



Appendix D.3 Noise Assessment

Environmental Review Report

East Windsor Generation Facility Expansion

Capital Power Corporation

SLR Project No.: 241.030524.00024

July 2024



Noise Assessment

East Windsor Generation Facility Expansion Project

Capital Power Corporation

1200-10423, 101 St. N.W. Edmonton AB T5H 0E9

Prepared by:

SLR Consulting (Canada) Ltd.

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

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0	April 11, 2024	Draft report issued for external review
1	July 2024	Draft report issued for public review



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Executive Summary

Capital Power Corporation (Capital Power), through its affiliate East Windsor (Expansion) L.P., is proposing the East Windsor Generation Facility Expansion (the Project) in the City of Windsor, Ontario. The Project is in response to the Independent Electricity System Operator's (IESO's) call for additional natural gas generation capacity and will provide up to approximately 107 megawatts (MW) of additional gross generation capacity to the Windsor-Essex area and provincial electricity grid. The proposed Project is being designed to provide dependable capacity at peak times when Ontario's other generation sources are not capable of meeting demand.

The objective of this Noise Assessment is to predict sound level emissions associated with the Project to confirm compliance with applicable regulatory limits, and to assess potential noise related effects of the Project on local receptors. This report has been prepared in support of the Environmental Review Report (ERR) to meet the requirements of the Environmental Screening Process for Electricity Projects (ESP).

The Project will result in an increase to the existing sound level at representative local receptors; however, the modelled sound levels are predicted to meet the applicable sound level limits established in the Ontario Ministry of the Environment, Conservation and Parks' (MECP) Publication NPC-300. Furthermore, the results of a worst-case combined scenario of noise levels from the existing East Windsor Cogeneration Centre (EWCC) plus those of the Project are also predicted to meet the applicable NPC-300 limits with a predicted increase of around 3-4 dB, which is generally defined as a "just perceivable change" to the subjective human ear.



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Appendices

- Appendix A** **Source and Emission Summary Information**
- Appendix B** **Zoning Maps**



Acronyms and Abbreviations

AAR	Acoustic Assessment Report
ACC	air cooled condenser
Capital Power	Capital Power Corporation
CofA	Certificate of Approval
dB	decibel
dBA	a-weighted decibel
dBAI	impulsive a-weighted decibel
Dillon	Dillon Consulting Limited
ERR	Environmental Review Report
ESP	Environmental Screening Process
EWCC	East Windsor Cogeneration Centre/Existing Plant
GE	General Electric
GSU	Generator Step-Up
GTG	Gas Turbine Generators
Project	General Electric 7E.03 unit and related equipment and structures
HRSG	heat recovery steam generator
HVAC	heating, ventilation, and air conditioning
IESO	Independent Electricity System Operator
L _{eq}	equivalent sound level
L _{LM}	Logarithmic Mean Impulse Sound Level
m	metres
MECP	Ministry of the Environment, Conservation and Parks
OPOR	outdoor point of reception
POR	Point of reception
SLR	SLR Consulting (Canada) Ltd.



1.0 Introduction

1.1 Project Overview

Capital Power Corporation (Capital Power), through its affiliate East Windsor (Expansion) L.P., is proposing the East Windsor Generation Facility Expansion (the Project) in the City of Windsor, Ontario. The Project is in response to the Independent Electricity System Operator's (IESO's) call for additional natural gas generation capacity and will provide up to approximately 107 megawatts (MW) of additional gross generation capacity to the Windsor-Essex area and provincial electricity grid. The proposed Project is being designed to provide dependable capacity at peak times when Ontario's other generation sources are not capable of meeting demand.

The Project consists of the construction and operation of a new simple cycle natural gas generation site located adjacent to the existing East Windsor Cogeneration Centre (EWCC)¹. The Project will make use of some existing infrastructure, including tying into the existing EWCC high-voltage interconnection line to avoid the need for a new connection to the provincial electricity grid. Ancillary project components include an equipment building, storage building, stormwater management system and site servicing. Additional areas for temporary staging and laydown will be required during the construction phase.

The Project will be located within the existing EWCC fenceline, primarily on lands owned by Capital Power. These lands represent a series of parcels, municipally known as 228 to 276 Cadillac Street (hereby referred to as the Project Site). These parcels, along with others on the west side of Cadillac Street, were formerly residential properties that were acquired, and residences removed, as part of the original development of the EWCC. The Project Site is approximately 0.61 hectares (ha; 1.49 acres) in size and is currently used for site access, parking, mowed and landscaped areas, and formerly storage (removed at the City's request) (**Figure 1-1**).

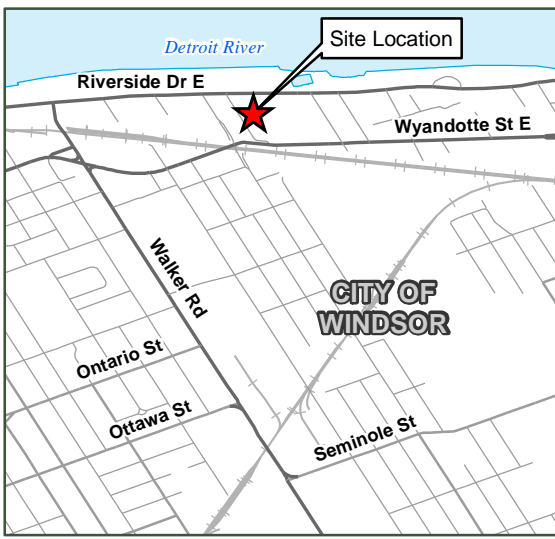
¹ The EWCC is located on the land leased from Ford Motor Company of Canada Ltd. In addition to generating electricity, the facility used to provide steam to the neighbouring Ford Motor company for their Ford Windsor engine plant. Since the closure of the engine plant in 2018, Ford has terminated the Steam Supply Agreement with EWCC, and EWCC now operates in simple cycle mode as a peaking plant.





- LEGEND:**
- Capital Power Lands - Owned
 - Capital Power Lands - Leased
 - Project Site
 - Parcel Fabric (City of Windsor)
 - Railway

NOTES:
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EAST WINDSOR GENERATION
 FACILITY EXPANSION

NOISE ASSESSMENT

PROJECT LOCATION



FIGURE NO:
1-1

1.2 Objective

The objective of this Noise Assessment is to predict sound level emissions associated with the Project and to assess potential noise related effects of the Project on local receptors to confirm compliance with applicable provincial regulatory limits. This report has been prepared in support of the Environmental Review Report (ERR) to meet the requirements of the Environmental Screening Process for Electricity Projects (ESP).

2.0 Project and Site Context

2.1 Site Context

The Project Site is located adjacent to the EWCC, on a series of parcels municipally known as 228 to 276 Cadillac Street. The Project would be located within the existing EWCC fenceline, primarily on lands owned by Capital Power. The EWCC is located on the Ford Powerhouse property, on land leased from the Ford Motor Company of Canada Ltd. The current EWCC facility fenceline encompasses the Project Site lands, which are currently used for site access, parking, landscaped areas, and formerly storage (removed at the City's request).

Both the Project and existing EWCC are located on lands designated as "Business Park" and "Mixed Use Node" which allow for business and industrial uses subject to the City of Windsor's site plan control process. Both the Project Site and EWCC are also zoned as "Commercial District" which allows public utilities and accessory uses as per the City of Windsor Zoning By-law 8600. Land use designations and zoning for the Project Site, the EWCC Site and surrounding areas is provided in **Appendix B**.

Immediately surrounding the property, within 500 m, residential, commercial, and industrial uses make up the primary land uses and have been in existence for over two decades. Directly north of the Project Site, across from Riverside Drive East, are lands designated as "Waterfront Port" and "Industrial" and zoned as "Manufacturing District", and to the northeast there is a small area designated "Waterfront Residential" and zoned "Residential District" (Low Density and Medium Density Housing). To the east of the Project Site, there are lands designated as "Mixed Use Corridor" and "Residential" and zoned as "Institutional District" and "Residential District" (Medium Density Housing). To the south is Wyandotte Street East and the CN railway, with areas zoned "Manufacturing District" as well as pockets zoned "Residential District" (Medium Density Housing). To the west, there are lands zoned "Institutional District" (Church, School, Day Nursery), "Commercial District" (Parking Area, Public Parking Area and Highway Commercial), "Green District" (Public Park), and "Manufacturing District" (Heavy Industrial). In addition, Specific Zoning Exemptions occur on lands throughout the area.

2.2 EWCC Context

The existing EWCC, located at 224 Cadillac Street, commenced commercial operations in 2009. As a result of the later conversion of the EWCC from a cogeneration to a simple cycle operation, the EWCC noise was assessed by Dillon Consulting in May 2021 as part of the amendment of the Environmental Compliance Approval (ECA) (Air and Noise). The amended ECA (Air & Noise) was issued by the Ontario Ministry of the Environment, Conservation and Parks (MECP) in April 2022, and the EWCC currently operates in accordance with the ECA A-500-4130410774.



The existing EWCC is a peaking power plant that operates its existing generators in simple cycle mode to produce electricity using two Gas Turbine Generators (GTGs). Electricity is generated and directed to the provincial grid when dispatched by the IESO.

2.3 Project Context

Key project components include one General Electric (GE) 7E.03 simple cycle gas turbine generator, and all associated infrastructure including an inlet air filter, exhaust stack, fuel gas compressor, natural gas handling system, instrumentation and control systems, and a Generator Step-Up (GSU) transformer. Ancillary project components include an equipment building, storage building, stormwater management system and site servicing (**Figure 2-1**). The Project will be operated and dispatched independently of the existing EWCC. Although both the existing EWCC and the Project could be dispatched concurrently by the IESO, this scenario is anticipated to occur infrequently.

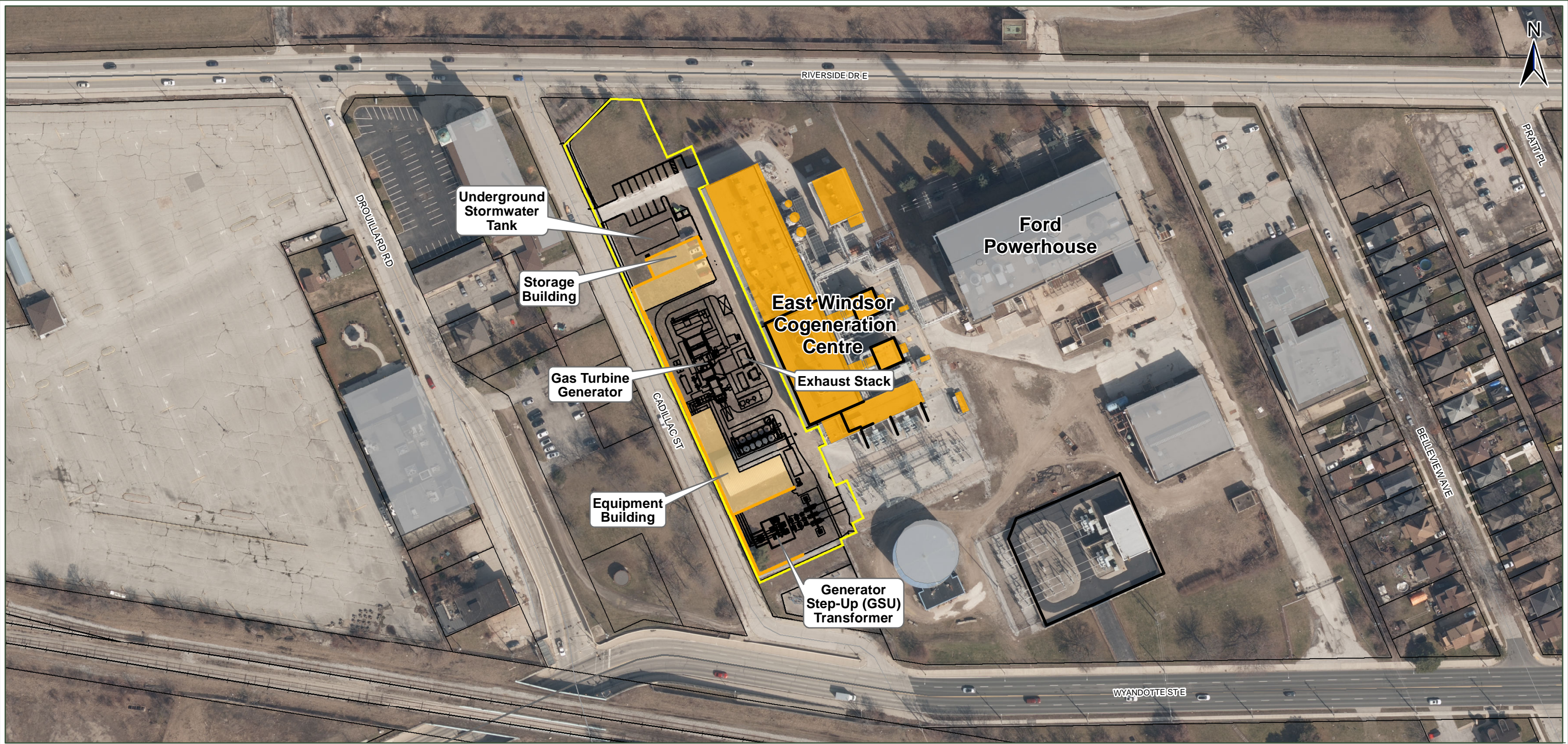
The Project will include a dedicated exhaust stack for the purpose of dispersing emissions produced by the gas turbine unit. This exhaust stack will be approximately 3.4 m by 6.1 m in cross-section, and a height of 22.5 m above grade.

As shown in **Figure 2-1** and **Figure 2-2** a 13 m tall equipment building is included in the design to mitigate operational noise emissions associated with the Project, as well as for visual aesthetic purposes. The equipment building runs parallel to the property line along Cadillac Street for a length of approximately 97 m. The building is 32 m in length on the north end and 26 m on the south end, leaving sufficient space between the building envelope and the existing EWCC for the purposes of emergency, maintenance, and operational access along with adhering to Ontario Building Code requirements.

