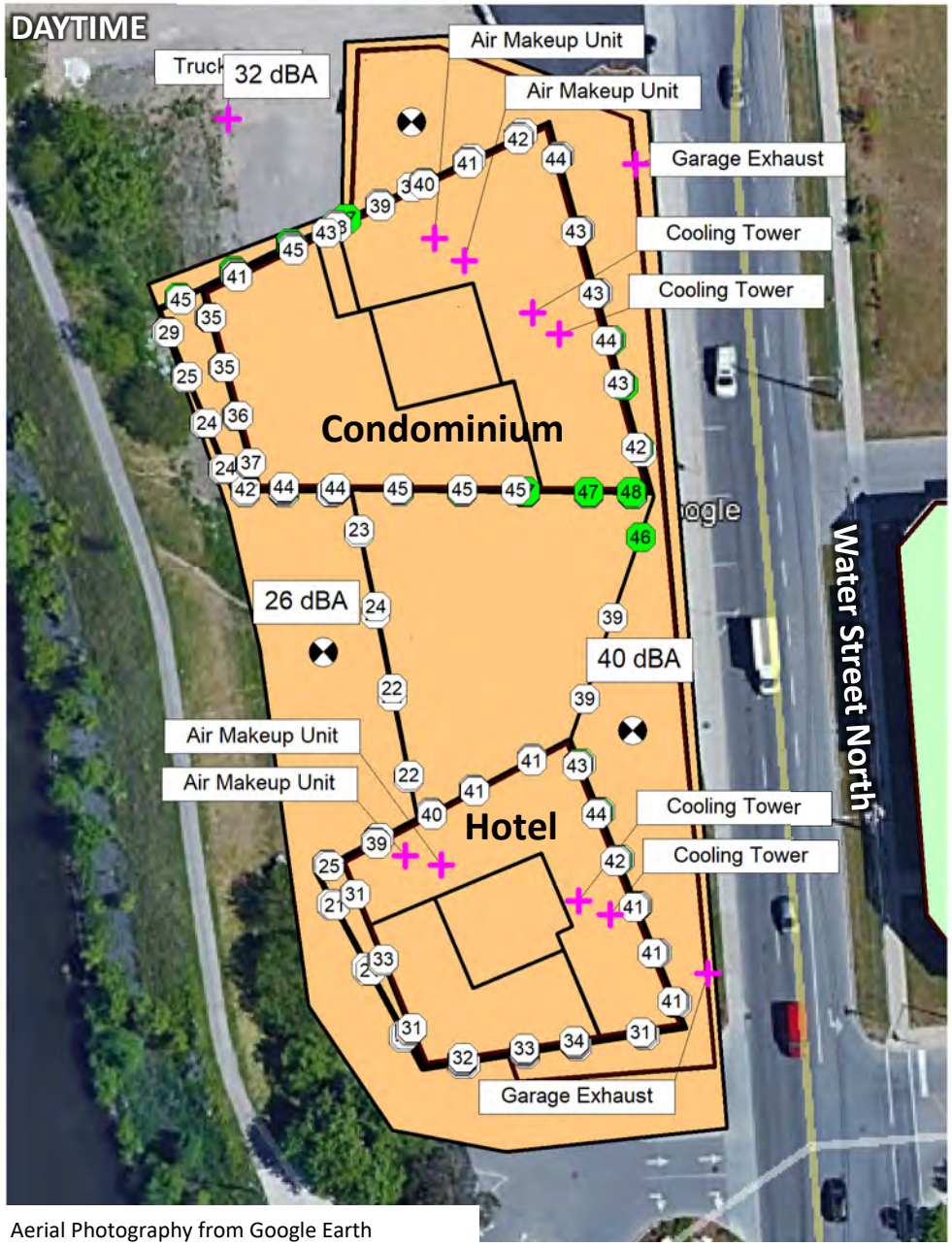
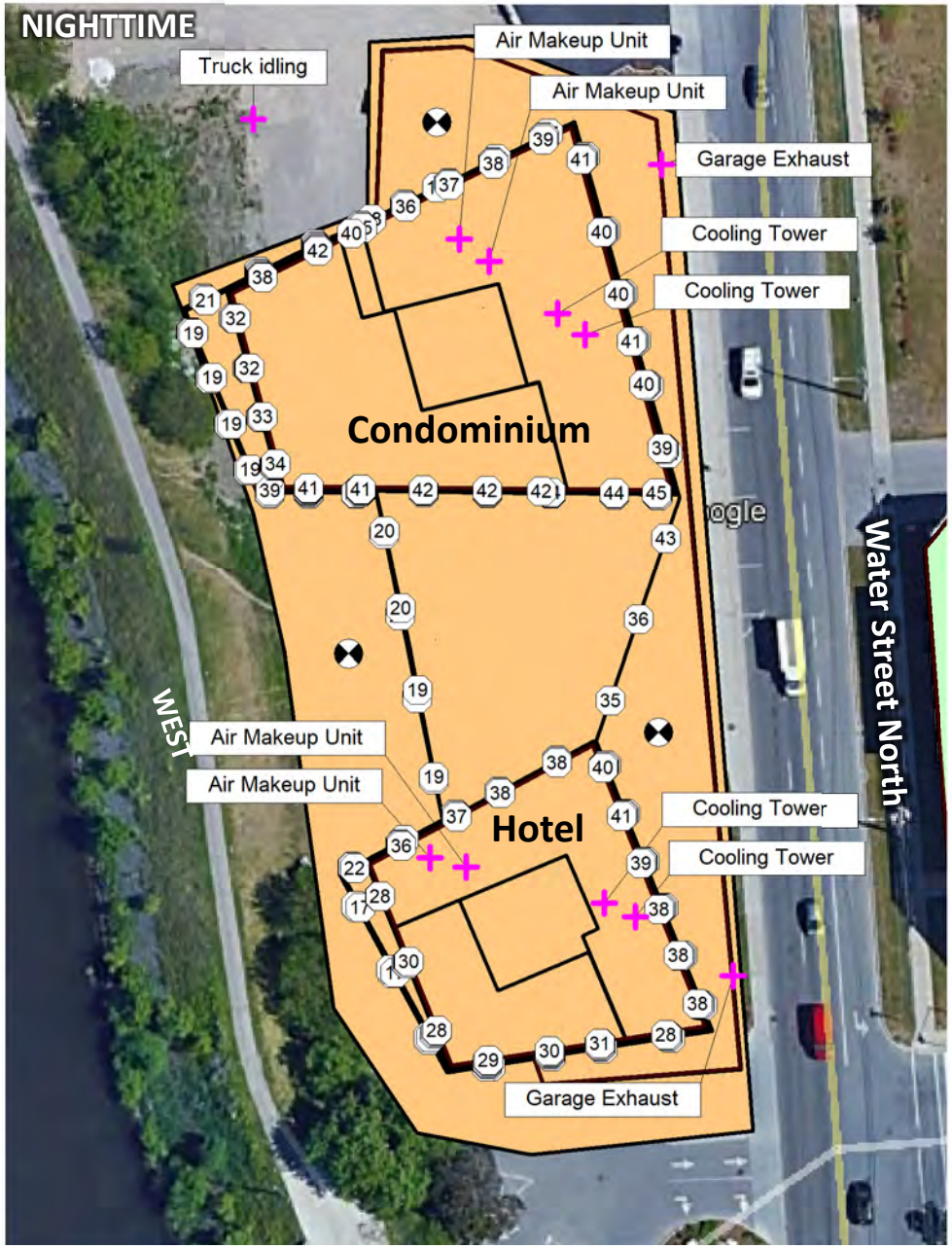
PREDICTED STATIONARY NOISE SOUND LEVELS – INDUSTRY ON DEVELOPMENT, NORMAL OPERATIONS		Project No. 241.20059.00000		





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PREDICTED STATIONARY NOISE SOUND LEVELS – DEVELOPMENT ON ITSELF, NORMAL OPERATIONS		Project No. 241.20059.00000		

APPENDIX A
MITIGATION AND WARNING CLAUSE SUMMARY

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SUMMARY OF MITIGATION MEASURES AND WARNING CLAUSES

Mitigation Measures

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

Building Equipment

A preliminary review of the potential for noise impacts from these mechanical systems have been assessed. The criteria can be met at all on-site and off-site receptors by the appropriate selection of mechanical equipment and/or by incorporating control measures (e.g., silencers) into the design. As such, each equipment has been provided with a performance specification and assumed duty cycles, and provided in the table below.

