



Environmental Noise Assessment

87-95 Seagram Drive, Waterloo

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Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
dBA	Decibels (A-weighted)
ISO	International Organization for Standardization
L _{eq}	Energy Equivalent Sound Level
m	Metres
MECP	Ministry of Environment Conservation and Parks
NPC-300	MECP Publication NPC-300
OBC	Ontario Building Code
OLA	Outdoor Living Area
ORNAMENT	Ontario Road Noise Analysis Method for Environment and Transportation
SLR	SLR Consulting (Canada) Ltd.



1.0 Introduction

SLR Consulting (Canada) Ltd. (SLR) was retained by Masri O Inc. Architects to prepare an environmental noise assessment for the proposed development at 87-95 Seagram Drive in Waterloo, Ontario ("the Project site"). This report is in support of the Official Plan Amendment (OPA) and Zoning By-law Amendment (ZBA) planning application for the proposed development.

1.1 Focus of Report

In keeping with the Ministry of Environment, Conservation and Parks (MECP), the City of Waterloo and the Regional Municipality of Waterloo (RMOW) requirements, this report examines the potential for:

- Impacts of the environment on the proposed development;
- Impacts of the proposed development on the environment; and
- Impacts of the proposed development on itself.

Mechanical systems associated with the development (e.g., cooling and ventilation equipment) have not been sufficiently designed at this stage and should be assessed at a future date, prior to final equipment selection. A general discussion has been included in this report to address the impacts of the proposed development on the environment and on itself.

1.2 Nature of the Surroundings

The Project site is surrounded by the following:

- Seagram Drive, Waterloo College Hall, and mid to high rise residential buildings to the northwest;
- Residential dwellings, Albert Street and the Martin Luther University College campus to the northeast;
- Laurier University Stadium and low-rise residential dwelling to the southeast; and
- KW Granite Club to the southwest.

A context plan is shown in Figure 1.

1.3 Description of Proposed Development

The proposed development is located just north of the Laurier University Stadium. Five low-rise residential buildings are currently located on the Project site. They will be demolished to accommodate the new development.

The proposed development will consist of a seven-storey podium with two 27-storey towers and one level of underground parking. The ground floor will have commercial space. Levels 3 to 32 will contain residential dwelling units, with the 8th floor, 33rd floor, and 34th floor dedicated to amenity and office spaces. Shared outdoor amenity space is planned at 8th floor.

Development drawings are provided for reference in Appendix A.



Part 1: Impacts of The Environment on The Development

In evaluating potential impacts of the environment on the proposed development, the focus of this report is assessment of:

- Transportation noise from surrounding roadways;
- Transportation noise from the CN Guelph Subdivision; and
- Stationary noise from surrounding industries/facilities on the development.

The nearest railway (the CN Guelph Subdivision) is located around 270 m west of the proposed development. Based on guidance outlined in the document entitled “Guidelines for New Development in Proximity to Railway Operations” prepared for the Railway Association of Canada and the Federation of Canadian Municipalities (RAC/FCM), the proposed development is within the recommended minimum noise influence area. Therefore, noise and vibration assessment would be required under the RAC/FCM guidelines.

The proposed development is not located in proximity to any airports; therefore, an assessment of aircraft noise is not required.

2.0 Transportation Noise Impacts

2.1 Transportation Noise Sources

Transportation sources of interest with the potential to produce road and rail traffic noise at the proposed development include:

- Seagram Drive;
- Albert Street; and
- CN Guelph Subdivision.

Roadway and railway sound levels have been predicted, and this information has been used to identify façade, ventilation, and warning clause recommendations/ requirements for the proposed development.

2.2 Surface Transportation Noise Criteria

2.2.1 Ministry of Environment Publication NPC-300

Noise-Sensitive Development

Ministry of the Environment, Conservation and Parks (MECP) Publication NPC-300 provides sound level criteria for noise-sensitive developments. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background. Tables 1 to 4 summarize the applicable surface transportation (road and rail) criteria.