The equipment building will be designed to achieve compliance with provincial regulatory noise limits at nearby receptors. Currently, the walls of the equipment building assumes a 20 kg/m² minimum density to achieve the required noise abatement. The eastern side of the building facing the existing EWCC, and a portion of the roof will be open to facilitate the required air flow for safe equipment operation.

A noise abatement wall will be installed around the GSU transformer. This wall will be approximately 10 m in height and extend for 3-4 m past the edge of the GSU transformer, in an L-shape around the western and southern edges of the GSU transformer. The west wall will be 26 m in length, and the south wall 19 m in length. Similar to the equipment building the GSU transformer noise abatement wall assumes a 20 kg/m² density minimum to achieve the required noise abatement.





- LEGEND:**
- Project Site
 - New Building
 - New Building
 - Equipment Layout
 - Existing EWCC
 - Existing buildings
 - Existing Wall
 - Parcel Fabric (City of Windsor)
 - Railway

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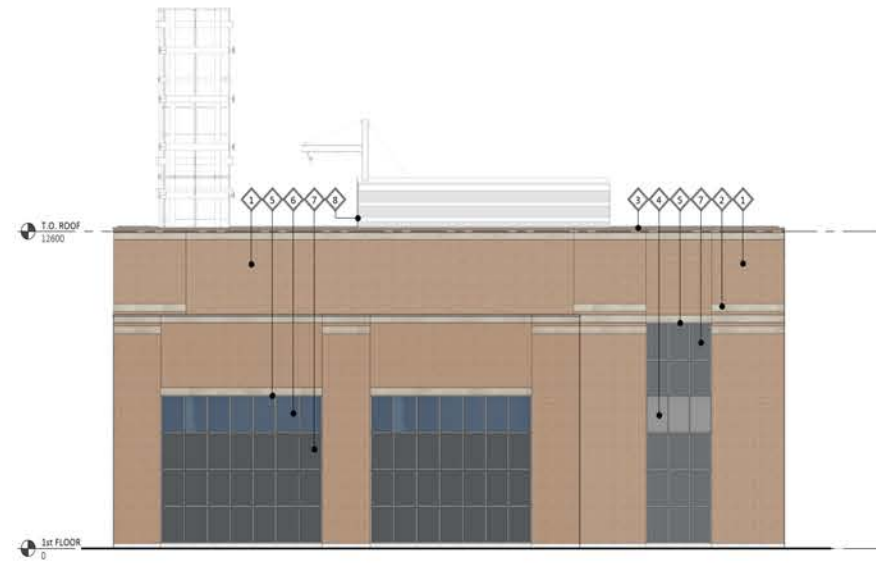
EAST WINDSOR GENERATION
 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT

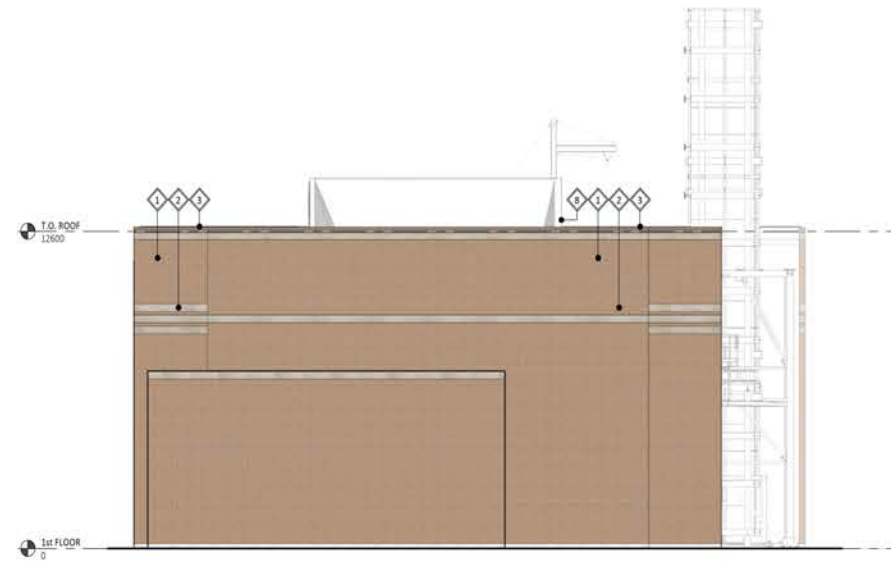
SITE LAYOUT



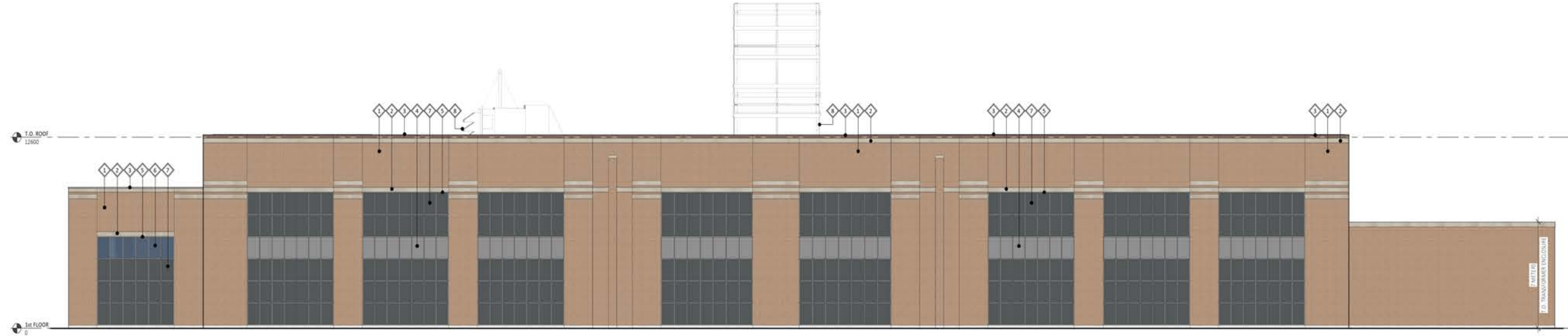
FIGURE NO:
2-1



1 NORTH ELEVATION
SCALE: 1:125

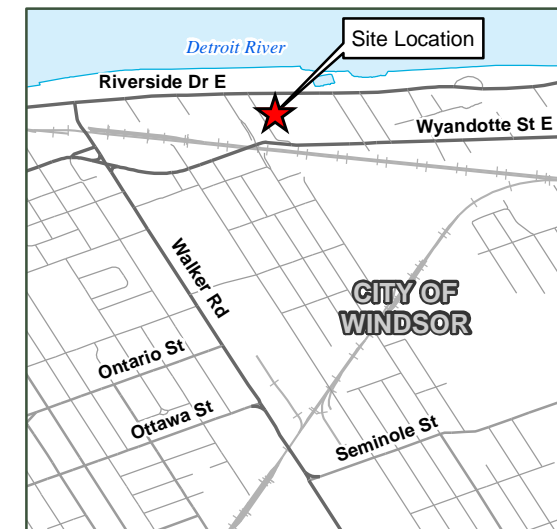


2 SOUTH ELEVATION
SCALE: 1:125



3 WEST ELEVATION
SCALE: 1:125

MATERIAL LEGEND	
1	BRICK VENEER - COLOUR TO MATCH EXISTING
2	ACCENT MASONRY VENEER - COLOUR TO MATCH EXISTING
3	PREFINISHED PARAPET CAP FLASHING - FINISH TO MATCH EXISTING
4	ALUMINUM COMPOSITE PANEL - FINISH TO MATCH EXISTING
5	PRE-FINISHED ALUMINUM CURTAIN WALL ASSEMBLY
6	GLAZING PANEL
7	SPANDREL GLAZING PANEL
8	POWER PLANT EQUIPMENT



NOTES:
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EAST WINDSOR GENERATION
FACILITY EXPANSION

NOISE ASSESSMENT

**EQUIPMENT BUILDING MATERIALS
AND ELEVATIONS**



FIGURE NO:
2-2

3.0 Regulatory Framework

Ontario's *Environmental Protection Act* (EPA) is the primary provincial legislative framework for regulation of noise emissions from industrial facilities, including operational noise from natural gas generation facilities such as the Project. The MECP administers the EPA and is the key regulatory authority for establishing applicable noise limits, reviewing applications for approvals under the EPA, and for overseeing issues of compliance. Following completion of the Environmental Screening Process for Electricity Projects (ESP), the Project will require an ECA (Air and Noise), issued under the EPA, and must operate within the provincially regulated noise limits.

MECP noise guidelines for stationary source noise (such as those from the Project) having the potential of impacting surrounding noise sensitive uses are given in MECP Publication Noise Pollution Control (NPC)-300. The applicable portions of NPC-300 are Part B – Stationary Sources and the associated definitions outlined in Part A Background.

The guidelines set out sound level limits for two main types of noise sources:

- Non-impulsive, “continuous” noise source such as from ventilation fans, mechanical equipment, and vehicles moving within the property boundary of an industry. Continuous noise is measured using 1-hour average sound levels (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 dBA.

The area surrounding the Project Site is defined as Class 1 Urban, as per MECP Publication NPC-300. This Publication describes a Class 1 Area as “an area with an acoustical environment typical of a major population centre, where the background noise is dominated by the urban hum”.

4.0 Methods

4.1 Source Sound Level Data

Sound power levels were obtained from SLR measured sound level data supplemented with previously approved data, as well as manufacturer's data for the Project. The sound power levels for the Project (step-up transformer and fin fan coolers) were estimated based on engineering calculations for the maximum allowable sound level. These sound level data were included in the noise modelling.

Sound level measurements of equipment at the EWCC were taken on August 4 and 5, 2022 using a Larson Davis Model 831 precision sound level meter.

The existing EWCC and Project do not and will not contain any impulsive sources for assessment that would be audible at the surrounding noise sensitive receptors. Impulse noise was thus not carried further in the assessment.

The noise source sound power levels used in the modelling are summarized in **Appendix A**.



4.2 Existing EWCC Emission Sources

The current modelled noise sources at the existing EWCC include:

- Two generator exhaust stacks (Sources OSG_Stk1, and OSG_Stk2);
- Two GE LM6000 sprint gas turbine generator packages, each package consisting of a turbine enclosure, a generator enclosure, an inlet filter house, an inlet duct equipped with a silencer, turbine enclosure and generator/turbine ventilation fans. (Sources TES_*, FHI_*, IFCN_*, EFCN_*, GVE_*, and TVE_*, respectively). All package enclosures are acoustic-type enclosures;
- Two heat recovery steam generators, for which noise radiates from the casing and flexible joint (Sources, OTSG_1_*, OSTG_2_*, and TFJ_**);
- Two energized transformers, shielded by a 7m high blast-wall on three sides (Sources TR3 and TR4);
- Two gas turbine generator lube oil fin-fan coolers, operating simultaneously (Sources LOFCB_** and LOFCT_**);
- One gas compressor lube oil fin-fan cooler (Sources GCFC_T and GCFC_B*);
- Four rooftop-mounted HVAC units for the second-floor offices and control rooms (Sources RTU_*_inlet and RTU_*_outlet);
- One rooftop-mounted HVAC unit for the electrical building (Source HVAC_1);
- Three rooftop-mounted building ventilation fans for the fuel gas compressor building (Sources EF_20, EF_21, and EF_22);
- One bay door for the fuel gas compressor building (Source BD_3); and
- One emergency diesel generator set with weather enclosure and exhaust silencer. (Note: this source will be tested once a month for 1 hour, during daytime hours) (Sources GS_Stack, GS_IntakeE, GS_IntakeW, GS_Breakout, and GS_Discharge).

The dominant EWCC noise sources are listed in **Appendix A**. This contains a listing of noise source sound power levels, sound characteristics, locations, and a summary of any noise abatement measures that may have been implemented.

4.3 Project Emission Sources

The modelled noise sources for the Project include:

- One GE 7E.03 simple cycle gas turbine, consisting of a turbine enclosure, a generator enclosure, an inlet filter house, an inlet duct, control compartments and an exhaust plenum/stack (Sources S7E03_Turbine_comp, S7E03_TVF, S7E03_gen, S7E03_Inlet_duct, S7E03_Load_comp, S7E03_Acc, S7E03_PIP, S7E03_Exh_plenum, and S7E03_Stk1);
- One oil fin-fan cooler (Sources S7E03_GCCT and S7E03_GCCS);
- One oil fin-fan cooler (Sources S7E03_FFCT and S7E03_FFCS); and
- One step up transformer (Source 7E03_Peaker_Transformer).



The dominant Project noise sources are listed in **Appendix A**. This contains a listing of noise source sound power levels, sound characteristics, locations, and a summary of any noise abatement measures that may have been implemented.

4.4 Points of Reception

A total of four representative (façade of building) Points of Reception (PORs) have been identified as being representative of the most sensitive receptors in the vicinity of the Project Site, labelled R1, R2, R3, and R4 in **Figure 4-1**. POR (façade) and Outdoor Points of Reception (OPOR) locations are consistent with locations used in previous assessments of the adjacent EWCC. As per MECP noise guidelines, “Point of reception” means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of an ECA (Air and Noise) permit application, the points with “the predictable worst case noise impacts” must be considered in accordance with the MECP noise guidelines.

For the (façade) PORs, the receptor location is shown in **Figure 4-1**. OPORs are locations outdoors within 30 metres (m) of a façade of a dwelling, at a height of 1.5m above ground – typically in backyards, front yards, terraces, or patios.

The PORs shown in **Figure 4-1** are summarized below.