Table 1: Equipment Performance Specification and Duty Cycles

Source	Maximum Allowable Sound Power Level (dBA)	Operation during Worst-Case Hour		
		Daytime 7 am – 7 pm	Evening 7 pm – 11 pm	Night-time 11 pm – 7 am
Hotel Emergency generator	94	60 minutes	n/a	n/a
Hotel cooling tower	82	60 minutes	45 minutes	30 minutes
Hotel air makeup	78	60 minutes	45 minutes	30 minutes
Condo Emergency generator	103	60 minutes	n/a	n/a
Condo cooling tower	91	60 minutes	45 minutes	30 minutes
Condo air makeup	86	60 minutes	45 minutes	30 minutes
Garage exhaust system	89	60 minutes	45 minutes	30 minutes

The final maximum allowable sound power levels and locations each mechanical system may be modified but should be reviewed by an Acoustical Consultant during detailed design.

Ventilation System Design

Mandatory Air Conditioning (All Residential Units)

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

Façade Design

Façade STC requirements are summarized in the following table:

Table 2: Façade Sound Transmission Class (STC) Requirements

Building	Use	Façade	Minimum Required STC Rating [1][2]		
			Wall	Indoor Amenity Windows/Doors	Living/ Dining/ Bedroom Windows/Doors
Condominium	Lobby/ Indoor Amenity/ Restaurant/ Offices	All Façades	45	OBC	n/a
	Residential	All Façades	45	OBC	OBC
Hotel	Lobby/ Spa/ Fitness	All Façades	45	OBC	n/a
	Suites	All Façades	45	OBC	OBC

Notes: [1] Glazing (window and patio door) meeting minimum OBC requirements – generally STC 29 or greater. Detailed STC ratings are provided in Appendix E.
[2] Corner units with two exposed facades may require an increase in STC rating of up to 3 points. This effect should be reviewed by an Acoustical Consultant during detailed design.

Warning Clauses

Warning Clauses may be used individually or in combination. All required noise warning clauses will be included in all agreements registered on Title for the residential units, all agreements of purchase and sale or lease, all rental agreements, and noise mitigation measures included in the site plan agreement and condominium declaration.

Transportation Sources (Road)

MECP Type C Warning Clause (All Residential Units)

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

Stationary Sources (Industry)

MECP Type E Warning Clause (All Residential Units)

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

APPENDIX B
DEVELOPMENT PLANS

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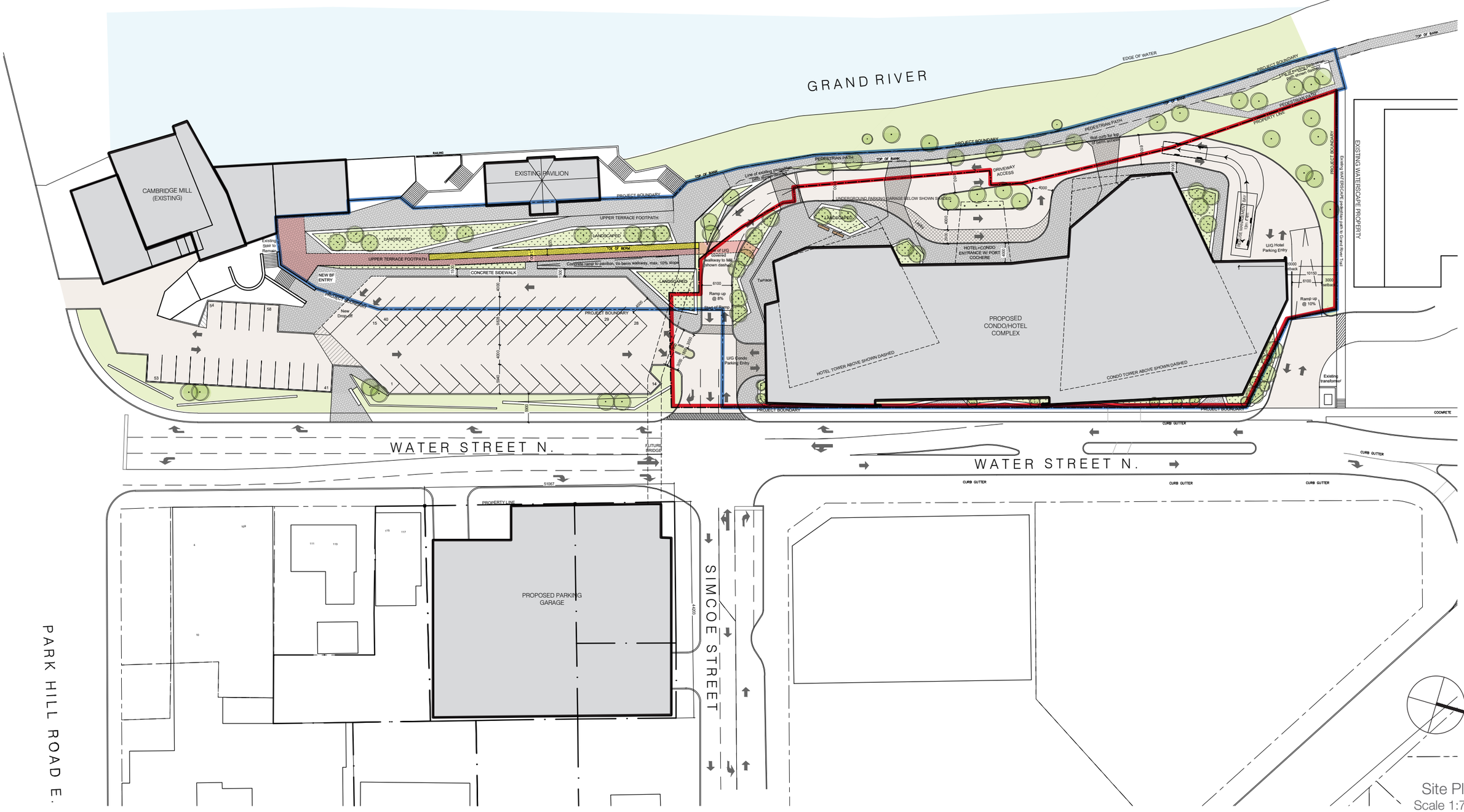
Cambridge Mill Towers

Cambridge, ON

September 9, 2020



Site Plan
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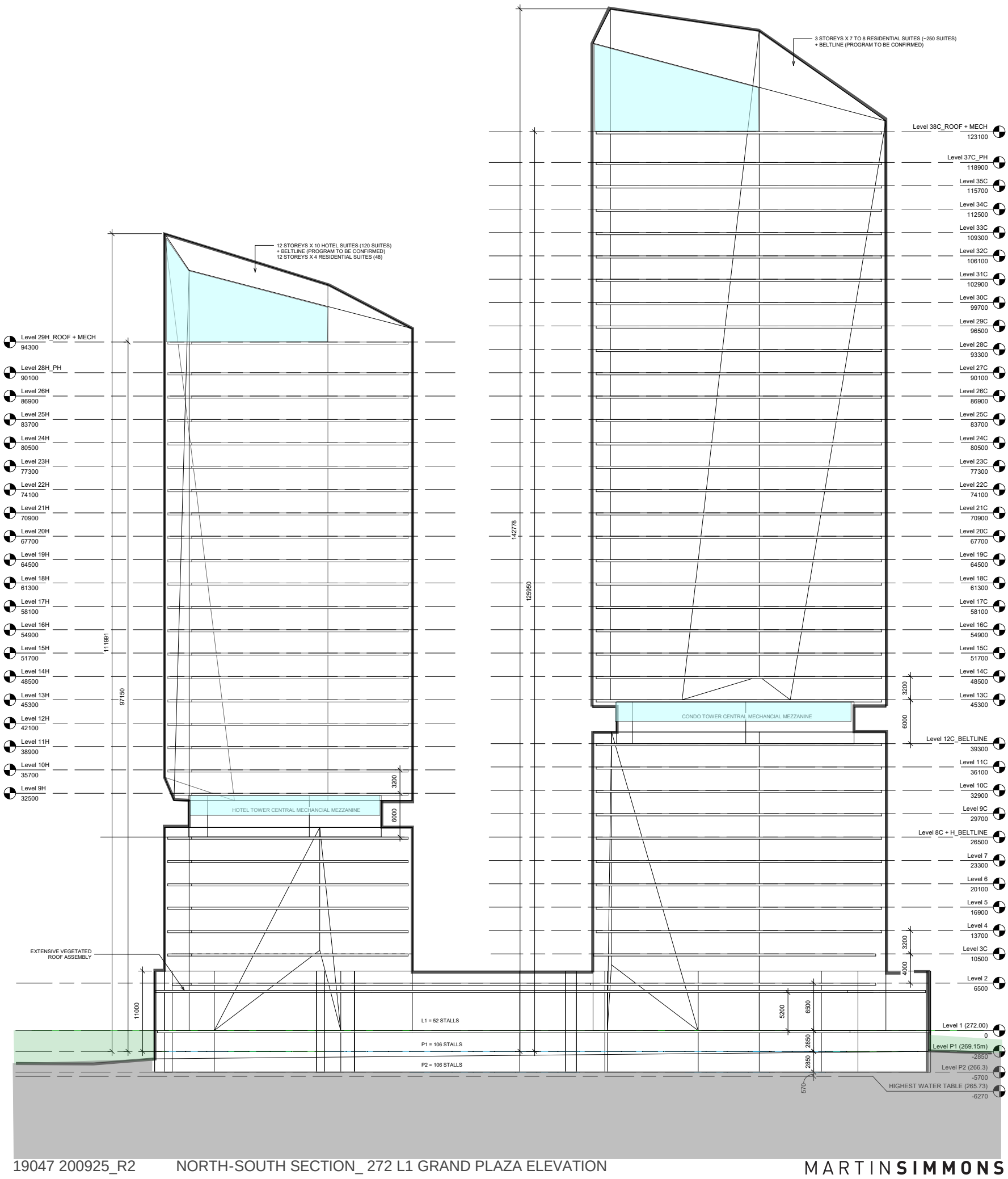
MARTINSIMMONS ARCHITECTS