Location-Specific Criteria

Table 1 summarizes criteria in terms of energy equivalent sound levels (L_{eq}) for specific noise-sensitive locations. Both outdoor and indoor locations are identified, with the focus of outdoor areas being amenity spaces. Indoor criteria vary with sensitivity of the space. As a result, Sleeping Quarters have more stringent criteria than Living/Dining room spaces.



Table 1: NPC-300 Sound Level Criteria for Road and Rail Noise

Type of Space	Time Period	Energy Equivalent Sound Level L_{eq} ^[5] (dBA)		Assessment Location
		Road	Rail ^[1]	
Outdoor Amenity Area	Daytime (0700-2300h)	55	55	Outdoors ^[2]
Living/Dining Room ^[3]	Daytime (0700-2300h)	45	40	Indoors ^[4]
	Nighttime (2300-0700h)	45	40	Indoors ^[4]
Sleeping Quarters	Daytime (0700-2300h)	45	40	Indoors ^[4]
	Nighttime (2300-0700h)	40	35	Indoors ^[4]
Notes: [1] Whistle noise is excluded for OLA noise assessments and included for Living/Dining Room and Sleeping Quarter assessments, where applicable. [2] Road and Rail noise impacts are to be combined for assessment of OLA impacts. [3] Residence area Dens, Hospitals, Nursing Homes, Schools, Daycares are also included. During the nighttime period, Schools and Daycares are excluded. [4] An assessment of indoor noise levels is required only if the criteria in Table 4 are exceeded. [5] L_{eq} – the energy equivalent sound level, integrated over the time period shown.				

Outdoor Living Areas

Table 2 summarizes the noise mitigation requirements for communal outdoor amenity areas (“Outdoor Living Areas” or “OLAs”).

For the assessment of outdoor sound levels, total surface transportation noise is determined by combining road and rail traffic sound levels. Whistle noise from trains is not included in the determination of outdoor sound levels.

Table 2: NPC-300 OLA Sound Level Criteria for Road and Rail Noise

Time Period	OLA Energy Equivalent Sound Level L_{eq} (dBA)	Mitigation Requirements/Warning Clause Recommendations
Daytime (0700-2300h)	≤ 55	• None
	56 to 60 inc.	• Noise barrier OR Type A Warning Clause
	> 60	• Noise barrier to reduce noise to 55 dBA OR • Noise barrier to reduce noise to 60 dBA and Type B Warning Clause

Ventilation and Warning Clauses

Table 3 summarizes recommendations for ventilation where windows would potentially have to remain closed as a means of noise control. Despite implementation of ventilation measures where recommended, if sound levels exceed the guideline limits in Table 1, warning clauses advising future occupants of the potential excesses are also recommended. Warning clauses also apply to OLAs.



Table 3: NPC-300 Ventilation and Warning Clause Recommendations

Assessment Location	Time Period	Energy Equivalent Sound Level – L _{eq} (dBA)		Ventilation and Warning Clause Recommendations ^[2]
		Road	Rail ^[1]	
Outdoor Living Area	Daytime (0700-2300h)	56 to 60 incl.		Type A Warning Clause
Plane of Window	Daytime (0700-2300h)	≤ 55		None
		56 to 65 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 65		Central Air Conditioning + Type D Warning Clause
	Nighttime (2300-0700h)	51 to 60 incl.		Forced Air Heating with provision to add air conditioning + Type C Warning Clause
		> 60		Central Air Conditioning + Type D Warning Clause
Notes: [1] Whistle noise is excluded from assessment. [2] Road and Rail noise is combined for determining Ventilation and Warning Clause requirements.				

Building Component Requirements

Table 4 provides sound level thresholds which, if exceeded, trigger a requirement for the building shell components (i.e., exterior walls, windows) to be designed accordingly to meet the applicable indoor sound criteria.

Table 4: NPC-300 Building Component Assessment Requirements

Assessment Location	Time Period	Energy Equivalent Sound Level – L _{eq} (dBA)		Component Requirements
		Road	Rail ^[1]	
Plane of Window	Daytime (0700-2300h)	> 65	> 60	Designed/ Selected to Meet Indoor Requirements ^[2]
	Nighttime (2300-0700h)	> 60	> 55	
Notes: [1] Whistle noise is included in assessment. [2] Building component requirements are assessed separately for Road and Rail and then combined for a resultant sound isolation parameter.				