- **R1 is the four-storey Shoreview at Riverside retirement home at 245 Drouillard Road.** A receptor height of 10.5 m was assumed, representing a receiver in the open plane of a fourth storey window. A receptor at a height of 1.5 m (ID: R1_O) was also assessed in the side yard of the retirement home, at a point closest to on-site noise sources. This receptor represents the OPOR location for the dwelling and was assessed for daytime and evening impacts as per NPC-300;
- **R2 is a two-storey commercial/residential building at 229 Cadillac Street.** For conservative purposes, this building is considered a residential dwelling. This dwelling is located at the southeast corner of the Water’s Edge Event Center. A receptor height of 4.5 m was assumed, representing a receiver in the open plane of a second storey window. A receptor at a height of 1.5 m (ID: R2_O) was also assessed in the side yard of the residential dwelling, at a point closest to on-site noise sources. This receptor represents the OPOR location for the dwelling and was assessed for daytime and evening impacts as per NPC-300;
- **R3 is a three-storey residential apartment building at 3177 Riverside Drive East.** A receptor height of 7.5 m was assumed, representing a receiver in the open plane of a third storey window. This apartment building does not have patios, terraces, or any OPORs. As such, noise impacts were only assessed at the façade of the building;
- **R4 is a two-storey residential dwelling at 3336 Riverside Drive.** A receptor height of 4.5 m was assumed, representing a receiver in the open plane of a second storey window. A receptor at a height of 1.5 m (ID: R4_O) was also assessed in the backyard of the residential dwelling, at a point closest to on-site noise sources. This receptor represents the OPOR location for the dwelling and was assessed for daytime and evening impacts as per NPC-300.

OPORs were identified and modelled for R1, R2, and R4.





- LEGEND:**
- Project Site
 - Existing EWCC
 - Existing Buildings
 - Wall
 - Parcel Fabric (City of Windsor)
 - Railway
 - Receptor

NOTES:
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EAST WINDSOR GENERATION
 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT

**SCALED AREA LOCATION PLAN, SHOWING
 MODELLED POINTS OF RECEPTION**



FIGURE NO:
4-1

4.5 Existing Ambient Sound Levels and Limits

The MECP-accepted method of determining the applicable sound level limits at a surrounding noise sensitive POR is to identify and use the higher of:

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

Ambient sound levels surrounding the existing EWCC have been previously assessed by Dillon Consulting Limited (Dillon) and accepted by the MECP, including the most recent EWCC Environmental Compliance Approval (ECA) Amendment (ECA A-500-4130410774, dated April 20, 2022). The 2021 Dillon assessment and Report that supported the EWCC ECA amendment identified the primary contributors to the background sound as sounds from adjacent industrial facilities, local road traffic, and railway traffic. Due to the presence of numerous noise sources in the areas surrounding the EWCC, applicable site-specific noise limits have been previously defined based on ambient noise monitoring. The EWCC noise performance limits defined by the Dillon site-specific monitoring have been used for the purposes of this assessment. These measured values have been applied to nearby representative receptors, as presented in **Table 4-1**.

The applicable guideline limits for infrequent events such as emergency equipment testing are +5 dB higher than the values in **Table 4-1**.

The adjacent EWCC has been operating since 2009. The EWCC sound levels have not been included in the ambient limits as a conservative measure. EWCC specific noise emission sources are described in **Section 4.2**.

Table 4-1: Applicable Sound Level Limits

Points of Reception	Monitoring Period	One-Hour L_{eq} (dBA)	
		Daytime	Nighttime/Evening
		Min	Min
R1	Mar 9 – Mar 13, 2007	58	58
R2		56	53
R3		60	59
R4		57	56

4.6 Modelling Scenario

Only the Regular Operations including all equipment operating simultaneously (excluding emergency equipment) has been modelled based on measured or manufacturer sound levels described in **Section 4.8**. Regular Operations assumes all sources are in continuous use, with the exception of rooftop HVAC units which are assumed to have a 50% duty cycle during nighttime hours.



The Project does not contain dominant sources of sound emergency equipment that are routinely tested. As a result, a change assessment has not been completed for “Testing of Emergency Diesel Generator” scenario since the Project and EWCC noise will be the same and compliant with the applicable sound level limits.

Three operating scenarios have been considered; Existing EWCC Predicted Sound Levels, Project Predicted Sound Levels, and Combined Sound Levels (both the existing EWCC and Project running simultaneously).

4.7 Noise Impact Modelling

The modelled noise impacts were calculated using Cadna/A, a prediction software consistent with the ISO 9613-2 standard. The model took into consideration the layout of the site, the location of the sources, and the surrounding buildings. As described in ISO 9613-2, ground factor values that represent the effect of ground absorption on sound levels range between 0 and 1. Based on the specific site conditions, the ground factor values used in the modelling were a value of 0.3 to account for the mixture of acoustically hard (asphalt and concrete) and soft surfaces (grass). Building reflections have been included (reflection order = 2), with building absorption coefficients of 0.21 and 0.37 used.

4.8 Modelling Accuracy

The accuracy of the predicted Cadna/A model depends on several factors such as:

- EWCC equipment sound levels were mainly obtained through direct measurements conducted by SLR staff members. This method ensures the highest accuracy of sound levels of the operating equipment are used in the analysis;
- The Project sound levels were obtained through a combination of manufacturer’s guarantees and engineering calculations (based on similar equipment). Manufacturer’s guarantees are generally equal to or higher than the installed sound levels. Engineering calculations are based on similar equipment and anticipated to be higher than actual values. Therefore, the Project modelled sound levels are expected to be conservative;
- Between ISO 9613-2 and actual measurements, meteorological effects can produce significant variations between measured results. Cadna/A calculations based on the ISO 9613-2 standard are typically accurate to within 3 dB of actual measurements under the conditions described here, and in most cases yields conservative results;
- During SLR’s testing of the existing EWCC, specific locations around the EWCC Site were identified and sound level measurements were taken at these spots during testing (measuring the combined sound level of the EWCC Site). The existing EWCC predicted sounds levels from the Cadna/A model were compared to these actual measurements. Most of the spot locations were predicted to be within 1 dB of actual sound levels and thus considered conservative.



5.0 Modelling Results

The predicted sound levels at the identified receptors were calculated for the adjacent EWCC and the Project.

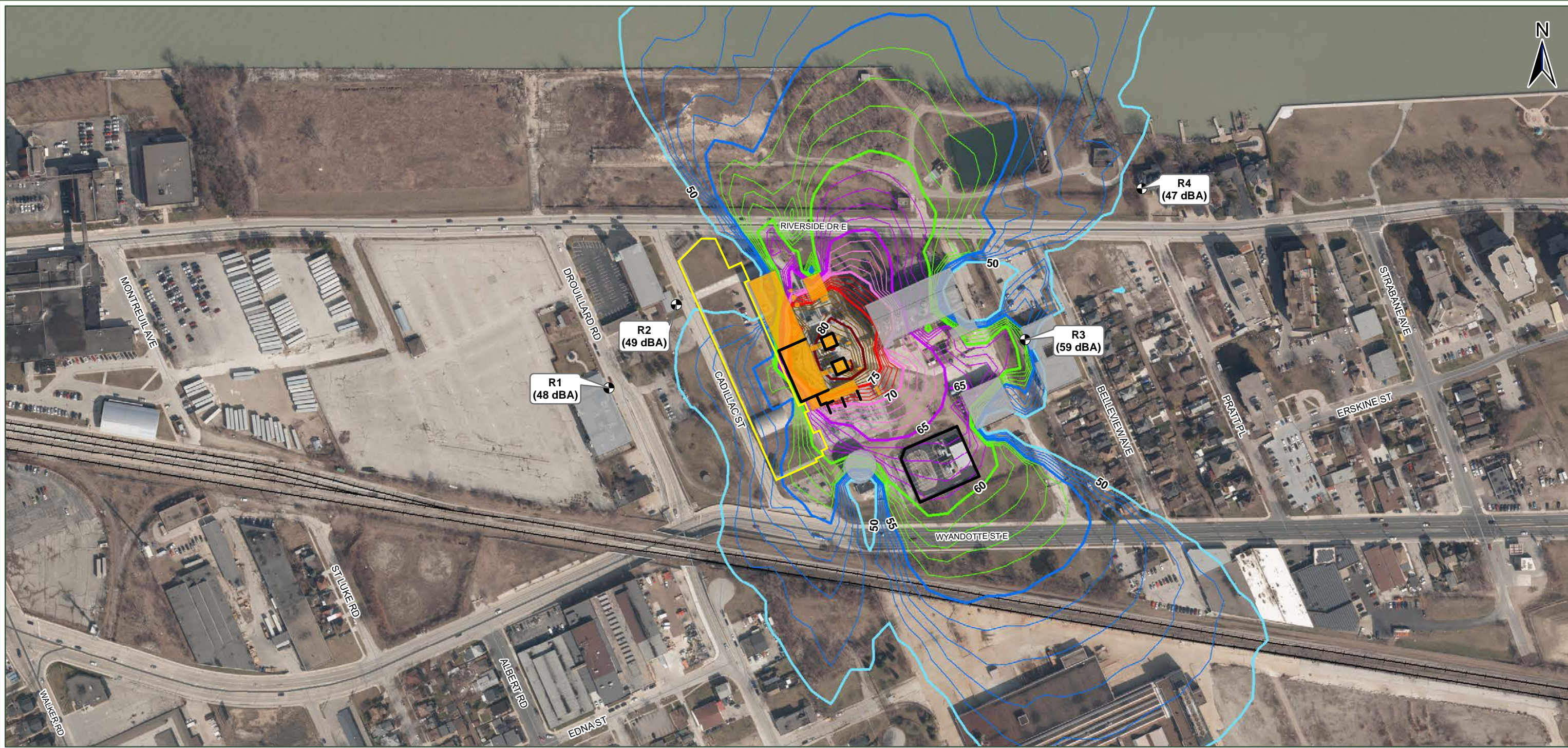
5.1 Existing EWCC Predicted Sound Levels

The predicted sound levels for Regular Operations at the EWCC during daytime/evening and nighttime periods are presented in **Table 5-1**, **Figure 5-1** and **Figure 5-2**, respectively and summarized in **Appendix A**. The EWCC predicted sound levels are predicted to meet the applicable MECP Publication NPC-300 sound level limits.














Table 5-1: Existing EWCC Regular Operations Predicted Sound Level at POR Facades

Façade Point of Reception ID	Point of Reception Description	Time of Day	EWCC Sound Level at POR (L _{eq} dBA)	Performance Limit (L _{eq} dBA)	Compliance with Limit (yes/no)
Regular Operations					
R1	Shoreview at Riverside	Day	48	58	yes
		Evening	48	58	yes
		Night	48	58	yes
R1_O	Shoreview at Riverside	Day	46	58	yes
		Evening	46	58	yes
R2	Cadillac Street Residence	Day	50	56	yes
		Evening	50	53	yes
		Night	49	53	yes
R2_O	Cadillac Street Residence	Day	48	56	yes
		Evening	48	53	yes
R3	Riverside Drive East Apartment	Day	59	60	yes
		Evening	59	59	yes
		Night	59	59	yes
R4	Riverside Drive East Home	Day	49	57	yes
		Evening	49	56	yes
		Night	49	56	yes
R4_O	Riverside Drive East Home	Day	48	57	yes
		Evening	48	56	yes





LEGEND:

	Project Site		Receptor
	Existing EWCC		≤ 50 dBA
	Existing buildings		≤ 55 dBA
	Existing Wall		≤ 60 dBA
	Railway		≤ 65 dBA
			≤ 70 dBA
			≤ 75 dBA
			> 75 dBA

NOTES:
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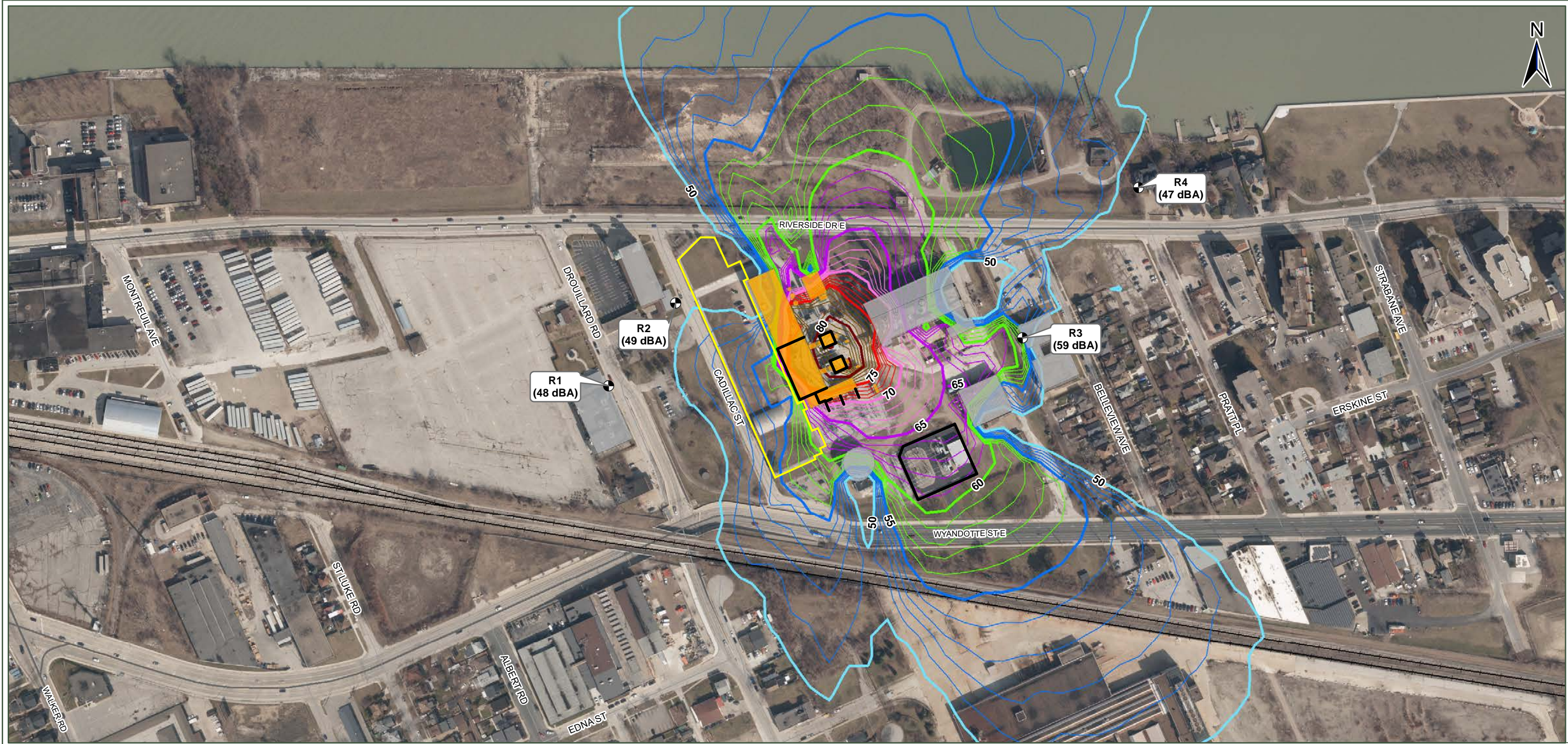
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 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT














**EWCC PREDICTED RESULTS,
 REGULAR OPERATIONS
 NIGHTTIME**



FIGURE NO:
5-2



LEGEND:

	Project Site		Receptor
	Existing EWCC		≤ 50 dBA
	Existing buildings		≤ 55 dBA
	Existing Wall		≤ 60 dBA
	Railway		≤ 65 dBA
			≤ 70 dBA
			≤ 75 dBA
			> 75 dBA

NOTES:
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 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT

**EWCC PREDICTED RESULTS,
 REGULAR OPERATIONS
 NIGHTTIME**



FIGURE NO:
5-2

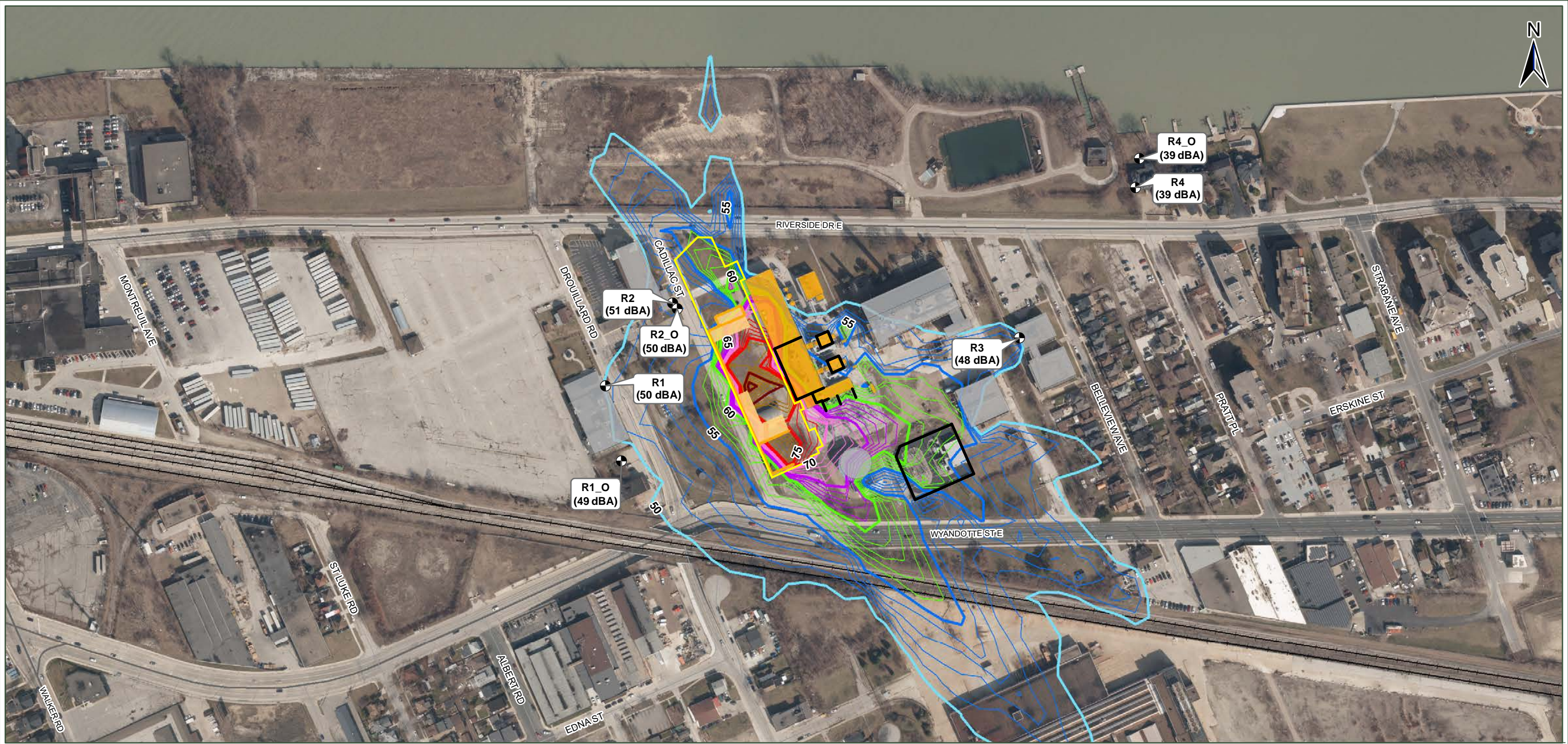
5.2 Project Predicted Sound Levels

The predicted sound levels for Regular Operations for the Project alone during daytime/evening and nighttime periods are presented in **Table 5-2**, **Figure 5-3** and **Figure 5-4**, respectively and summarized in **Appendix A**. The Project predicted sound levels are predicted to meet the applicable MEEP Publication NPC-300 sound level limits.
















Table 5-2: Project Regular Operations Predicted Sound Levels at POR Façade

Façade Point of Reception ID	Point of Reception Description	Time of Day	Project Sound Level at POR (L _{eq} dBA)	Performance Limit (L _{eq} dBA)	Compliance with Limit (yes/no)
Regular Operations (Project Alone)					
R1	Shoreview at Riverside	Day	50	58	yes
		Evening	50	58	yes
		Night	50	58	yes
R1_O	Shoreview at Riverside	Day	49	58	yes
		Evening	49	58	yes
R2	Cadillac Street Residence	Day	50	56	yes
		Evening	50	53	yes
		Night	50	53	yes
R2_O	Cadillac Street Residence	Day	49	56	yes
		Evening	49	53	yes
R3	Riverside Drive East Apartment	Day	51	60	yes
		Evening	51	59	yes
		Night	51	59	yes
R4	Riverside Drive East Home	Day	40	57	yes
		Evening	40	56	yes
		Night	40	56	yes
R4_O	Riverside Drive East Home	Day	39	57	yes
		Evening	39	56	yes





LEGEND:

	Project Site		Receptor
	New Building		≤ 50 dBA
	New Building		≤ 55 dBA
	Existing EWCC		≤ 60 dBA
	Existing buildings		≤ 65 dBA
	Existing Wall		≤ 70 dBA
	Railway		≤ 75 dBA
			> 75 dBA

NOTES:
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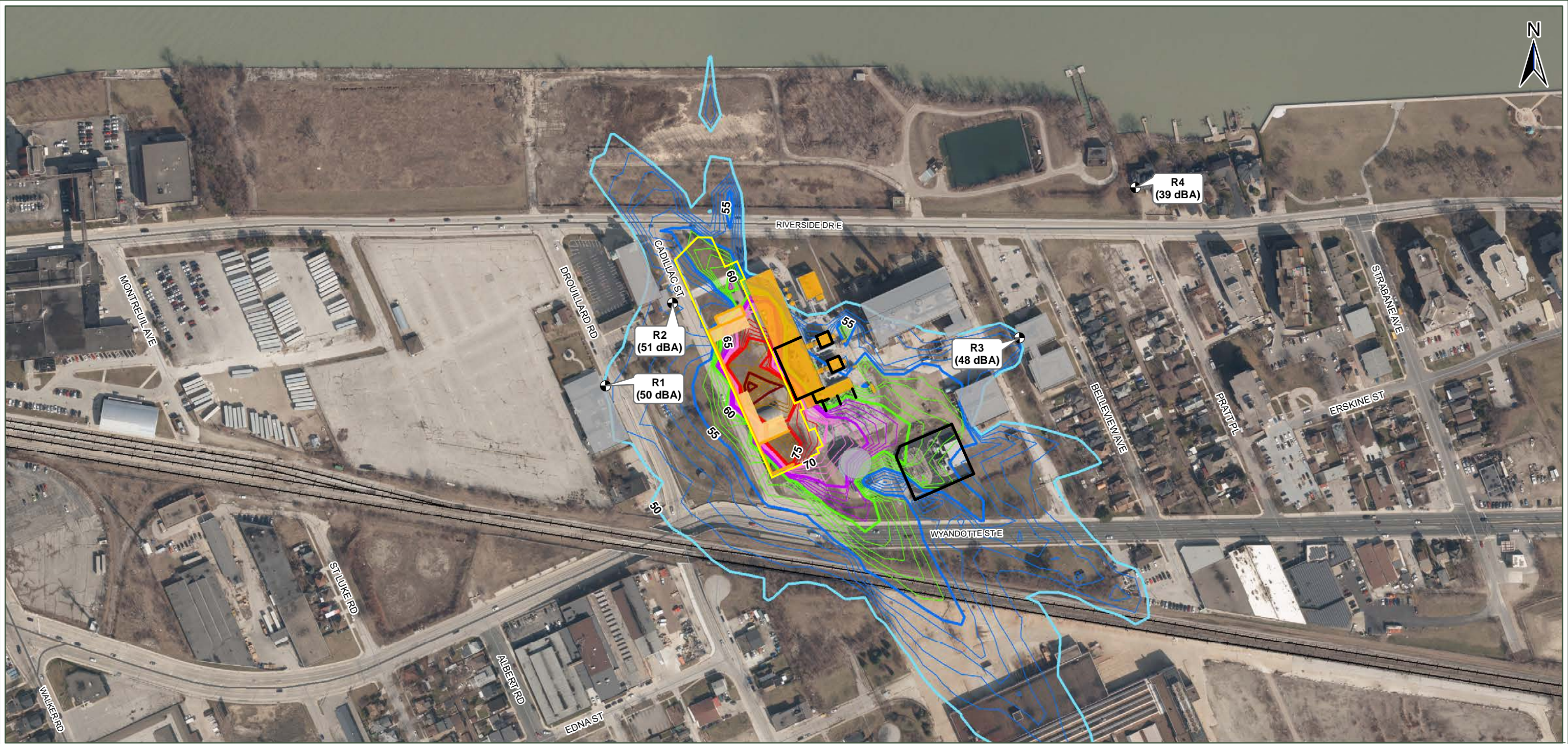
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 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT
















**PROJECT PREDICTED RESULTS,
 REGULAR OPERATIONS
 DAYTIME/EVENING**



FIGURE NO:
5-3



LEGEND:

	Project Site		Receptor
	New Building		≤ 50 dBA
	New Building		≤ 55 dBA
	Existing EWCC		≤ 60 dBA
	Existing buildings		≤ 65 dBA
	Existing Wall		≤ 70 dBA
	Railway		≤ 75 dBA
			> 75 dBA

NOTES:
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EAST WINDSOR GENERATION
 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT

**PROJECT PREDICTED RESULTS,
 REGULAR OPERATIONS
 NIGHTTIME**



FIGURE NO:
5-4

5.3 Combined Modelling Results

The combined modelling results assume that both the existing EWCC and Project would run simultaneously. Though this scenario is unlikely, it is possible and as such has been modelled within this assessment as a conservative scenario.

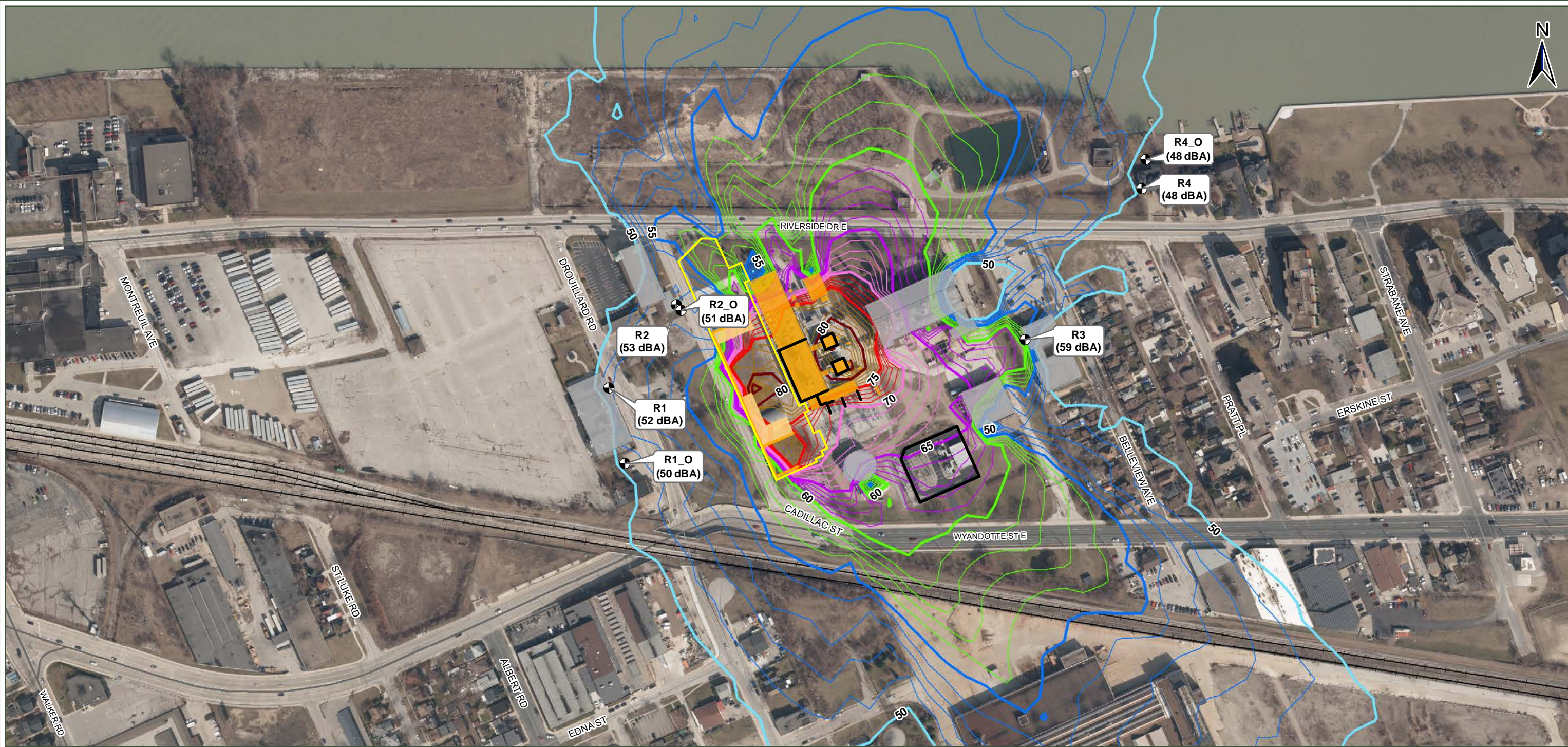
The combined (EWCC and Project) predicted sound levels for Regular Operations during daytime/evening and nighttime periods are presented in **Table 5-3**, **Figure 5-5** and **Figure 5-6**, respectively and summarized in **Appendix A**. Though the Project will result in increases to the background surrounding sound level, the combined EWCC and Project sound levels are predicted to meet the applicable MECP Publication NPC-300 sound level limits.


