19047 200925_R2 NORTH-SOUTH SECTION_ 272 L1 GRAND PLAZA ELEVATION

MARTIN SIMMONS ARCHITECTS

1 FIRST FLOOR PLAN
1 : 200

PEARLE HOSPITALITY

MARTIN SIMMONS ARCHITECTS

113 BREITHAUPT STREET, SUITE 200
KITCHENER, ONTARIO. N2H 5G9
TEL: 519-745-4754 FAX: 519-745-0061

PROJECT NORTH

PROJECT:

CAMBRIDGE MILL CONDO / HOTEL

130 WATER ST. NORTH
CAMBRIDGE, ONTARIO

DRAWING:

FIRST FLOOR PLAN

DRAWN BY:	CHECKED BY:
Author	Checker

DATE: SEPTEMBER, 2020

SCALE: 1 : 200

DRAWING No.: A203

PROJECT No.: 19047-1

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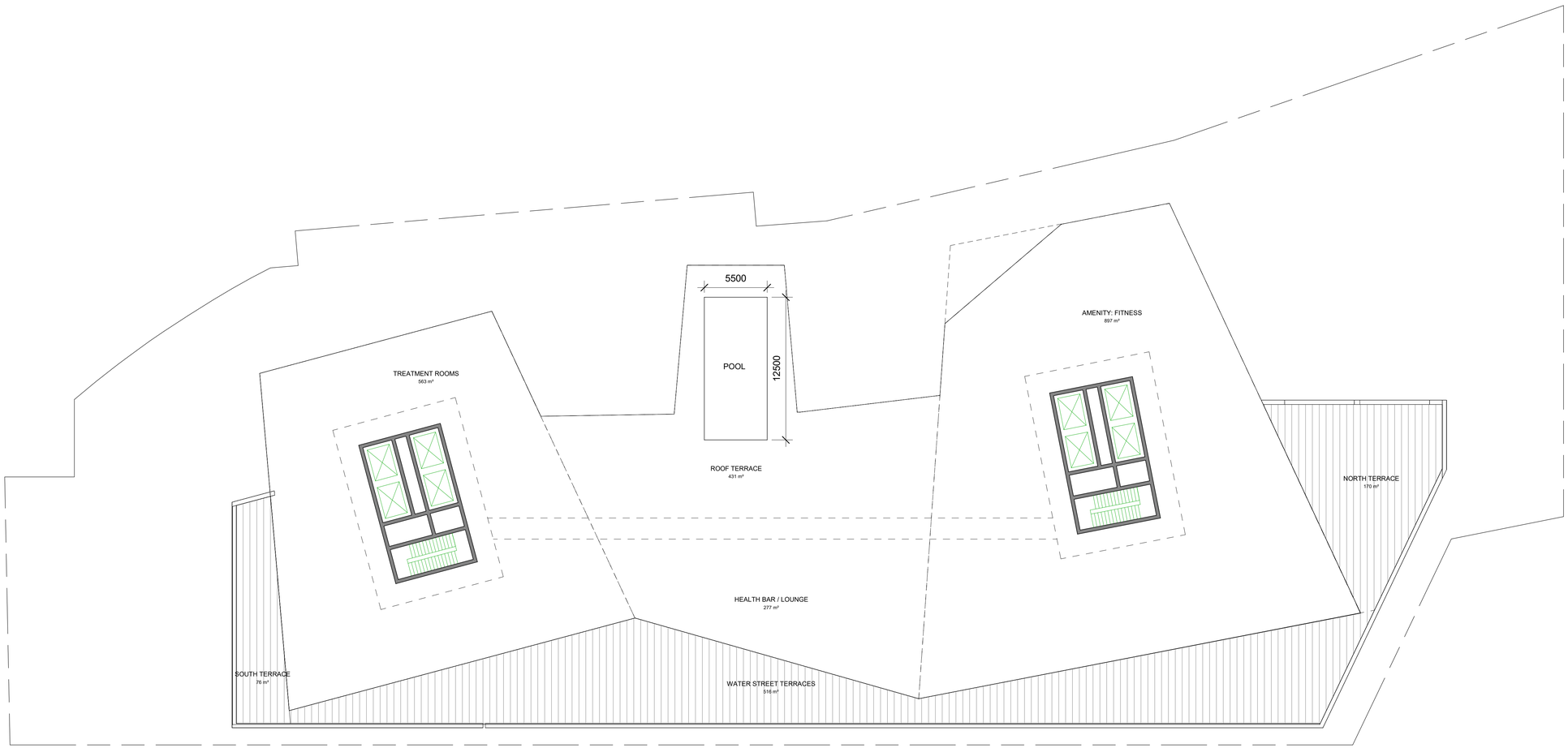

1 SECOND FLOOR PLAN
1 : 200

PEARLE
HOSPITALITY

MARTIN SIMMONS
ARCHITECTS

113 BREITHAUPT STREET, SUITE 200
KITCHENER, ONTARIO. N2H 5G9
TEL: 519-745-4754 FAX: 519-745-0061

PROJECT NORTH

PROJECT:

CAMBRIDGE MILL CONDO / HOTEL

130 WATER ST. NORTH
CAMBRIDGE, ONTARIO

DRAWING:

SECOND FLOOR PLAN

DRAWN BY:	CHECKED BY:
Author	Checker

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SCALE: 1 : 200

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APPENDIX C
ZONING PERMISSIONS