2.2.2 Regional Municipality of Waterloo – Noise Policy Implementation Guidelines

The RMOW has published Noise Policy Implementation Guidelines (last updated October 22, 2019) for assessment of surface transportation (road and rail) sound levels. Though the document is no longer not directly applicable, the related portions for new developments are outlined in Part A – New Development Impacted by Noise from Roads and Railways.

The RMOW Noise Policy Implementation Guidelines and associated sound level limits, ventilation requirements and building component requirements generally follow those in MECP Publication NPC-300. The exception is that nighttime indoor sound level limits are not prescribed for living/dining room spaces. For these indoor spaces, guideline limits from MECP Publication NPC-300 have been applied. RMOW-specific warning clauses also differ from those discussed in Section 2.2.1, and these been adopted in the assessment.

2.2.3 Guidelines for New Developments in Proximity to Railway

The Railway Association of Canada / Federation of Canadian Municipalities (“RAC/FCM”) have developed Guidelines for New Development in Proximity to Railway Operations. The “Proximity Guidelines” have been adopted by CN, CP, and Metrolinx. The “Proximity Guidelines” outline a recommended minimum noise influence area for the various types of railway corridors.

For a principal main line like the Dundas Subdivision, the recommended area is 300 metres. Since the proposed development falls within this area of influence, a detailed noise study of the Guelph Subdivision is recommended.

The RAC/FCM guidelines also recommend building setbacks for new residential developments in proximity to railway operations which are detailed below:

- Freight Rail Yard: 300 metres;
- Principle Main Line: 30 metres;
- Secondary Main Line: 30 metres;
- Principle Branch Line: 15 metres;
- Secondary Branch Line: 15 metres; and
- Spur Line: 15 metres.

The proposed development structures are outside of the 30-metre setback to rail tracks recommendations by the RAC/FCM guidelines.

Noise barrier/berm heights are recommended by the “Proximity Guidelines” and state that required heights will be determined by an acoustical engineer in a noise report. Given the setback distance and grade separations between the site grade and railway cut, a ground level noise barrier/berm is unlikely to be required.

A CN warning clause is recommended for all residential units associated with the development. Warning Clause Text can be found in Appendix D.



2.3 Traffic Data and Future Projections

2.3.1 Road Traffic Data

For Seagram Drive and Albert Street, future year 2035 average annual daily traffic (AADT) volume and details (day/night split, medium/heavy truck percentages and speed limits) were provided by the RMOW.

Copies of traffic data and calculations are provided for reference in Appendix B. Table 5 summarizes the road traffic data used in the analysis.

Table 5: Summary of Road Traffic Data Used in Transportation Analysis

Roadway Link	Future Traffic Volumes AADT (2035)	% Day/Night Volume Split		Commercial Vehicle Breakdown		Vehicle Speed (km/hr)
		Daytime	Nighttime	% Medium Trucks	% Heavy Trucks	
Seagram Drive ^[1]	4,800	90	10	1.0	1.0	40
Albert Street ^[1]	10,400	90	10	1.0	1.0	50
Notes: [1] Based on data provided by the RMOW.						

Freight traffic volume for the CN Guelph Subdivision was obtained from previous assessments conducted by SLR for a nearby proposed development. A growth rate of 2.5% per annum was applied to the data, project from 2020 to 2035, and volumes were conservatively rounded up. The following summarizes the rail traffic volume used in the analysis.

Table 6: Summary of Rail Traffic Data Used in the Analysis

Train Type	Future Year 2035 No. of Trains		Typical No. of Locomotives	Typical No. of Cars (Consist)	Maximum Speed (km/h)
	Daytime	Nighttime			
Freight ^[1]	0	4	4	140	24
Notes: [1] Based on data obtained from CN and forecasted to the year 2035.					