Table 5-3: Combined Predicted Regular Operations Sound Levels at POR Façade

Façade Point of Reception ID	Point of Reception Description	Time of Day	EWCC Sound Level at POR (L _{eq} dBA)	Project Sound Level at POR (L _{eq} dBA)	Combined (Project + existing EWCC) Sound Level at POR (L _{eq} dBA)	Performance Limit (L _{eq} dBA)	Compliance with Limit (yes/no)
Regular Operations							
R1	Shoreview at Riverside	Day	48	50	52	58	yes
		Evening	48	50	52	58	yes
		Night	48	50	52	58	yes
R1_O	Shoreview at Riverside	Day	46	49	50	58	yes
		Evening	46	49	50	58	yes
R2	Cadillac Street Residence	Day	50	50	52	56	yes
		Evening	50	50	52	53	yes
		Night	49	50	52	53	yes
R2_O	Cadillac Street Residence	Day	48	49	51	56	yes
		Evening	48	49	51	53	yes
R3	Riverside Drive East Apartment	Day	59	51	59	60	yes
		Evening	59	51	59	59	yes
		Night	59	51	59	59	yes
R4	Riverside Drive East Home	Day	49	40	50	57	yes
		Evening	49	40	50	56	yes
		Night	49	40	50	56	yes
R4_O	Riverside Drive East Home	Day	48	39	49	57	yes
		Evening	48	39	49	56	yes





LEGEND:

	Project Site		Receptor
	New Building		≤ 50 dBA
	New Building		≤ 55 dBA
	Existing EWCC		≤ 60 dBA
	Existing buildings		≤ 65 dBA
	Existing Wall		≤ 70 dBA
	Railway		≤ 75 dBA
			> 75 dBA

NOTES:
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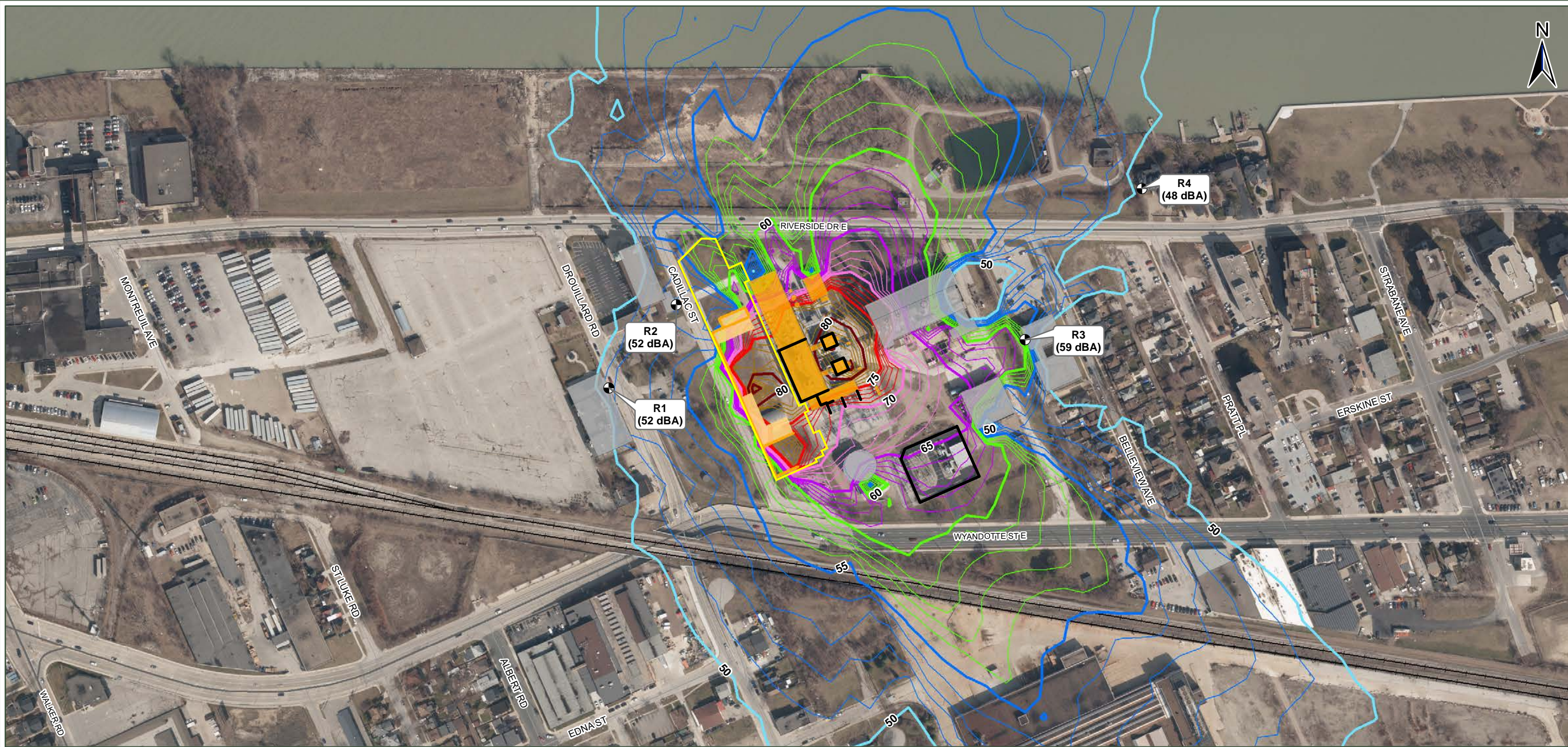
EAST WINDSOR GENERATION
 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT

**COMBINED EWCC AND PROJECT
 PREDICTED RESULTS, REGULAR
 OPERATIONS - DAYTIME/EVENING**



FIGURE NO:
5-5



LEGEND:

	Project Site		Receptor
	New Building		≤ 50 dBA
	New Building		≤ 55 dBA
	Existing EWCC		≤ 60 dBA
	Existing buildings		≤ 65 dBA
	Existing Wall		≤ 70 dBA
	Railway		≤ 75 dBA
			> 75 dBA

NOTES:
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 FACILITY EXPANSION
 224 CADILLAC DRIVE, WINDSOR ONTARIO

NOISE ASSESSMENT

**COMBINED EWCC AND PROJECT
 PREDICTED RESULTS, REGULAR
 OPERATIONS - NIGHTTIME**



FIGURE NO:
5-6

6.0 Summary of Findings

The Project would result in an increase to the existing sound level at representative local receptors; however, the modelled sound levels are predicted to meet the applicable sound level limits established in the MECP Publication NPC-300. Furthermore, the results of a worst-case combined scenario of noise levels from the existing EWCC plus those of the Project are also predicted to meet the applicable NPC-300 limits with a predicted worst-case increase of around 3-4 dB, which is generally defined as a “just perceivable change” to the subjective human ear.

SLR Consulting (Canada) Ltd.



Dylan Diebolt, B.Sc.
Acoustical Consultant



Aaron Haniff, P.Eng.
Principal Acoustical Engineer



7.0 References

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- ISO. 1996. ISO 9613-2: Acoustics – Attenuation of Sound During Propagation Outdoors Part 2: General Method of Calculation, Geneva, Switzerland. International Organization for Standardization.
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- MECP. 1989. Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT). Ontario Ministry of the Environment, Conservation and Parks.
- MECP. 1996. STAMSON v5.03: Road, Rail and Rapid Transit Noise Prediction Model. Ontario Ministry of the Environment, Conservation and Parks.
- MECP. 2013. Publication NPC-300: Environmental Noise Guideline: Stationery and Transportation Sources – Approval and Planning. Ontario Ministry of the Environment, Conservation and Parks.