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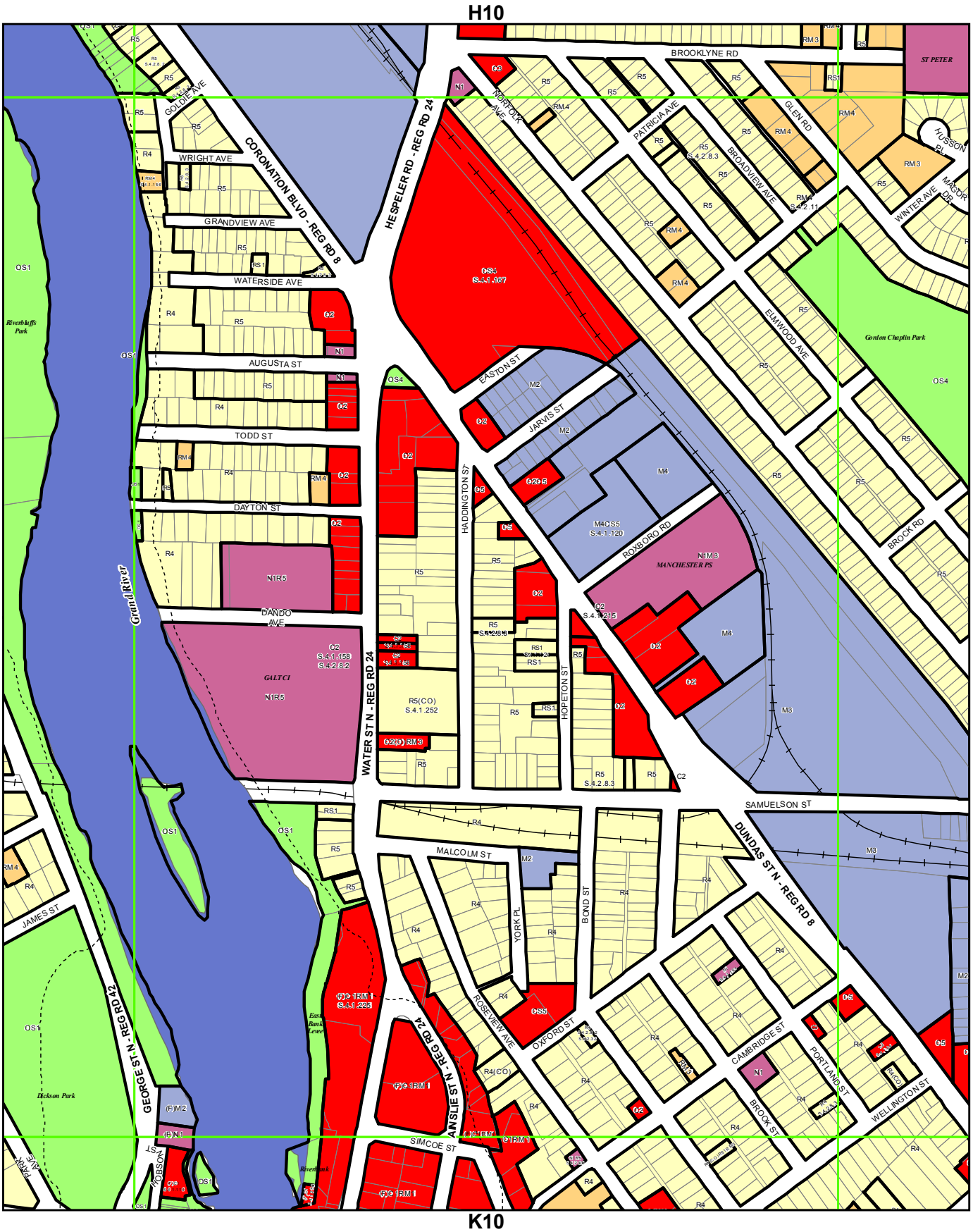
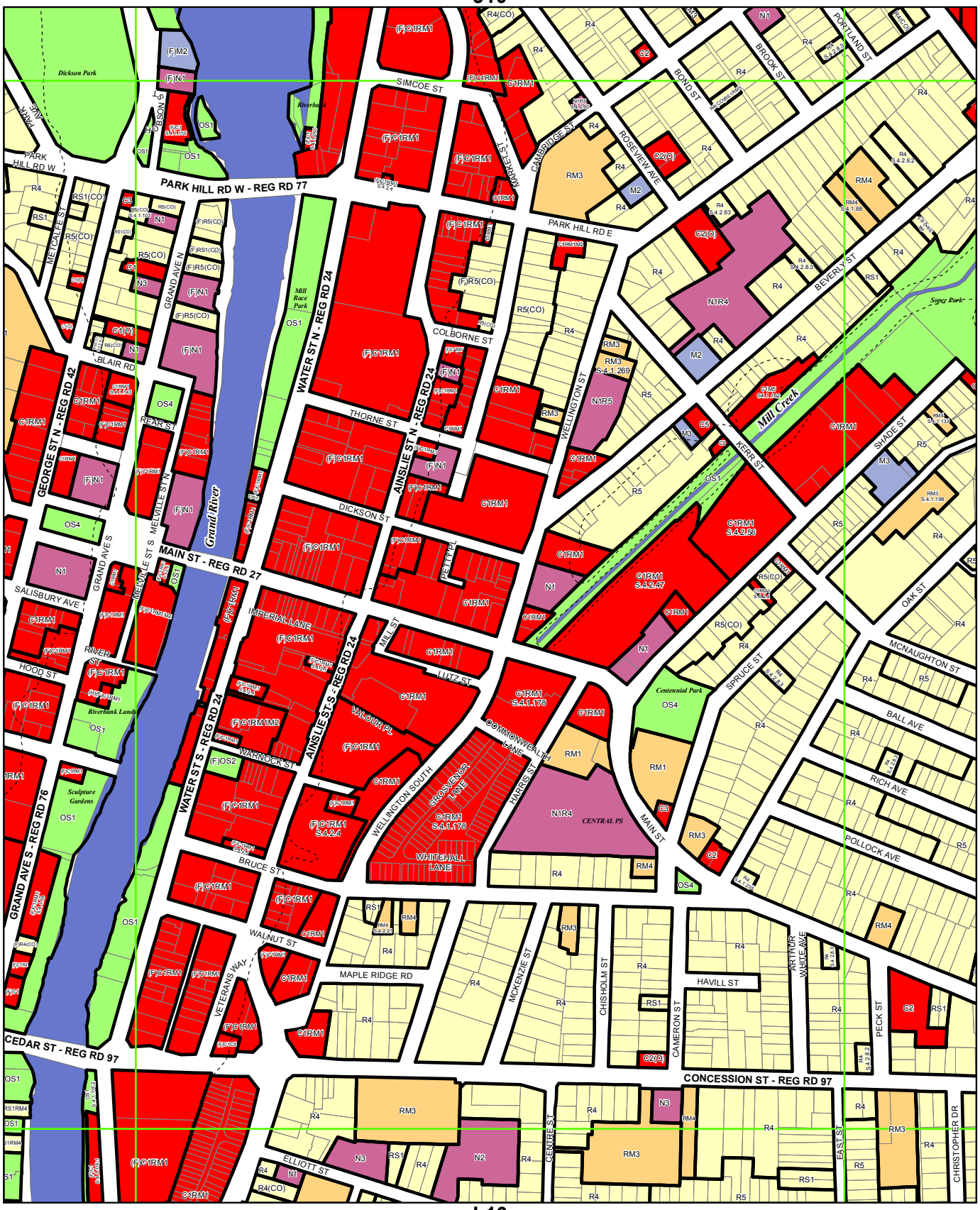


GENERALIZED ZONING CATEGORIES

- AGRICULTURAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- LOW DENSITY RESIDENTIAL
- MEDIUM HIGH DENSITY RESIDENTIAL
- OPEN SPACE
- Regulatory Flood Line See Section 2.1.8
- Municipal Boundary

J10



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1.1.2 Classification of Zones

The following use classes, zone classes and zone symbols are hereby established and shall apply to the lands for which the corresponding zone symbols are shown on the zoning maps attached to and forming part of this by-law:

1. Use Classes, Zone Classes and Zone Symbols

Zone Class	Zone Symbol	Primary (but not necessarily only) Purpose for Which the Zone is Established
(a) RESIDENTIAL USE CLASS		
R		To accommodate *detached one-family dwellings:*
	R1	• at low density in areas where public water supply and sanitary sewage disposal facilities are not generally available;
	R2 **R3** **R4** **R5** **R6**	• at varying urban densities in areas where full public services are generally available
RR		To accommodate *rural non-farm-related dwellings:*
	RR1	• in rural areas outside settlements
	RR2	• in rural settlement areas
RS	**RS1**	To accommodate *semi-detached one-family dwellings*
RD	**RD3** **RD4** **RD5**	To accommodate *detached one-family* and *duplex dwellings*
RM		To accommodate *apartment house* and other multiple unit residential buildings:
	RM1	• in the city centre
	RM2	• in the Preston community's central area and central Hespeler
	RM3	• outside the core areas
	RM4	• multiple unit residential buildings (except *apartment houses*)
(b) INSTITUTIONAL USE CLASS		
N		To accommodate:
	N1	• educational, government and *non-profit community institutions,* public hospitals, non-profit *family crisis shelters*, places of worship, children's care facilities and non-profit service or social clubs or fraternal societies
	N2	• public and private hospitals and licenced nursing care facilities