Future (2035) railway traffic data for the ION LRT Passenger were obtained from the current schedule. Each LRT vehicle consists of three-wheel bogies (i.e., two electric motor bogies at the front and rear, and one in the middle) which have been conservatively modelled as three rail cars. Rail traffic data and calculations can be found in Appendix B. The following summarizes the light rail traffic volume used in the analysis.



Table 7: Summary of Light Rail Traffic Data Used in the Analysis

Train Type	Future Year 2035 No. of Trains		Typical No. of Cars (Consist)	Maximum Speed (km/h)
	Daytime	Nighttime		
ION LRT Passenger	244	32	3	60

The tracks are constructed of continuously welded rail throughout the study area. Anti-whistling bylaws are not in effect at the closest crossing and therefore freight train engine warning whistles are modelled.

2.4 Predicted Sound Levels

Future road traffic sound levels at the proposed development were predicted using the Cadna/A implementation ISO-9613-2: (1996) environmental noise propagation algorithms. Roadways were modelled as line sources of sound, with sound emission rates calculated using the ORNAMENT algorithms, the road traffic noise model of the MECF. These predictions were validated and are equivalent to those made using the MECF's ORNAMENT or STAMSON v5.04 road traffic noise models. STAMSON validation details, sample calculations, and Cadna/A sample calculations are included for reference in Appendix C.

Rail noise levels were modelled as line sources of sound using the U.S. Federal Railway Administration/ Federal Transit Administration ("FTA/FRA") noise emission and propagation algorithms in Cadna/A. The reference sound levels were used for diesel locomotives, rail cars, and train whistles.

A site visit on September 09, 2025, was conducted by SLR personnel to the Project site and surroundings.

Sound levels were predicted along the facades 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. OLA sound levels were assessed at a height of 1.5 m.

Global ground absorption was conservatively considered to be reflective ($G = 0.0$), and 1 m topographic contours for the Project site and surrounding area were included in the model.

2.4.1 Façade Sound Levels

Predicted worst-case façade sound levels due to road and rail traffic are presented in Table 8.

Total sound levels on the proposed development for daytime and nighttime periods are shown in Figure 2 (daytime) and Figure 3 (nighttime).



Table 8: Summary of Predicted Worst-Case Transportation Façade Sound Levels

Building Section	Façade ^[1]	Component Predicted Worst-Case Sound Level (dBA)		
		Road Traffic Sound Levels ^[1]	Rail Traffic Sound Levels ^[1]	Total Road and Rail Sound Levels ^{[1],[2]}
Daytime (7am to 11 pm)				
Podium (Ground Floor to 7th Floor)	Northeast	50	29	50
	Southeast	43	42	45
	Southwest	53	44	53
	Northwest	56	37	56
North Tower (8th Floor to 32nd Floor)	Northeast	51	29	51
	Southeast	46	41	47
	Southwest	49	40	49
	Northwest	55	39	56
South Tower (8th Floor to 32nd Floor)	Northeast	50	30	50
	Southeast	44	42	46
	Southwest	52	44	52
	Northwest	56	40	56
Night-time (11 pm to 7 am)				
Podium (Ground Floor to 7th Floor)	Northeast	44	43	46
	Southeast	37	57	57
	Southwest	46	58	58
	Northwest	49	52	53
North Tower (8th Floor to 32nd Floor)	Northeast	44	43	47
	Southeast	40	56	56
	Southwest	42	54	54
	Northwest	49	53	54
South Tower (8th Floor to 32nd Floor)	Northeast	43	44	47
	Southeast	37	57	57
	Southwest	45	59	59
	Northwest	49	54	55
Notes: [1] Sound levels presented above are the highest for the identified building façade. [2] Total worst-case façade sound levels may occur at different locations for Road and Rail sources. The worst-case total sound level for the façade is shown.				

The façade sound levels are predicted to be below the thresholds described in Table 4 at all locations within the proposed development, except for railway during the nighttime period.



An assessment of building components is only required for the affected facades and is assessed in Section 2.5 below.