Appendix A Source and Emission Summary Information

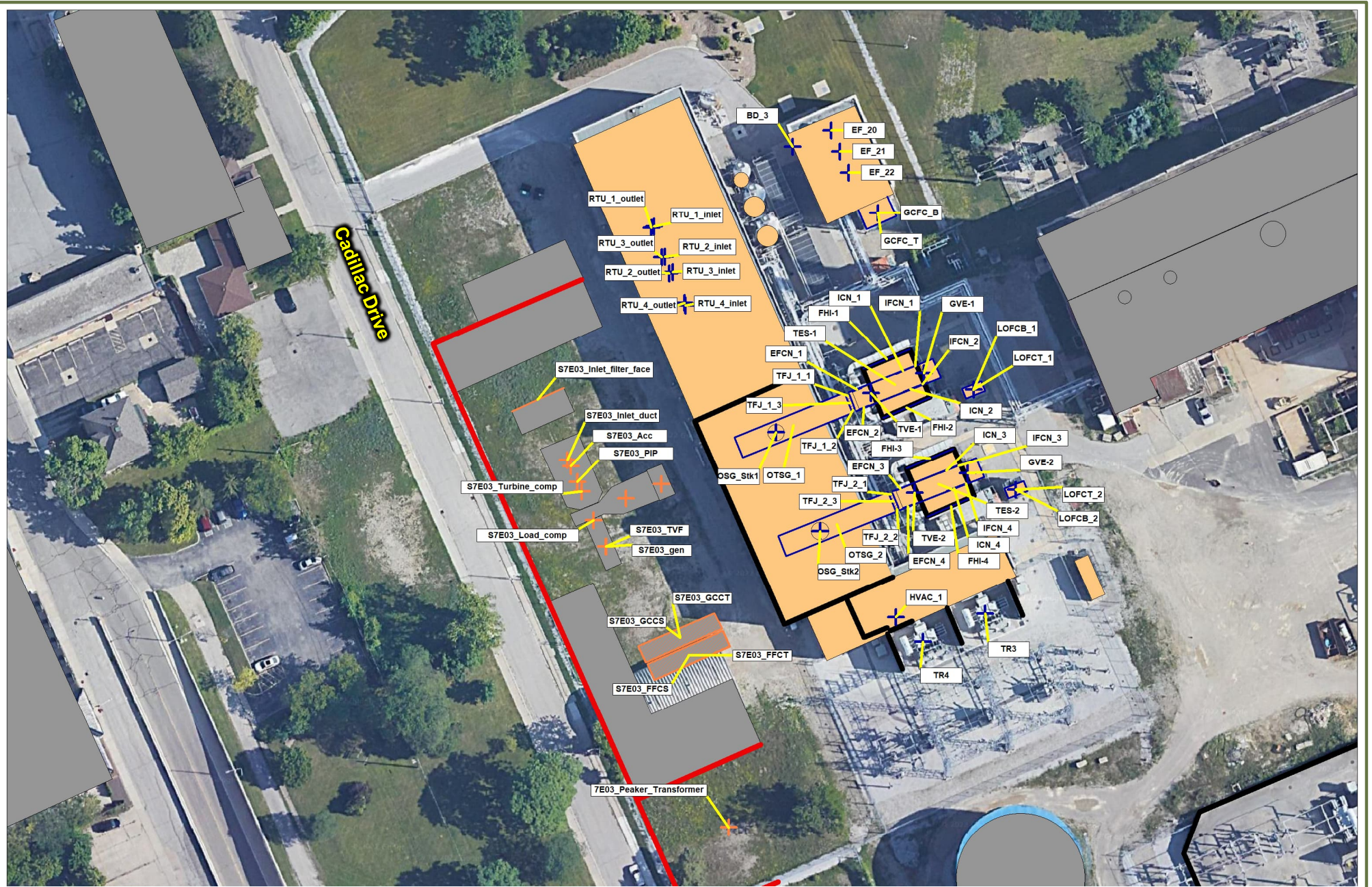
Noise Assessment

East Windsor Generation Facility Expansion Project

Capital Power Corporation

SLR Project No.: 241.030524.00024

July 2024



CAPITAL POWER CORPORATION

EAST WINDSOR GENERATION FACILITY, WINDSOR, ON

SITE LAYOUT PLAN, SHOWING NOISE SOURCE LOCATIONS – REGULAR OPERATIONS

True North



Scale: 1: 1,000

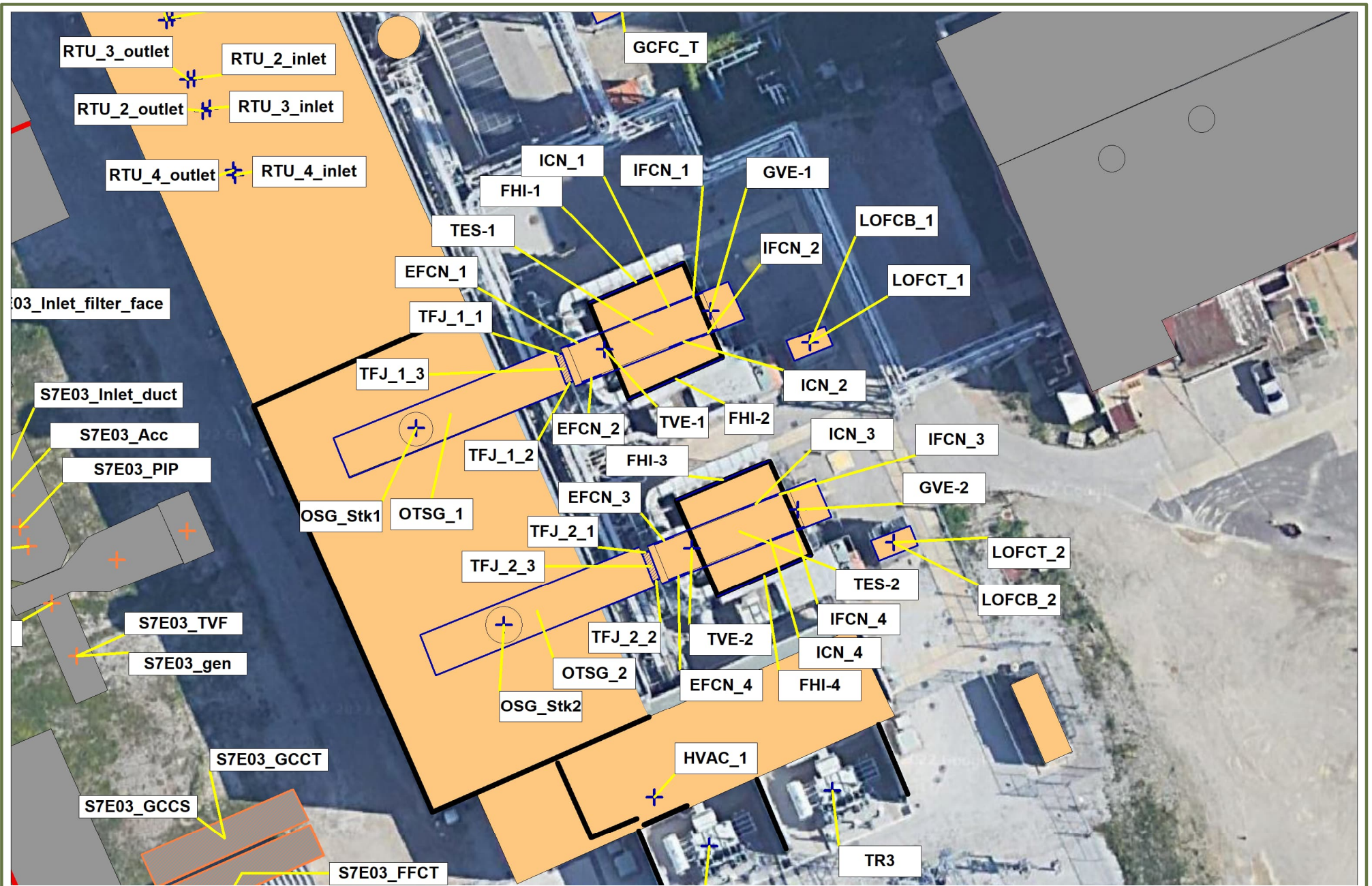
Date: July 2024 Rev 0.0

Project No. 241.V30524.00024

METRES

Figure No. **A-1**





CAPITAL POWER CORPORATION

EAST WINDSOR GENERATION FACILITY, WINDSOR, ON

SITE LAYOUT PLAN, SHOWING NOISE SOURCE LOCATIONS – REGULAR OPERATIONS - ZOOMED

True North



Scale: 1: 500 METRES

Date: July 2024 Rev 0.0

Project No. 241.V30524.00024

Figure No.

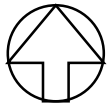
A-2





CAPITAL POWER CORPORATION
 EAST WINDSOR GENERATION FACILITY, WINDSOR, ON
 SITE LAYOUT PLAN, SHOWING NOISE SOURCE LOCATIONS – EMERGENCY EQUIPMENT

True North



Scale: 1: 500 METRES

Date: July 2024 Rev 0.0

Project No. 241.V30524.00024

Figure No. **A-3**



Table A.1: Summary of Noise Source Modelling Parameters (Point Sources)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Notes:

Sound Power Levels (PWL) shown below include penalties described in MECP NPC-300.

See below for nomenclature:

Source Location:

O - located/installed outside of building, including roof
I - located/installed inside of building

Sound Characteristics:

S - Steady
Q - Quasi Steady Impulsive
I - Impulsive
B - Buzzing
T - Tonal
C - Cyclic

Existing Noise Control Measures:

S - silencer, acoustic louvre, muffler
A - acoustic lining, plenum
B - barrier, berm, screening
L - lagging
E - acoustic enclosure
O - other
U - uncontrolled

Data Source:

Man - Manufacturer's Data
Mea - Measured
EC - Engineering Calculation
Hist - Historical Data

Recommended Noise Control Measures:

same as "Existing Noise Control Measures"

Source ID	Source Description	Source Loc	Sound Char	Existing Noise Control Measures	Source Sound Power Level Data 1/1 Octave Bands (Hz)										PWL (dBA)	Data Source	Minutes Operated Over 1 Hour		Source Location Information			
					32 (dB)	63 (dB)	125 (dB)	250 (dB)	500 (dB)	1000 (dB)	2000 (dB)	4000 (dB)	8000 (dB)	Day/Eve (min)			Night (min)	X (m)	Y (m)	Z (m)	Source Height H (m) + Notes	
EWCC Operations																						
OSG_Stk1	Stack 1	O	S	S		95	96	89	84	81	75	68	63	87	Mea	60	60	335136	4687871	27.2	27.2 m Absolute	
OSG_Stk2	Stack 2	O	S	S		96	96	90	87	84	78	71	64	89	Mea	60	60	335144	4687852	27.2	27.2 m Absolute	
TVE-1	Turbine Vent Exhaust 1	O	S	U	111	104	95	92	89	84	88	87	80	94	Mea	60	60	335154	4687879	15.1	15.1 m Relative to Ground	
GVE-1	Generator Ventilation Exhaust 1	O	S	U	100	92	91	89	84	83	80	80	79	89	Mea	60	60	335164	4687883	6.5	6.5 m Relative to Ground	
TVE-2	Turbine Vent Exhaust 2	O	S	U	111	104	95	92	89	84	88	87	80	94	Mea	60	60	335162	4687859	15.1	15.1 m Relative to Ground	
GVE-2	Generator Ventilation Exhaust 2	O	S	U	100	92	91	89	84	83	80	80	79	89	Mea	60	60	335173	4687863	6.5	6.5 m Relative to Ground	
LOFCT_1	Lube Oil Fin-fan Cooler Top 1	O	S	U	101	99	100	98	93	91	91	88	75	98	Mea	60	60	335174	4687879	4.3	4.3 m Relative to Ground	
GCFC_T	Compressor Building Cooler (Discharge)	O	S	U	108	108	106	100	96	92	88	82	73	98	Mea	60	60	335155	4687913	5.0	5.0 m Relative to Ground	
EF_20	Compressor Building Exhaust Fan 1	O	S	U	85	88	89	84	80	79	73	63	58	83	Mea	60	60	335146	4687929	13.7	3.7 m Above Roof	
EF_21	Compressor Building Exhaust Fan 2	O	S	U	85	88	89	84	80	79	73	63	58	83	Mea	60	60	335148	4687925	13.7	3.7 m Above Roof	
EF_22	Compressor Building Exhaust Fan 3	O	S	U	85	88	89	84	80	79	73	63	58	83	Mea	60	60	335150	4687921	13.7	3.7 m Above Roof	
BD_3	Compressor Building Bay Door	O	S	U	93	90	87	85	84	71	68	64	60	83	Mea	60	60	335139	4687926	2.3	2.3 m Above Roof	
HVAC_1	Electrial building HVAC	O	S	U	96	94	94	91	87	89	91	85	82	95	Mea	60	60	335159	4687835	8.0	1.0 m Above Roof	
LOFCT_2	Lube Oil Fin-fan Cooler Top 2	O	S	U	101	99	100	98	93	91	91	88	75	98	Mea	60	60	335182	4687860	4.3	4.3 m Relative to Ground	
RTU_1_inlet	RTU 1 inlet	O	S	U	88	99	87	88	84	81	76	71	69	86	Mea	60	30	335112	4687911	14.0	0.5 m Above Roof	
RTU_1_outlet	RTU 1 outlet	O	S	U				88	84	85	80	73	71	88	Mea	60	30	335111	4687911	15.0	1.5 m Above Roof	
RTU_2_inlet	RTU 2 inlet	O	S	U				73	70	68	64	59	52	73	Mea	60	30	335114	4687905	14.0	0.5 m Above Roof	
RTU_2_outlet	RTU 2 outlet	O	S	U				73	70	69	67	61	55	74	Mea	60	30	335115	4687902	14.8	1.3 m Above Roof	
RTU_3_inlet	RTU 3 inlet	O	S	U				73	70	68	64	59	52	73	Mea	60	30	335116	4687902	14.0	0.5 m Above Roof	
RTU_3_outlet	RTU 3 outlet	O	S	U				73	70	69	67	61	55	74	Mea	60	30	335113	4687905	14.8	1.3 m Above Roof	
RTU_4_inlet	RTU 4 inlet	O	S	U	88	99	87	88	84	81	76	71	69	86	Mea	60	30	335118	4687896	14.0	0.5 m Above Roof	
RTU_4_outlet	RTU 4 outlet	O	S	U				88	84	85	80	73	71	88	Mea	60	30	335118	4687896	15.0	1.5 m Above Roof	
TR3	Transformer	O	T	B	107	101	94	94	90	82	77	76	73	91	Mea	60	60	335176	4687836	3.0	3.0 m Relative to Ground	
TR4	Transformer	O	T	B	107	101	94	94	90	82	77	76	73	91	Mea	60	60	335164	4687831	3.0	3.0 m Relative to Ground	
Project Operations																						
7E03_Peaker_Transformer	Peaker Transformer	O	T	B	101	107	109	104	104	98	93	88	81	105	Man	60	60	335126	4687795	1.8	1.8 m Relative to Ground	
S7E03_Inlet_duct	Peaker Inlet Ducting	O	S	B	108	102	97	100	94	78	91	75	53	97	Man	60	60	335095	4687866	7.8	7.8 m Relative to Ground	
S7E03_Acc	Peaker Accessory Compartment	O	S	B	116	110	106	99	97	94	97	92	87	102	Man	60	60	335096	4687865	2.1	2.1 m Relative to Ground	
S7E03_PIP	Peaker Inlet Plenum	O	S	B	108	102	97	91	88	85	89	85	81	94	Man	60	60	335097	4687862	7.8	7.8 m Relative to Ground	
S7E03_Turbine_comp	Peaker Turbine Compartment	O	S	B	114	112	108	101	98	95	98	95	93	104	Man	60	60	335098	4687860	2.1	2.1 m Relative to Ground	
S7E03_Exh_plenum	Peaker Exhaust Plenum	O	S	B	109	112	112	107	104	101	100	99	94	108	Man	60	60	335107	4687858	3.0	3.0 m Relative to Ground	
S7E03_Load_comp	Peaker Load Compartment	O	S	B	107	110	112	103	100	98	98	98	91	105	Man	60	60	335100	4687854	2.1	2.1 m Relative to Ground	
S7E03_gen	Peaker Generator	O	S	B	111	113	119	109	104	103	101	100	94	110	Man	60	60	335103	4687849	2.1	2.1 m Relative to Ground	
S7E03_TVF	Peaker Turbine Compartment Vent Fan	O	S	B				98						95	Man	60	60	335103	4687849	4.8	4.8 m Relative to Ground	
S7E03_Stk1	Peaker Exhaust Stack Top	O	S	U	129	121	105	96	94	90	87	90	96	101	Man	60	60	335113	4687861	22.5	22.5 m Relative to Ground	
Emergency Equipment																						
GS_IntakeE	Egen Intake Vent East	O	S	U	86	85	93	87	85	86	85	78	73	91	Mea	60	60	335196	4687846	1.5	1.5 m Relative to Ground	
GS_IntakeW	Egen Intake Vent West	O	S	U	86	85	93	87	85	86	85	78	73	91	Mea	60	60	335194	4687845	1.5	1.5 m Relative to Ground	
GS_Stack	Egen Exhaust	O	S	S				93	88	86	85	76	74	92	Mea	60	60	335198	4687840	4.5	4.5 m Relative to Ground	
GS_Discharge	Egen Discharge vent	O	S	U	101	95	102	100	96	93	89	83	82	99	Mea	60	60	335197	4687841	4.1	0.1 m Above Roof	



Table A.2: Summary of Noise Source Modelling Parameters (Vertical Area Sources)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Notes:

Sound Power Levels (PWL) shown below include penalties described in MECF NPC-300.