Zone Class	Zone Symbol	Primary (but not necessarily only) Purpose for Which the Zone is Established
	N3	• *class 4 group homes* and unlicenced *domiciliary hostels*
(c) COMMERCIAL USE CLASS		
C		To accommodate:
	C1	• commercial uses in the city centre, the Preston community's central area and central Hespeler
	C2	• commercial uses in the Blair centre and strip commercial areas
	C3	• *neighbourhood grocery stores* and *variety stores* in residential areas outside the cores
	C4	• commercial uses in the Hespeler Road commercial development area
	C5	• *automobile services stations* and *gas bars*
	C6	• a *regional power centre*
CS	**CS1**	• a *regional shopping centre*
	CS2	• a *subregional shopping centre*
	CS3	• a *community shopping centre*
	CS4	• a *neighbourhood shopping centre*
	CS5	• a *local shopping centre*
(d) INDUSTRIAL USE CLASS		
M		To accommodate:
	M1	• general industrial uses with no outdoor storage or outdoor operations
	M2	• general industrial uses with no outdoor storage or outdoor operations
	M3	• general industrial uses
	M4	• heavy industrial uses
	M5	• transport uses
	M6	• *asphalt and concrete batching plants*
	M7	• *junk, salvage or wreckers' yards*
(e) OPEN SPACE USE CLASS		
OS		To accommodate:
	OS1	• uses in *environmentally significant and conservation areas*
	OS2	• major recreational uses
	OS3	• cemeteries
	OS4	• public neighbourhood and community playgrounds and playing fields outside OS1 zones

Zone Class	Zone Symbol	Primary (but not necessarily only) Purpose for Which the Zone is Established
(f) AGRICULTURAL USE CLASS		
A	**A1**	To accommodate *farms*
(g) UNIVERSITIES AND COLLEGES USE CLASS		
UC	**UC**	To accommodate universities and colleges

2. Composite Zones

(a) Compound Zones

Where two or more of the zoning symbols referred to in section 1.1.2.1 are shown on the zoning maps attached to and forming part of this by-law as applying to the same lands, the lands thereby affected may be used for any purpose specified in section 3 of this by-law as a use permitted in each such zone, or for any combination of such uses, subject to the regulations prescribed in section 2.1.3 of this by-law.

(b) Zone Prefixes

Where any zone symbol shown on the zoning maps attached to and forming part of this by-law:

(i) has the prefix "(H)", the prefix denotes a holding zone in which the lands affected may be used only for a purpose specified in section 2.1.4 of this by-law until the prefix has been removed from the zone symbol by an amendment to this by-law;

(ii) has the prefix "(E)", the prefix denotes a mineral aggregates resource area in which the lands affected may be used only in accordance with the regulations prescribed in section 2.1.5 of this by-law;

(iii) has the prefix "(F)", the prefix denotes that the lands thereby affected lie at an elevation lower than the *regulatory flood line* and may be used only in accordance with the regulations prescribed in section 2.1.8.1 of this by-law and regulations made by the Grand River Conservation Authority pursuant to the *Conservation Authorities Act*;

and, without limiting the generality of the foregoing, any such prefix may be used in conjunction with any simple or compound zone symbol.

(c) Zone Suffixes

Where any zone symbol shown on the zoning maps attached to and forming part of this by-law:

1. Permitted Uses

		In Zone										
		C1	C2	C3	C4	C5	C6	CS1	CS2	CS3	CS4	CS5
(a)	Retail Commercial Establishments											
(i)	a *neighbourhood grocery store* in which not more than 300 m^2 of *gross leasable commercial floor area* is provided	•		•	•			•	•	•	•	•
(ii)	a *neighbourhood variety store* in which not more than 300 m^2 of *gross leasable commercial floor area* is provided	•		•	•			•	•	•	•	•
(iii)	any retail commercial establishment in which not more than 300 m^2 of *gross leasable commercial floor area* is provided	•	•		•			•	•	•	•	•
(iv)	any other retail commercial establishment described in section 3.3.2.1	•			•		•	•	•	•	•	•
(b)	Service Commercial Establishments											
(i)	a *hairdressing establishment*	•	•		•			•	•	•	•	•

		In Zone										
		C1	C2	C3	C4	C5	C6	CS1	CS2	CS3	CS4	CS5
(ii)	any business and professional office described in section 3.3.2.2 [subject to section 3.3.1.4]	•	•		•		•	•	•	•	•	•
(iii)	a *food services establishment* including a *cart* (see section 3.3.1.8)	•	•		•		•	•	•	•	•	•
(iv)	a laundry or dry cleaner's establishment <u>but not</u> a dry cleaning plant	•	•		•			•	•	•	•	•
(v)	a *hotel* or *motel*	•	•		•		•	•	•	•	•	
(vi)	a funeral home	•	•		•		•					
(vii)	an *automobile service station* or *gas bar*					•	•	•	•	•	•	
(viii)	any other service commercial establishment described in section 3.3.2.2	•	•		•		•	•	•	•	•	•
(ix)	an *adult entertainment establishment*				•							
(c)	<u>Commercial Recreational Establishments</u>											
(i)	a place of amusement as described in section 3.3.2.4 <u>except</u> an *amusement arcade*	•	•		•		•	•	•	•	•	•

		In Zone										
		C1	C2	C3	C4	C5	C6	CS1	CS2	CS3	CS4	CS5
(ii)	an *amusement arcade* if located in an *enclosed shopping mall* which is not closer than 500 m to a public or separate elementary or secondary school	•			•		•	•	•	•	•	•
(iii)	a recreation centre as described in section 3.3.2.5	•	•		•		•	•	•	•	•	•
(iv)	any other commercial-recreational establishment as described in section 3.3.2.3	•			•		•					
(d)	Other Uses											
(i)	a *regional shopping centre*							•				
(ii)	a *regional power centre*						•					
(iii)	a *subregional shopping centre*	•							•			
(iv)	a *community shopping centre*	•								•		
(v)	a *neighbourhood shopping centre* (subject to section 3.3.1.4)	•			•						•	
(vi)	a *local shopping centre* (subject to section 3.3.1.4)	•			•							•
(vii)	an *auto service mall*	•	•		•							•

		In Zone										
		C1	C2	C3	C4	C5	C6	CS1	CS2	CS3	CS4	CS5
(viii)	a wholesale showroom and order office but not a warehouse or distribution centre	•										
(ix)	a wholesale showroom and warehouse				•							
(x)	an establishment for the fabrication and sale of cemetery monuments	•	•		•							
(xi)	a general industrial use as described in section 3.4.2.2 except an *auto body repair shop*, bonded customs warehouse or courier or delivery service, where no outdoor storage is provided and all industrial operations are conducted within wholly enclosed buildings				•							
(xii)	a use permitted in an N1, N2, N3 or OS4 zone	•										
(xiii)	a *day nursery* or *day care centre*	•	•	•	•		•	•	•	•	•	•
(xiv)	a use permitted in all zones in accordance with section 2.1.1	•	•	•	•	•	•	•	•	•	•	•

		In Zone										
		C1	C2	C3	C4	C5	C6	CS1	CS2	CS3	CS4	CS5
(xv)	a use, building or structure *accessory* to a permitted use	•	•	•	•	•	•	•	•	•	•	•
(xvi)	a *detached*, or *semi-detached one family dwelling*; provided, however, the *dwelling unit* was constructed for such purpose prior to October 27, 1986.	•										

2. Site Development Specifications Applicable in C-Class Zones

		Zone				
		C1	C2	C3	C4	C5
(a)	minimum *lot frontage* (metres)	nil	15	15	60	30
(b)	minimum *lot area* (square metres)	nil	450	450	nil	900
(c)	minimum *front yard* (metres): (i) buildings (see sec. 2.1.14)	nil	6	6	15	15
	(ii) fuel pump, dispenser island and kiosk located on the dispenser island being not greater than 10 m^2					6
	(iii) *weather canopy*		3		3	3
	(iv) automated teller machine being not greater than 10 m^2		6		6	
(d)	minimum *rear yard* (metres) (see section 2.4) (subject to section 3.3.1.2)	nil	3	3	3	3
(e)	minimum *interior side yard* (metres) (subject to section 3.3.1.2)	nil	3	3	3	3
(f)	minimum *exterior side yard* (metres):					

minimum *lot area* required by this by-law for such *lot* shall be the *existing lot area* and not the minimum *lot area* prescribed in section 3.1.2.2(b).