2.4.2 Outdoor Living Area Sound Levels

The OLA of the proposed development requiring assessment is at 8th floor outdoor amenity space as shown in the proposed development drawings illustrated in Figure 4. The remainder of the terraces and amenity spaces do not quantify as OLAs.

Predicted OLA sound levels from the nearby roadways and railway are presented in Table 9 and shown in Figure 4.

Table 9: Summary of Predicted Transportation OLA Sound Levels

OLA Location	Total Road and Rail Predicted Sound Level, L_{eq} (16-hr), Daytime (dBA)
8th floor OLA (between the towers on the northwest side)	43

The predicted sound level at OLA is less than 55 dBA. Mitigation and warning clauses are therefore not required.

2.5 Noise Control Measures

2.5.1 Façade Assessment

An assessment of indoor sound levels is required because façade sound levels due to transportation noise are expected to exceed thresholds summarized in Table 4.

Indoor sound levels and required facade Sound Transmission Classes (STCs) were estimated using the procedures outlined in National Research Council Building Practice Note 56 (BPN-56). Detailed floor plans and elevation drawings were not available at the time of the assessment, and building massing is only conceptual. The preliminary façade requirements analysis is therefore based on the following assumptions, to provide an indication of required building components for the proposed development.

- Non-glazing portions of the exterior walls are assumed to have a rating of STC 45 (spandrel panel).
- For living/dining rooms, 70% of the exterior facade is vision glass/patio doors. Rooms are assumed to have intermediate absorption; and
- For bedrooms, 50% of the exterior wall is vision. Rooms are assumed to be very absorptive.

The worst-case building façade requirements based on the road traffic sound levels and assumptions listed above are outlined in Table 10.



Table 10: Summary of Façade Glazing Requirements for Proposed Development

Building Section	Façade	Non-Glazing Components ^[1]	Glazing STC Requirements ^[1]	
			Living/Dining Room	Bedroom
Podium (Ground Floor to 7th Floor)	Northeast	45	OBC	OBC
	Southeast		OBC	OBC
	Southwest		OBC	OBC
	Northwest		OBC	OBC
North Tower (8th Floor to 34th Floor)	Northeast		OBC	OBC
	Southeast		OBC	OBC
	Southwest		OBC	OBC
	Northwest		OBC	OBC
South Tower (8th Floor to 34th Floor)	Northeast		OBC	OBC
	Southeast		OBC	OBC
	Southwest		OBC	OBC
	Northwest		OBC	OBC
Notes: [1] OBC = meeting the minimum non-acoustical requirements of the Ontario Building Code, with a rating of STC 29 for windows.				

Corner rooms may have STC requirements up to +3 above those noted in the above table due to sound penetration through two façades.

At this design stage, the anticipated sound levels are expected to meet the minimum requirements of the OBC. The building façade requirements should be reviewed by an Acoustical Consultant when the detailed suite layouts and elevations are available later in the planning process.

2.5.2 Ventilation and Warning Clause Requirements

The triggers for warning clauses are summarized in Table 3 and supplementary documentation to the RMOW Noise Policy Implementation Guideline. Where required, the warning clauses should be included in agreements registered on Title for the residential units and included in all agreements of purchase and sale or lease and all rental agreements.

Based on the predicted façade sound levels, a warning clause and the provision for installing air conditioning at a later date is required for all residential suites in the proposed development. This typically takes the form of a forced air heating system that can be converted to air conditioning at the occupant's discretion. Though mechanical design has not progressed to the point of assessment, it is assumed the building will include air conditioning for all residences.

Ventilation and warning clause requirements are summarized in Appendix D.



3.0 Stationary Source Noise Assessment

A site visit to the Project site and surrounding area was completed by SLR personnel on September 09, 2025. The focus of the site visit was to identify nearby facilities with the potential for stationary source noise impacts at the proposed development. The site was found to be primarily surrounded by institutional and residential land uses.