See below for nomenclature:

Source Location:

O - located/installed outside of building, including roof
I - located/installed inside of building

Sound Characteristics:

S - Steady
Q - Quasi Steady Impulsive
I - Impulsive
B - Buzzing
T - Tonal
C - Cyclic

Existing Noise Control Measures:

S - silencer, acoustic louvre, muffler
A - acoustic lining, plenum
B - barrier, berm, screening
L - lagging
E - acoustic enclosure
O - other
U - uncontrolled

Data Source:

Man - Manufacturer's Data
Mea - Measured
EC - Engineering Calculation
Hist - Historical Data

Recommended Noise Control Measures:

same as "Existing Noise Control Measures"

Source ID	Source Description	Source Loc	Sound Char	Existing Noise Control Measures	Source Sound Power Level Data 1/1 Octave Bands (Hz)										PWL (dBA)	Data Source	Minutes Operated Over 1 Hour		Source Location Information (approx. midpoint)		
					32 (dB)	63 (dB)	125 (dB)	250 (dB)	500 (dB)	1000 (dB)	2000 (dB)	4000 (dB)	8000 (dB)	Day/Eve (min)			Night (min)	X (m)	Y (m)	Z (m)	
EWCC Operations																					
FHI-1	Gen 1 intake Louvre	O	S	U	102	99	96	97	91	87	84	83	81	94	Mea	60	60	Var	Var	Var	
FHI-2	Gen 1 intake Louvre	O	S	U	102	99	96	97	91	87	84	83	81	94	Mea	60	60	Var	Var	Var	
LOFCB_1_1	Lube Oil Fin-fan Cooler Bottom 1	O	S	U	107	104	104	98	97	95	89	84	78	99	Mea	60	60	Var	Var	Var	
LOFCB_1_2	Lube Oil Fin-fan Cooler Bottom 1	O	S	U	104	101	101	95	95	92	86	81	75	96	Mea	60	60	Var	Var	Var	
LOFCB_1_3	Lube Oil Fin-fan Cooler Bottom 1	O	S	U	107	104	104	98	97	95	89	84	78	99	Mea	60	60	Var	Var	Var	
LOFCB_1_4	Lube Oil Fin-fan Cooler Bottom 1	O	S	U	104	101	101	95	95	92	86	81	75	97	Mea	60	60	Var	Var	Var	
TES_1_1	Turbine Enclosure Surfaces 1	O	S	E	108	107	108	104	97	96	93	91	88	102	Mea	60	60	Var	Var	Var	
TES_1_2	Turbine Enclosure Surfaces 1	O	S	E	101	101	102	97	91	89	86	85	82	96	Mea	60	60	Var	Var	Var	
TES_1_3	Turbine Enclosure Surfaces 1	O	S	E	108	107	108	104	97	96	93	91	88	102	Mea	60	60	Var	Var	Var	
TFJ_1_1	Turbine-OTSG Flexible Joint 1a	O	S	U	99	94	100	96	85	83	83	82	81	92	Mea	60	60	Var	Var	Var	
TFJ_1_2	Turbine-OTSG Flexible Joint 1b	O	S	U	99	94	100	96	85	83	83	82	81	92	Mea	60	60	Var	Var	Var	
IFCN_1	Intake Fan Casing noise 1	O	S	U	97	92	98	100	92	94	90	86	75	98	Mea	60	60	Var	Var	Var	
IFCN_2	Intake Fan Casing noise 2	O	S	U	97	92	98	100	92	94	90	86	75	98	Mea	60	60	Var	Var	Var	
EFCN_1	Exhaust Fan Casing noise 1	O	S	U	93	89	95	97	89	91	87	83	71	95	Mea	60	60	Var	Var	Var	
EFCN_2	Exhaust Fan Casing noise 2	O	S	U	93	89	95	97	89	91	87	83	71	95	Mea	60	60	Var	Var	Var	
ICN_1	Intake Casing noise 1	O	S	U	100	95	98	98	92	91	88	87	80	96	Mea	60	60	Var	Var	Var	
ICN_2	Intake Casing noise 2	O	S	U	100	95	98	98	92	91	88	87	80	96	Mea	60	60	Var	Var	Var	
OTSG_1_1	HRSG Casing Noise 1	O	S	U	108	107	105	96	89	89	87	84	84	96	Mea	60	60	Var	Var	Var	
OTSG_1_2	HRSG Casing Noise 1	O	S	U	101	100	98	89	81	81	79	77	76	88	Mea	60	60	Var	Var	Var	
OTSG_1_3	HRSG Casing Noise 1	O	S	U	108	107	105	96	89	89	87	84	84	96	Mea	60	60	Var	Var	Var	
GCFC_B_1	Compressor Buidling Cooler (Bottom)	O	S	U	105	108	103	98	95	92	88	83	80	98	Mea	60	60	Var	Var	Var	
GCFC_B_2	Compressor Buidling Cooler (Bottom)	O	S	U	107	110	105	100	97	94	89	85	82	99	Mea	60	60	Var	Var	Var	
GCFC_B_3	Compressor Buidling Cooler (Bottom)	O	S	U	105	108	103	98	95	92	87	83	80	97	Mea	60	60	Var	Var	Var	
FHI-3	Gen 2 intake Louvre	O	S	U	102	99	96	97	91	87	84	83	81	94	Mea	60	60	Var	Var	Var	
FHI-4	Gen 2 intake Louvre	O	S	U	102	99	96	97	91	87	84	83	81	94	Mea	60	60	Var	Var	Var	
TES_2_1	Turbine Enclosure Surfaces 2	O	S	E	108	107	108	104	97	96	93	91	88	102	Mea	60	60	Var	Var	Var	
TES_2_2	Turbine Enclosure Surfaces 2	O	S	E	101	101	102	97	91	89	86	85	82	96	Mea	60	60	Var	Var	Var	
TES_2_3	Turbine Enclosure Surfaces 2	O	S	E	108	107	108	104	97	96	93	91	88	102	Mea	60	60	Var	Var	Var	
TFJ_2_1	Turbine-OTSG Flexible Joint 2a	O	S	U	99	94	100	96	85	83	83	82	81	92	Mea	60	60	Var	Var	Var	
TFJ_2_2	Turbine-OTSG Flexible Joint 2b	O	S	U	99	94	100	96	85	83	83	82	81	92	Mea	60	60	Var	Var	Var	
IFCN_3	Intake Fan Casing noise 3	O	S	U	97	92	98	100	92	94	90	86	75	98	Mea	60	60	Var	Var	Var	
IFCN_4	Intake Fan Casing noise 4	O	S	U	97	92	98	100	92	94	90	86	75	98	Mea	60	60	Var	Var	Var	
EFCN_3	Exhaust Fan Casing noise 3	O	S	U	93	89	95	97	89	91	87	83	71	95	Mea	60	60	Var	Var	Var	
EFCN_4	Exhaust Fan Casing noise 4	O	S	U	93	89	95	97	89	91	87	83	71	95	Mea	60	60	Var	Var	Var	
ICN_3	Intake Casing noise 3	O	S	U	100	95	98	98	92	91	88	87	80	96	Mea	60	60	Var	Var	Var	
ICN_4	Intake Casing noise 4	O	S	U	100	95	98	98	92	91	88	87	80	96	Mea	60	60	Var	Var	Var	
OTSG_2_1	HRSG Casing Noise 2	O	S	U	108	107	105	96	89	89	87	84	84	96	Mea	60	60	Var	Var	Var	
OTSG_2_2	HRSG Casing Noise 2	O	S	U	101	100	98	89	81	81	79	77	76	88	Mea	60	60	Var	Var	Var	
OTSG_2_3	HRSG Casing Noise 2	O	S	U	108	107	105	96	89	89	87	84	84	96	Mea	60	60	Var	Var	Var	
LOFCB_2_1	Lube Oil Fin-fan Cooler Bottom 2	O	S	U	109	103	102	97	93	89	86	82	77	96	Mea	60	60	Var	Var	Var	
LOFCB_2_2	Lube Oil Fin-fan Cooler Bottom 2	O	S	U	106	100	99	94	90	86	83	79	74	93	Mea	60	60	Var	Var	Var	
LOFCB_2_3	Lube Oil Fin-fan Cooler Bottom 2	O	S	U	109	103	102	97	93	89	86	82	77	96	Mea	60	60	Var	Var	Var	
LOFCB_2_4	Lube Oil Fin-fan Cooler Bottom 2	O	S	U	109	103	102	97	93	89	86	82	77	96	Mea	60	60	Var	Var	Var	
Project Operations																					
S7E03_Inlet_filter_face	Peaker Inlet filter house	O	S	U	110	104	90	80	78	78	79	81	84	88	Man	60	60	Var	Var	Var	
S7E03_FFCS	Fin Fan Cooler Sides	O	S	U	107	104	104	98	97	95	89	84	78	99	Man	60	60	Var	Var	Var	
S7E03_GCCS	Fin Fan Cooler Sides	O	S	U	113	110	110	105	104	101	96	90	85	106	Man	60	60	Var	Var	Var	
Emergency Equipment																					
GS_Breakout	Genset Breakout noise	O	S	O	100	97	102	99	92	92	91	82	79	97	Man	60	60	Var	Var	Var	



Table A.3: Summary of Noise Source Modelling Parameters (Horizontal Area Sources)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Notes:

Sound Power Levels (PWL) shown below include penalties described in MECP NPC-300.

See below for nomenclature:

Source Location:

- O - located/installed outside of building, including roof
- I - located/installed inside of building

Sound Characteristics:

- S - Steady
- Q - Quasi Steady Impulsive
- I - Impulsive
- B - Buzzing
- T - Tonal
- C - Cyclic

Existing Noise Control Measures:

- S - silencer, acoustic louvre, muffler
- A - acoustic lining, plenum
- B - barrier, berm, screening
- L - lagging
- E - acoustic enclosure
- O - other
- U - uncontrolled

Data Source:

- Man - Manufacturer's Data
- Mea - Measured
- EC - Engineering Calculation
- Hist - Historical Data

Recommended Noise Control Measures:

same as "Existing Noise Control Measures"

Source ID	Source Description	Source Loc	Sound Char	Existing Noise Control Measures	Source Sound Power Level Data 1/1 Octave Bands (Hz)										PWL (dBA)	Data Source	Minutes Operated Over 1 Hour		Source Location Information (approx. midpoint)		
					32 (dB)	63 (dB)	125 (dB)	250 (dB)	500 (dB)	1000 (dB)	2000 (dB)	4000 (dB)	8000 (dB)	Day/Eve (min)			Night (min)	X (m)	Y (m)	Z (m)	
EWCC Operations																					
TFJ_1_3	Turbine-OTSG Flexible Joint 1a	O	S	U	99	94	100	96	85	83	83	82	81	92	Mea	60	60	Var	Var	Var	
TFJ_2_3	Turbine-OTSG Flexible Joint 2c	O	S	U	99	94	100	96	85	83	83	82	81	92	Mea	60	60	Var	Var	Var	
Project Operations																					
S7E03_FFCT	Fin Fan Cooler Top	O	S	U	102	100	101	96	94	91	87	84	80	96	Man	60	60	Var	Var	Var	
S7E03_GCCT	Fin Fan Cooler Top	O	S	U	106	105	106	101	98	95	91	88	85	101	Man	60	60	Var	Var	Var	



Table A4: Acoustic Assessment Summary Table (POR - Regular Operations)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Point of Reception ID	Point of Reception Description	Time of Day	EWCC Sound Level at POR (Leq dBA)	Project Sound Level at POR (Leq dBA)	Combined Facility Sound Level at POR (Leq dBA)	Performance Limit (Leq dBA)	Compliance with Limit (yes / no)
Regular Operations							
R1	Shoreview at Riverside	Day	51	50	53	58	yes
		Evening	51	50	53	58	yes
		Night	51	50	53	58	yes
R2	Cadillac Street Residence	Day	53	50	53	56	yes
		Evening	53	50	53	53	yes
		Night	52	50	53	53	yes
R3	Riverside Drive East Apartment	Day	59	51	59	60	yes
		Evening	59	51	59	59	yes
		Night	59	51	59	59	yes
R4	Riverside Drive East Home	Day	49	40	50	57	yes
		Evening	49	40	50	56	yes
		Night	49	40	50	56	yes



Table A5: Acoustic Assessment Summary Table (OPOR - Regular Operations)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Point of Reception ID	Point of Reception Description	Time of Day	EWCC Sound Level at POR (Leq dBA)	Project Sound Level at POR (Leq dBA)	Combined Facility Sound Level at POR (Leq dBA)	Performance Limit (Leq dBA)	Compliance with Limit (yes / no)
Regular Operations							
R1_O	OPOR - Shoreview at Riverside	Day	48	49	51	58	yes
		Evening	48	49	51	58	yes
R2_O	OPOR - Cadillac Street Residence	Day	52	49	52	56	yes
		Evening	52	49	52	53	yes
R4_O	OPOR - Riverside Drive East Home	Day	48	39	49	57	yes
		Evening	48	39	49	56	yes



Table A6: Acoustic Assessment Summary Table (POR - Emergency Equipment Testing)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Point of Reception ID	Point of Reception Description	Time of Day	EWCC Sound Level at POR (L _{eq} dBA)	Project Sound Level at POR (L _{eq} dBA)	Combined Facility Sound Level at POR (L _{eq} dBA)	Performance Limit (L _{eq} dBA)	Compliance with Limit (yes / no)
Emergency Equipment							
R1	Shoreview at Riverside	Day	34	0	34	63	yes
		Evening	-	-	-	-	-
		Night	-	-	-	-	-
R2	Cadillac Street Residence	Day	36	0	36	61	yes
		Evening	-	-	-	-	-
		Night	-	-	-	-	-
R3	Riverside Drive East Apartment	Day	54	0	54	65	yes
		Evening	-	-	-	-	-
		Night	-	-	-	-	-
R4	Riverside Drive East Home	Day	37	0	37	62	yes
		Evening	-	-	-	-	-
		Night	-	-	-	-	-



Table A7: Acoustic Assessment Summary Table (OPOR - Emergency Equipment Testing)

EWCC Noise Assessment, Windsor, Ontario - 241.V30524.00024

Point of Reception ID	Point of Reception Description	Time of Day	EWCC Sound Level at POR (L _{eq} dBA)	Project Sound Level at POR (L _{eq} dBA)	Combined Facility Sound Level at POR (L _{eq} dBA)	Performance Limit (L _{eq} dBA)	Compliance with Limit (yes / no)
Emergency Equipment							
R1_O	OPOR - Shoreview at Riverside	Day	37	-	37	63	yes
		Evening	-	-	-	-	-
R2_O	OPOR - Cadillac Street Residence	Day	37	-	37	61	yes
		Evening	-	-	-	-	-
R4_O	OPOR - Riverside Drive East Home	Day	39	-	39	62	yes
		Evening	-	-	-	-	-





Appendix B Zoning Maps

Noise Assessment

East Windsor Generation Facility Expansion Project

Capital Power Corporation

SLR Project No.: 241.030524.00024

July 2024

Zoning District Map 6

LEGEND:

- Zone Boundary¹
- Specific Zoning Exemptions²
S.20 (1) 267/ By-Law 127-2010
- Specific Temporary Zoning Exemptions³
- Registered Plan Parcel Limits
- Ownership Parcel Limits
- Municipal Boundary Line
- Inland Watercourse Flood Prone Area⁴
- Detroit River/Lake St.Clair Flood Prone Area⁴