10. Special Regulations for Attached Garages and Carports

(a) the width of an attached garage or carport for a *detached one-family dwelling, a semi-detached one-family dwelling* or a *detached duplex dwelling* may not exceed 50% of the width of the *lot* measured at the front building wall and parallel to the *front lot line* in R4, R5, R6, RD4, RD5, RS1 and RM4 zones and the inside of an attached garage or carport shall have a minimum size of 2.9 m by 5.5 m;

(b) the width of the driveway approach for a *lot* of 11 m, or less in the R6 and RM4 zones measured at the curb may not exceed 55% of the width of the *lot* measured along the *front lot line*, including flairs and radius, subject to the regulation prescribed in section 2.2.4.5 and 3.1.1(b) of this by-law.

3.1.2 Regulations Applicable in Residential Use Class Zones

In a residential use class zone, no land shall be used and no building or structure shall be erected, located or used except in accordance with the provisions of sections 1, 2 and 3.1.1 of this by-law and the following regulations:

1. Permitted Uses

Use Permitted		In Zone															
		RR1	RR2	R1	R2	R3	R4	R5	R6	RS1	RD3	RD4	RD5	RM1	RM2	RM3	RM4
(a)	a *detached one-family dwelling*	•	•	•	•	•	•	•	•	•	•	•	•				•
(b)	*semi-detached one-family dwellings*									•							•
(c)	a *residential special care facility* (subject to section 3.1.1.3(b))	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Use Permitted		In Zone															
		RR1	RR2	R1	R2	R3	R4	R5	R6	RS1	RD3	RD4	RD5	RM1	RM2	RM3	RM4
(d)	*attached one-family dwellings (linear row houses)*													•	•	•	•
(e)	*attached one-family dwellings (cluster row house)*													•	•	•	•
(f)	a *detached duplex dwelling*										•	•	•	•	•	•	•
(g)	*semi-detached duplex dwellings (fourplexes)*													•	•	•	•
(h)	*attached duplex dwellings (linear)*													•	•	•	•
(i)	*attached duplex dwellings (cluster)*													•	•	•	•
(j)	a *detached triplex dwelling*													•	•	•	•
(k)	*maisonettes*													•	•	•	•
(l)	a *mixed terrace*													•	•	•	•
(m)	an *apartment house* containing 4 or more *dwelling units*													•	•	•	
(n)	a class 1 *boarding, lodging or rooming house* in a *detached one-family dwelling* only (subject to section 3.1.1.7)																•
(o)	a class 2 *boarding, lodging or rooming house*													•	•		

Use Permitted		In Zone															
		RR1	RR2	R1	R2	R3	R4	R5	R6	RS1	RD3	RD4	RD5	RM1	RM2	RM3	RM4
(p)	*farming*, where no intensive animal operation, fur farming or fish farming is involved	•	•														
(q)	a use permitted in any zone in accordance with section 2.1.1	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
(r)	an *accessory use*, building or structure in accordance with section 2.1.11	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

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APPENDIX D
STATIONARY NOISE MODELLING INPUTS

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Sound Power Levels

Name	ID	Type	Oktave Spectrum (dB)											
			Weight.	31.5	63	125	250	500	1000	2000	4000	8000	A	lin
Cambridge Mill stack, 1 of 2 kitchen exhaust hood	CM_stk	Lw (c)		88	89.3	88.5	83.4	80.5	81.1	75.8	68.4	61.3	91.2	103.1
Generic 1.2 Ton CC Quiet Unit	PTAC_Typ_12	Lw			83	77	74	68	61	56	53	44	70.1	84.5
Hotel Emergency generator	GEN_hotel	Lw	A	0	0	0	0	94	0	0	0	0	94	97.2
Hotel cooling tower	CT_hotel	Lw	A	0	0	0	0	82	0	0	0	0	82	85.2
Hotel air makeup	AMU_hotel	Lw	A	0	0	0	0	78	0	0	0	0	78	81.2
Condo Emergency generator	GEN_condo	Lw	A	0	0	0	0	103	0	0	0	0	103	106.2
Condo cooling tower	CT_condo	Lw	A	0	0	0	0	91	0	0	0	0	91	94.2
Condo air makeup	AMU_condo	Lw	A	0	0	0	0	86	0	0	0	0	86	89.2
Garage exhaust fan	GEF	Lw	A	0	0	0	0	89	0	0	0	0	89	92.2
HVAC Unit (5 ton)	HVAC_5ton	Lw		77	80	81	81	80	78	74	70	64	82.5	87.8
HVAC Unit (10 ton)	HVAC_10ton	Lw		80	83	84	84	83	81	77	73	67	85.5	90.8
Heavy Truck - Idling	HeavyTruckIdle	Lw (c)		19	93	88	83	90	87	88	82	71	93.1	97.1

Summary of Stationary Sources

Name	ID	esult. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	Correction norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (m²)	Attenuation	rating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Height (m)		Coordinates X (m)	Y (m)	Z (m)
Emergency Generator	DevGEN_Condo	103	103	103	Lw	GEN_condo		0	0	0				60	0	0	0		(none)	2.5	g	555431.1	4801595.9	410.7
Emergency Generator	DevGEN_Hotel	94	94	94	Lw	GEN_hotel		0	0	0				60	0	0	0		(none)	2	g	555436.3	4801539.6	381.4
Truck idling	DevSS_	93	93	93	Lw	HeavyTruckIdle		0	0	0				3	3	0	0		(none)	2	r	555396.4	4801628.4	266.9
Air Makeup Unit	DevSS_	78	78	78	Lw	AMU_hotel		0	0	0				60	45	30	0		(none)	2	g	555414.5	4801553.0	377.4
Air Makeup Unit	DevSS_	78	78	78	Lw	AMU_hotel		0	0	0				60	45	30	0		(none)	2	g	555418.1	4801552.1	377.4
Cooling Tower	DevSS_	82	82	82	Lw	CT_hotel		0	0	0				60	45	30	0		(none)	4	g	555435.4	4801547.0	379.4
Cooling Tower	DevSS_	82	82	82	Lw	CT_hotel		0	0	0				60	45	30	0		(none)	4	g	555432.2	4801548.4	379.4
Air Makeup Unit	DevSS_	86	86	86	Lw	AMU_condo		0	0	0				60	45	30	0	500	(none)	2.5	g	555417.4	4801616.2	406.7
Air Makeup Unit	DevSS_	86	86	86	Lw	AMU_condo		0	0	0				60	45	30	0		(none)	2.5	g	555420.5	4801613.9	406.7
Cooling Tower	DevSS_	91	91	91	Lw	CT_condo		0	0	0				60	45	30	0		(none)	4	g	555427.5	4801608.6	408.2
Cooling Tower	DevSS_	91	91	91	Lw	CT_condo		0	0	0				60	45	30	0		(none)	4	g	555430.3	4801606.4	408.2
Garage Exhaust	DevSS_	89	89	89	Lw	GEF		0	0	0				60	45	30	3		K0_corr	1	r	555438.0	4801623.8	268.5
Garage Exhaust	DevSS_	89	89	89	Lw	GEF		0	0	0				60	45	30	3		K0_corr	2	r	555445.4	4801540.9	268.0
Shoppers Drug Mart	OffSS_	86	86	86	Lw	HVAC_10ton		0	0	0				60	45	0	0		(none)	1.5	g	555478.4	4801580.4	276.7
Shoppers Drug Mart	OffSS_	86	86	86	Lw	HVAC_10ton		0	0	0				60	45	0	0		(none)	1.5	g	555489.4	4801581.3	276.7
Shoppers Drug Mart	OffSS_	86	86	86	Lw	HVAC_10ton		0	0	0				60	45	0	0		(none)	1.5	g	555479.8	4801556.8	276.7
Shoppers Drug Mart	OffSS_	86	86	86	Lw	HVAC_10ton		0	0	0				60	45	0	0		(none)	1.5	g	555491.2	4801557.5	276.7
Shoppers Drug Mart	OffSS_	83	83	83	Lw	HVAC_5ton		0	0	0				60	45	0	0		(none)	1	g	555493.6	4801581.5	276.2
Cambridge Mill kitchen exhaust stack	OffSS_CM_stk	95	95	95	Lw	CM_stk+3		0	0	0				60	45	0	0		(none)	2.5	g	555421.7	4801418.8	272.0
150 Water St Condo, East facade 2nd PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5	g	555410.0	4801672.9	275.3
150 Water St Condo, East facade 3rd PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5	g	555409.9	4801674.4	278.3
150 Water St Condo, East facade 4th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5	g	555409.9	4801674.4	281.3
150 Water St Condo, East facade 5th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5	g	555409.9	4801674.4	284.3
150 Water St Condo, East facade 6th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5	g	555409.9	4801674.4	287.3
150 Water St Condo, East facade 7th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5	g	555409.9	4801674.4	290.3
150 Water St Condo, East facade 8th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5	g	555409.9	4801674.4	293.3
150 Water St Condo, East facade 9th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5	g	555409.9	4801674.4	296.3
150 Water St Condo, East facade 10th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5	g	555409.9	4801674.4	299.3
150 Water St Condo, East facade 11th PTAC	OffSS_R150_E	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5	g	555409.9	4801674.4	302.3
150 Water St Condo, North facade 2nd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5	g	555379.7	4801679.4	275.3
150 Water St Condo, North facade 3rd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5	g	555379.7	4801679.4	278.3
150 Water St Condo, North facade 4th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5	g	555379.7	4801679.4	281.3
150 Water St Condo, North facade 5th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5	g	555379.7	4801679.4	284.3
150 Water St Condo, North facade 6th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5	g	555379.7	4801679.4	287.3
150 Water St Condo, North facade 7th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5	g	555379.7	4801679.4	290.3
150 Water St Condo, North facade 8th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5	g	555379.7	4801679.4	293.3
150 Water St Condo, North facade 9th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5	g	555379.7	4801679.4	296.3
150 Water St Condo, North facade 10th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5	g	555379.7	4801679.4	299.3
150 Water St Condo, North facade 11th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5	g	555379.7	4801679.4	302.3
150 Water St Condo, North facade 12th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5	g	555377.8	4801679.3	305.3
150 Water St Condo, North facade 2nd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5	g	555386.4	4801679.9	275.3
150 Water St Condo, North facade 3rd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5	g	555386.4	4801679.9	278.3
150 Water St Condo, North facade 4th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5	g	555386.4	4801679.9	281.3
150 Water St Condo, North facade 5th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5	g	555386.4	4801679.9	284.3
150 Water St Condo, North facade 6th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5	g	555386.4	4801679.9	287.3
150 Water St Condo, North facade 7th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5	g	555386.4	4801679.9	290.3
150 Water St Condo, North facade 8th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5	g	555386.4	4801679.9	293.3
150 Water St Condo, North facade 9th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5	g	555386.4	4801679.9	296.3
150 Water St Condo, North facade 10th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5	g	555386.4	4801679.9	299.3
150 Water St Condo, North facade 11th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5	g	555386.4	4801679.9	302.3
150 Water St Condo, North facade 12th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5	g	555386.4	4801679.9	305.3
150 Water St Condo, North facade 2nd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5	g	555391.9	4801680.3	275.3
150 Water St Condo, North facade 3rd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5	g	555391.9	4801680.3	278.3
150 Water St Condo, North facade 4th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5	g	555391.9	4801680.3	281.3
150 Water St Condo, North facade 5th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5	g	555391.9	4801680.3	284.3
150 Water St Condo, North facade 6th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5	g	555391.9	4801680.3	287.3
150 Water St Condo, North facade 7th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5	g	555391.9	4801680.3	290.3
150 Water St Condo, North facade 8th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5	g	555391.9	4801680.3	293.3
150 Water St Condo, North facade 9th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5	g	555391.9	4801680.3	296.3
150 Water St Condo, North facade 10th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5	g	555391.9	4801680.3	299.3
150 Water St Condo, North facade 11th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5	g	555391.9	4801680.3	302.3
150 Water St Condo, North facade 12th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5	g	555391.9	4801680.3	305.3
150 Water St Condo, North facade 2nd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5	g	555398.5	4801680.8	275.3
150 Water St Condo, North facade 3rd PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5	g	555398.5	4801680.8	278.3
150 Water St Condo, North facade 4th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5	g	555398.5	4801680.8	281.3
150 Water St Condo, North facade 5th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5	g	555398.5	4801680.8	284.3

Name	ID	esult. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	Correction norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (m²)	Attenuation	rating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Height (m)	Coordinates X (m)	Y (m)	Z (m)
150 Water St Condo, North facade 6th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555398.5	4801680.8	287.3
150 Water St Condo, North facade 7th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555398.5	4801680.8	290.3
150 Water St Condo, North facade 8th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555398.5	4801680.8	293.3
150 Water St Condo, North facade 9th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555398.5	4801680.8	296.3
150 Water St Condo, North facade 10th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555398.5	4801680.8	299.3
150 Water St Condo, North facade 11th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555398.5	4801680.8	302.3
150 Water St Condo, North facade 12th PTAC	OffSS_R150_N	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5 g	555398.5	4801680.8	305.3
150 Water St Condo, South facade 2nd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555407.9	4801659.9	275.3
150 Water St Condo, South facade 3rd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555407.9	4801659.9	278.3
150 Water St Condo, South facade 4th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555407.9	4801659.9	281.3
150 Water St Condo, South facade 5th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555407.9	4801659.9	284.3
150 Water St Condo, South facade 6th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555407.9	4801659.9	287.3
150 Water St Condo, South facade 7th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555407.9	4801659.9	290.3
150 Water St Condo, South facade 8th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555407.9	4801659.9	293.3
150 Water St Condo, South facade 9th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555407.9	4801659.9	296.3
150 Water St Condo, South facade 10th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555407.9	4801659.9	299.3
150 Water St Condo, South facade 11th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555407.9	4801659.9	302.3
150 Water St Condo, South facade 2nd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555402.0	4801659.5	275.3
150 Water St Condo, South facade 3rd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555402.0	4801659.5	278.3
150 Water St Condo, South facade 4th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555402.0	4801659.5	281.3
150 Water St Condo, South facade 5th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555402.0	4801659.5	284.3
150 Water St Condo, South facade 6th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555402.0	4801659.5	287.3
150 Water St Condo, South facade 7th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555402.0	4801659.5	290.3
150 Water St Condo, South facade 8th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555402.0	4801659.5	293.3
150 Water St Condo, South facade 9th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555402.0	4801659.5	296.3
150 Water St Condo, South facade 10th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555402.0	4801659.5	299.3
150 Water St Condo, South facade 11th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555402.0	4801659.5	302.3
150 Water St Condo, South facade 12th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5 g	555402.0	4801659.5	305.3
150 Water St Condo, South facade 2nd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555394.5	4801659.1	275.3
150 Water St Condo, South facade 3rd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555394.5	4801659.1	278.3
150 Water St Condo, South facade 4th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555394.5	4801659.1	281.3
150 Water St Condo, South facade 5th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555394.5	4801659.1	284.3
150 Water St Condo, South facade 6th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555394.5	4801659.1	287.3
150 Water St Condo, South facade 7th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555394.5	4801659.1	290.3
150 Water St Condo, South facade 8th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555394.5	4801659.1	293.3
150 Water St Condo, South facade 9th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555394.5	4801659.1	296.3
150 Water St Condo, South facade 10th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555394.5	4801659.1	299.3
150 Water St Condo, South facade 11th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555394.5	4801659.1	302.3
150 Water St Condo, South facade 2nd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555388.6	4801658.7	275.3
150 Water St Condo, South facade 3rd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555388.6	4801658.7	278.3
150 Water St Condo, South facade 4th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555388.6	4801658.7	281.3
150 Water St Condo, South facade 5th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555388.6	4801658.7	284.3
150 Water St Condo, South facade 6th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555388.6	4801658.7	287.3
150 Water St Condo, South facade 7th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555388.6	4801658.7	290.3
150 Water St Condo, South facade 8th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555388.6	4801658.7	293.3
150 Water St Condo, South facade 9th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555388.6	4801658.7	296.3
150 Water St Condo, South facade 10th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555388.6	4801658.7	299.3
150 Water St Condo, South facade 11th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555388.6	4801658.7	302.3
150 Water St Condo, South facade 12th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5 g	555380.7	4801658.3	305.3
150 Water St Condo, South facade 2nd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555382.4	4801658.4	275.3
150 Water St Condo, South facade 3rd PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555382.4	4801658.4	278.3
150 Water St Condo, South facade 4th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555382.4	4801658.4	281.3
150 Water St Condo, South facade 5th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555382.4	4801658.4	284.3
150 Water St Condo, South facade 6th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555382.4	4801658.4	287.3
150 Water St Condo, South facade 7th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555382.4	4801658.4	290.3
150 Water St Condo, South facade 8th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555382.4	4801658.4	293.3
150 Water St Condo, South facade 9th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555382.4	4801658.4	296.3
150 Water St Condo, South facade 10th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555382.4	4801658.4	299.3
150 Water St Condo, South facade 11th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555382.4	4801658.4	302.3
150 Water St Condo, South facade 12th PTAC	OffSS_R150_S	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5 g	555382.4	4801658.4	305.3
150 Water St Condo, West facade 2nd PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555373.8	4801661.6	275.3
150 Water St Condo, West facade 3rd PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555373.8	4801661.6	278.3
150 Water St Condo, West facade 4th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555373.8	4801661.6	281.3
150 Water St Condo, West facade 5th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555373.8	4801661.6	284.3
150 Water St Condo, West facade 6th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555373.8	4801661.6	287.3
150 Water St Condo, West facade 7th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555373.8	4801661.6	290.3
150 Water St Condo, West facade 8th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555373.8	4801661.6	293.3
150 Water St Condo, West facade 9th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555373.8	4801661.6	296.3