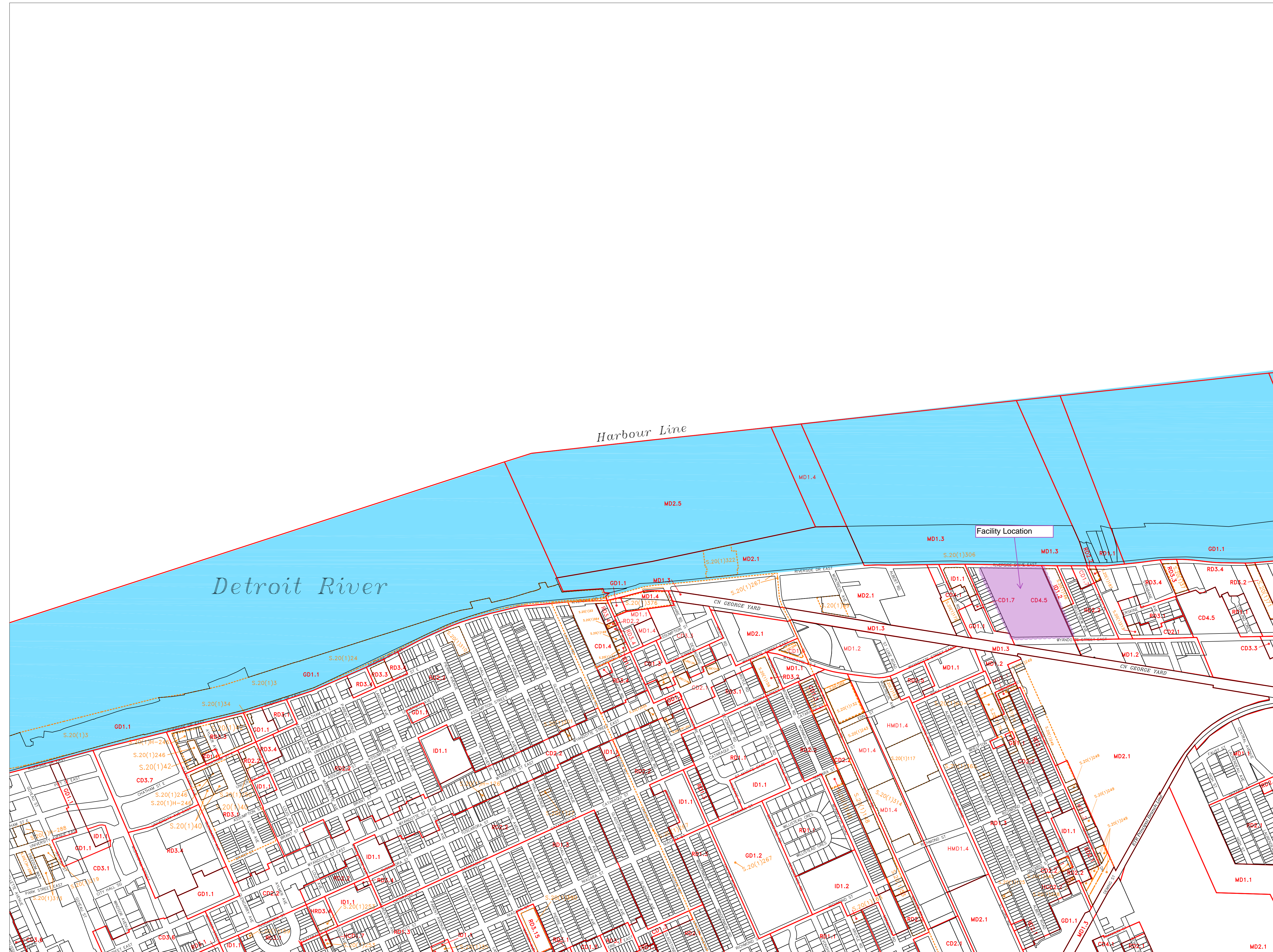
- NOTES:**
- Each Zoning District symbol corresponds to a zoning district set out in the text of By-law 8600 (i.e. CD1.1 - Commercial District 1.1.)
- | | |
|---|------------------|
| DRD 1.1 - Development Reserve District | - See Section 8 |
| GD1.1 - Green District | - See Section 9 |
| RD1.1 - Residential Districts (Low Density) | - See Section 10 |
| RD2.1 - Residential Districts (Medium Density) | - See Section 11 |
| RD3.1 - Residential Districts (High Density) | - See Section 12 |
| ID1.1 - Institutional District | - See Section 13 |
| CD1.1 - Commercial Districts (Neighbourhood) | - See Section 14 |
| CD2.1 - Commercial Districts (General) | - See Section 15 |
| CD3.1 - Commercial Districts (Major) | - See Section 16 |
| CD4.1 - Commercial Districts (Highway/Restricted Use) | - See Section 17 |
| MD1.1 - Industrial District (Light/Business Park) | - See Section 18 |
| MD2.1 - Industrial District (Heavy) | - See Section 19 |

An H symbol preceding the zoning district symbol represents a hold on the issuance of a building permit until specific development preconditions have been satisfied. Subsection 21(13) specifies the uses permitted until such time as the H symbol is removed by an amending by-law approved by Council.

- See Subsection 20(1) and the relevant clause for the specific special provisions.
- See Subsection 20(2) and the relevant clause for the specific special provisions.

4. Represents the approximate limits of land subject of potential flooding along the Detroit River, Lake St. Clair and inland watercourses as determined by the Essex Region Conservation Authority (ERCA). Within these areas, buildings or structures are generally restricted and possibly prohibited. Application for building permits will be referred to ERCA for its review and the issuance of permits prior to the issuance of any building permit by the City of Windsor.

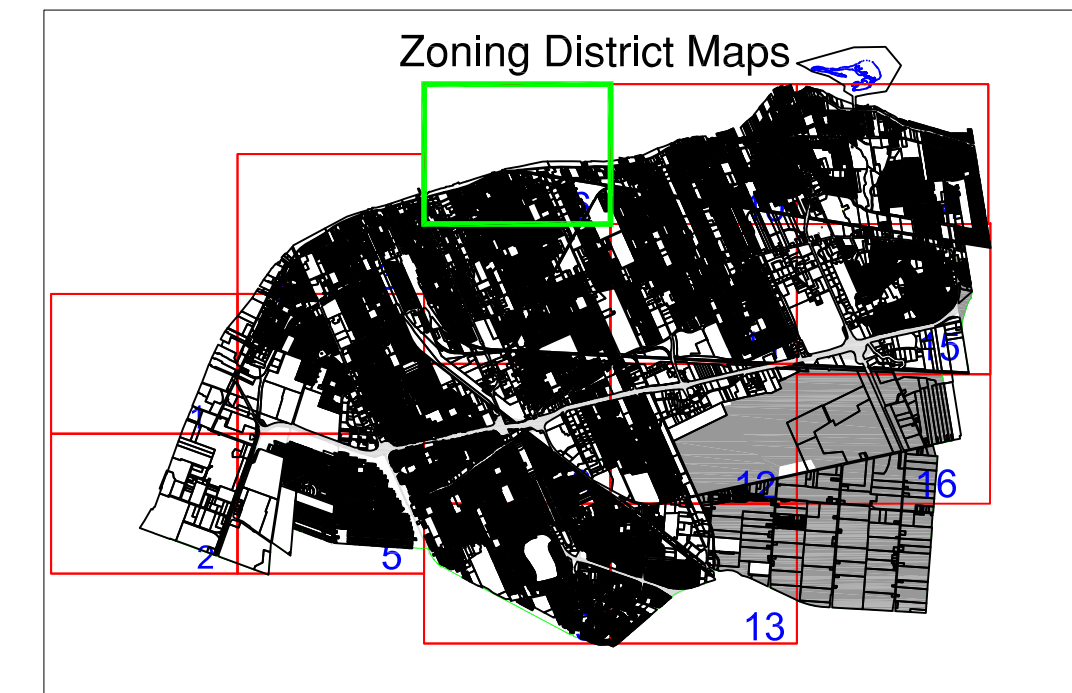
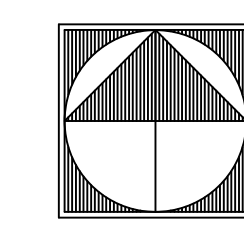
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26/05/04	110-2004		GS	RR
26/05/04	39-2004		GS	RR
26/05/04	160-2004		GS	RR
25/08/04	213-2004		GS	RR
30/08/04	235-2004		GS	RR
21/10/04	290-2004		GS	RR
27/01/05	227-2002		GS	RR
18/03/05	123-2005		GS	RR
15/11/05	249-2005		GS	RR
REVISÉD:	OMB File 1695			
13/06/06	B/L# 327-2006		JA	JA
17/10/07	130-2007		LG	RR
15/11/07	182-2007		LG	RR
23/12/08	190-2008		LG	RR
17/08/09	65-2009		LG	RR
17/08/09	97-2009		LG	RR
30/12/09	161-2009		LG	AS
30/12/09	169-2009		LG	AS
17/03/10	11-2010		LG	AS
22/12/10	127-2010		SS	AS
03/12/10	117-2010		SS	AS
13/08/06	324-2004		SH	AS
24/08/09	117-2009		SH	AS
22/01/11	132-2011		SH	AS
22/08/12	20-2012		SH	AS
19/04/12	46-2012		SH	AS
04/01/13	178-2012		SH	AS
04/01/13	179-2012		SH	AS
09/01/13	190-2012		SH	AS
01/08/14	45-2014		SH	AS
14/01/14	103-2014		SH	AS
14/11/14	175-2014		SH	AS
05/05/15	13-2015		SH	AS
19/08/15	58-2015		SH	AS
09/10/15	121-2015		SH	AS
13/10/15	12644		SH	AS
09/11/15	147-2015		SH	AS
12/07/16	102-2016		SH	AS
02/10/16	104-2016		SH	AS
02/10/16	99-2016		SH	AS
07/05/17	23-2017		SH	AS
09/07/17	66-2017		SH	AS
24/08/17	111-2017		SH	AS
04/11/18	44-2018		BB	AS
05/15/19	40-2019		DH	AS
08/25/19	76-2019		DH	AS
08/20/20	85-2020		DH	AS



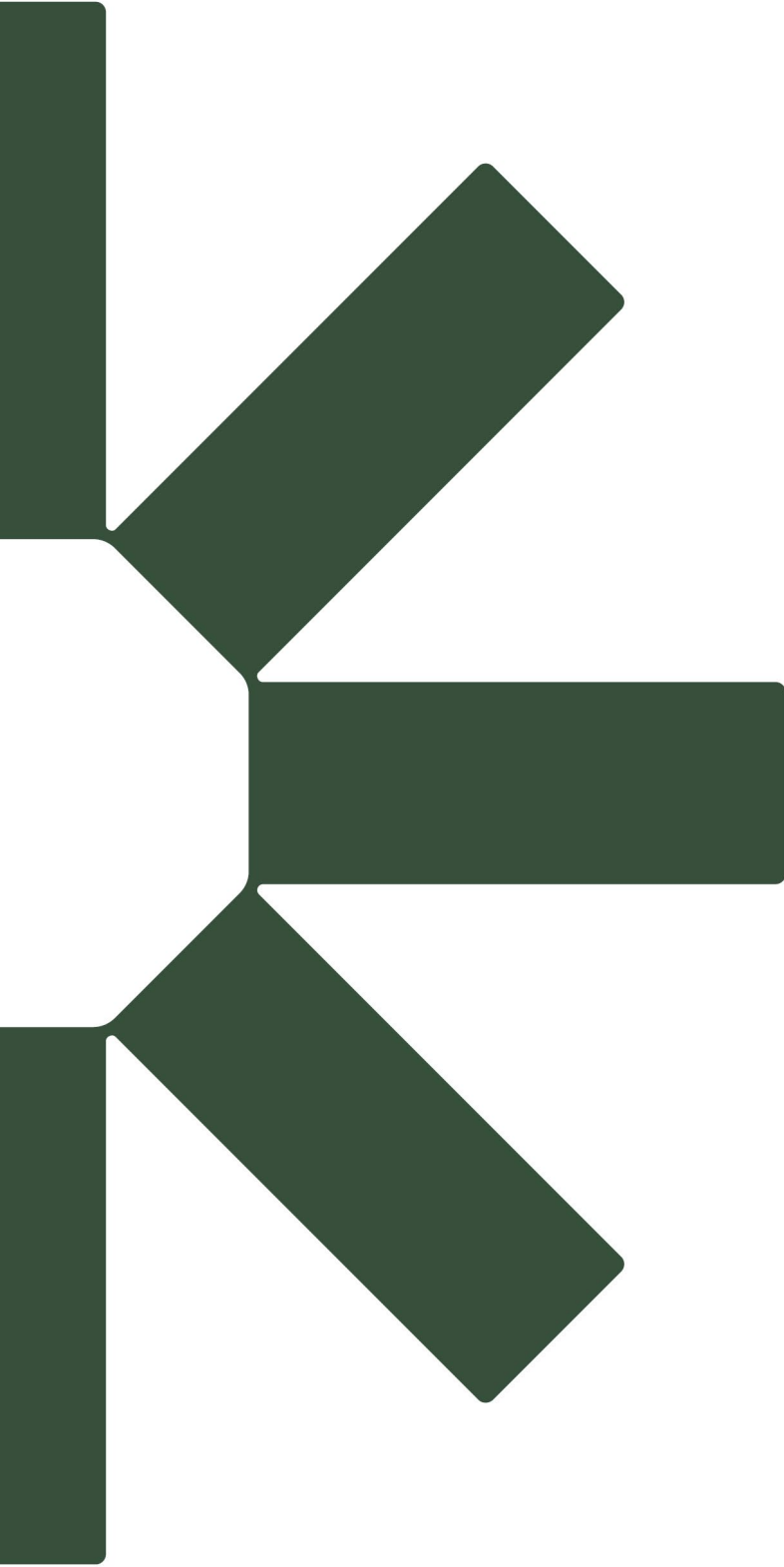
This forms Part of Schedule 'A'.

City of Windsor Zoning By-law 8600

Scale 1:6000



Zoning District Map 6



Making Sustainability Happen