Name	ID	esult. PWL Day (dBA)	Evening (dBA)	Night (dBA)	Lw / Li Type	Value	Correction norm. dB(A)	Day dB(A)	Evening dB(A)	Night dB(A)	Sound Reduction R	Area (m²)	Attenuation	rating Time Day (min)	Special (min)	Night (min)	K0 (dB)	Freq. (Hz)	Direct.	Height (m)	Coordinates X (m)	Y (m)	Z (m)
150 Water St Condo, West facade 10th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555373.8	4801661.6	299.3
150 Water St Condo, West facade 11th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555373.8	4801661.6	302.3
150 Water St Condo, West facade 2nd PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555373.4	4801667.7	275.3
150 Water St Condo, West facade 3rd PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555373.4	4801667.7	278.3
150 Water St Condo, West facade 4th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555373.4	4801667.7	281.3
150 Water St Condo, West facade 5th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555373.4	4801667.7	284.3
150 Water St Condo, West facade 6th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555373.4	4801667.7	287.3
150 Water St Condo, West facade 7th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555373.4	4801667.7	290.3
150 Water St Condo, West facade 8th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555373.4	4801667.7	293.3
150 Water St Condo, West facade 9th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555373.4	4801667.7	296.3
150 Water St Condo, West facade 10th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555373.4	4801667.7	299.3
150 Water St Condo, West facade 11th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555373.4	4801667.7	302.3
150 Water St Condo, West facade 12th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	31.5 g	555373.4	4801667.7	305.3
150 Water St Condo, West facade 2nd PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	1.5 g	555373.0	4801674.3	275.3
150 Water St Condo, West facade 3rd PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	4.5 g	555373.0	4801674.3	278.3
150 Water St Condo, West facade 4th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	7.5 g	555373.0	4801674.3	281.3
150 Water St Condo, West facade 5th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	10.5 g	555373.0	4801674.3	284.3
150 Water St Condo, West facade 6th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	13.5 g	555373.0	4801674.3	287.3
150 Water St Condo, West facade 7th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	16.5 g	555373.0	4801674.3	290.3
150 Water St Condo, West facade 8th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	19.5 g	555373.0	4801674.3	293.3
150 Water St Condo, West facade 9th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	22.5 g	555373.0	4801674.3	296.3
150 Water St Condo, West facade 10th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	25.5 g	555373.0	4801674.3	299.3
150 Water St Condo, West facade 11th PTAC	OffSS_R150_W	70	70	70	Lw	PTAC_Typ_12		0	0	0				45	30	15	0		Opening	28.5 g	555373.0	4801674.3	302.3

APPENDIX E
TRAFFIC DATA AND FAÇADE REQUIREMENT CALCULATIONS

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for 2-sided printing purposes

Region of Waterloo AADT Forecast for Noise Studies

1. Development/Location

130 Water Street North, Cambridge

2. Current AADT (2020)

Water Street & Park Hill
North
16,600

3. Forecast AADT (2030)

Water Street & Park Hill
North
20,100

4. Commercial Vehicle Rates

	Water Street & Park Hill
	North
% Medium Trucks	1.5%
% Heavy Trucks	3.0%

5. Posted Speed Limit

Water Street & Park Hill
North
50 km/h

6. Day/Night Splits

Regional Standard 90/10 Day/Night Split

7. Validity Period

December 31st, 2023

8. Notes

This forecast is intended for the purpose of carrying out a noise study only. The above AADTs represent the **North Leg** traffic volumes at the intersection of Water Street & Park Hill Drive considering Water Street is running North - South direction. This forecast remains valid up to the date indicated above. The Region of Waterloo should be contacted for an updated forecast if there are plans to use this forecast beyond the above validity period.

Region of Waterloo AADT Forecast for Noise Studies

1. Development/Location

130 Water Street North, Cambridge

2. Current AADT (2020)

Ainslie Street & Park Hill Drive
North
18,800

3. Forecast AADT (2030)

Ainslie Street & Park Hill Drive
North
20,800

4. Commercial Vehicle Rates

	Ainslie Street & Park Hill Drive
	North
% Medium Trucks	1.4%
% Heavy Trucks	4.6%

5. Posted Speed Limit

Ainslie Street & Park Hill Drive
North
50 km/h

6. Day/Night Splits

Regional Standard 90/10 Day/Night Split

7. Validity Period

December 31st, 2021

8. Notes

This forecast is intended for the purpose of carrying out a noise study only. The above AADTs represent the **North Leg** traffic volumes at the intersection of Ainslie Street & Park Hill Drive considering Ainslie Street is running North - South direction. This forecast remains valid up to the date indicated above. The Region of Waterloo should be contacted for an updated forecast if there are plans to use this forecast beyond the above validity period.

3284435

Prepared by: Hanan Wahib

Determination of Traffic Volumes

	Water St N *North of Park Hill*		Ainslie St *North of Park Hill*	
2030 AADT Both Directions [1]	20,100		20,800	
	Southbound	Northbound	Southbound	Northbound
	10,050	10,050	10,400	10,400
Day% [1]	90%	90%	90%	90%
Night% [1]	10%	10%	10%	10%
Day Volume	9,045	9,045	9,360	9,360
Night Volume	1,005	1,005	1,040	1,040
Autos	95.5%	95.5%	94.0%	94.0%
Commercial	4.5%	4.5%	6.0%	6.0%
Medium Trucks [1]	1.5%	1.5%	1.4%	1.4%
Heavy Trucks [1]	3.0%	3.0%	4.6%	4.6%

Notes: [1] Traffic data provided by RMOW.

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

Ornament Ontario Road Noise Analysis Method for Environment and Transportation, October 1989, MOE

FUTURE ROADWAY EMISSIONS

Road Segment ID	Roadway Name	Link Description	Speed (kph)	Period (h)	AADT Volume	Auto %	Med %	Hvy %	Auto	Med	Heavy	Road Gradient (%)	Cadna/A Ground Absorption G	PWL (dBA)	Source Height, s (m)
Water_rd	Water St N southbound/northbound, north of Park Hill Rd W (<2% gradient)	Daytime (16 hr)	50	16	9045	95.5%	1.5%	3.0%	8638	136	271	0	0.00	**79.5**	**1.3**
		Nighttime (8 hr)	50	8	1005	95.5%	1.5%	3.0%	960	15	30	0	0.00	**73.0**	**1.3**
WaterNB_rd	Water St N northbound, north of Simcoe St (>2% gradient	Daytime (16 hr)	50	16	9045	95.5%	1.5%	3.0%	8638	136	271	3.6	0.00	**80.7**	**1.3**
		Nighttime (8 hr)	50	8	1005	95.5%	1.5%	3.0%	960	15	30	3.6	0.00	**74.2**	**1.3**
Ainslie_rd	Ainslie St N southbound/northbound, north of Park Hill Rd W (<2% gradient)	Daytime (16 hr)	50	16	9360	94.0%	1.4%	4.6%	8798	131	431	0	0.00	**80.9**	**1.5**
		Nighttime (8 hr)	50	8	1040	94.0%	1.4%	4.6%	978	15	48	0	0.00	**74.4**	**1.5**
AinslieNB_rd	Ainslie St N northbound, north of Simcoe St (>2% gradient	Daytime (16 hr)	50	16	9360	94.0%	1.4%	4.6%	8798	131	431	3.6	0.00	**82.2**	**1.5**
		Nighttime (8 hr)	50	8	1040	94.0%	1.4%	4.6%	978	15	48	3.6	0.00	**75.7**	**1.5**