There are no industrial facilities in proximity to the proposed development. Noise sources in the area requiring assessment were determined based on the MECP Guideline D-6 Potential Influence Areas. The Waterloo College Hall and the KW Granite Club are considered to be Class I industries, in which a 70 m influence area was applied for considering assessment of stationary sources. The closest Class II and Class III industries are located outside of the 300 m and 1000 m areas of influence, respectively. Therefore, no Class II or Class III industries have been considered in this assessment.

3.1 Stationary Source Modelling

Based on information obtained during the site visit, and a review of aerial photography, the sources of noise with the potential to produce noise at the proposed development have been identified. Sound levels for the sources were determined based on at-grade measurements collected during the site visit on September 09, 2025, and information contained in the SLR in-house database.

Modelled sources of noise include those within 70 m of the proposed development or associated with buildings located within 70 m. Modelled noise sources associated with the buildings included the following:

- Waterloo College Hall:
 - 3 x Rooftop HVAC (5-ton unit);
 - 4 x Rooftop HVAC (10-ton unit); and
 - Air Cooled Condenser (8 fan).
- Residential building on 181 Lester Street:
 - Rooftop HVAC (5-ton unit); and
 - Cooling Tower (1 fan).
- KW Granite Club:
 - 2 x Rooftop HVAC (5-ton unit);
 - Air Cooled Condenser (2 fan); and
 - Ground mounted Air Cooled Condenser (6 fan).
- Residential building on 85 Seagram Drive:
 - Rooftop HVAC (5-ton unit); and
 - 3 x Exhaust Fans.

Sound levels from stationary sources were modelled using Cadna/A, a software implementation of the internationally recognized ISO-9613-2 environmental noise propagation algorithms. Cadna/A / ISO-9613 is the preferred noise model 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; and
- Screening effects of buildings, terrain, and purpose-built noise barriers (noise walls, berms, etc.).

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

- Temperature: 10°C;
- Relative Humidity: 70%;
- Ground Absorption G: $G = 0.2$ (reflective) as the default global parameter. No localized ground absorption was considered in the assessment;
- Reflection: One (1) order of reflection was used (accounts for noise reflecting from walls);
- Wall Absorption Coefficients: Set to 0.21 or 0.37 (21%/37% of energy is absorbed, 79%/63% reflected); and
- Terrain: Topographical contours obtained from City of Waterloo Open Data Portal.

Sound level data from site visit source/spot-check measurements and generic SLR historical sound level data were applied in the stationary noise modelling assessment. Most surrounding noise sources are rooftop-mounted. One accessible ground-level source (air-cooled condenser for the KW Granite Club) was measured on site and included in the model. Sound levels for the rooftop sources could not be measured directly (as access was not granted), therefore generic SLR historical sound level data were applied for those sources in the assessment.

Modelled source sound levels include correction factors such that compliance at the existing 5 residences was demonstrated. A summary of the sound levels used in the analysis and equipment operating conditions is included in Appendix E. All stationary sources modelled are shown in Figure 5.

3.2 Stationary Source Noise Criteria

MECP guidelines for stationary source noise impacting residential developments are given in MECP Publication NPC-300. The applicable portions of NPC-300 are Part C – Land Use Planning and the associated definitions outlined in Part A – Background.

The acoustic environment surrounding the proposed development is generally dominated by roadway noise from Albert Street and Seagram Drive during all periods of the day. Therefore, the proposed development is considered to be located in a Class 1 area.

The sound level limits for steady sound sources are expressed as a 1-hr equivalent sound level (L_{eq} (1 hr) values, in dBA) and is the higher of the NPC-300 exclusionary limits and the existing background sound level. The NPC-300 stationary source guidelines for a Class 1 Area are summarized in Table 11 for steady sound sources.



Table 11: NPC-300 Class 1 Continuous (Steady, Non-Impulsive) Sound Level Limits

Point of Reception Category	Time Period	Minimum Exclusionary Sound Level Limit $L_{eq}(1\text{-hr})$, dBA ^[1]
Outdoors	Daytime (0700-1900h) Evening (1900-2300h) Nighttime (2300-0700h)	50 50 N/A ^[3]
Plane of Window ^[2]	Daytime (0700-1900h) Evening (1900-2300h) Nighttime (2300-0700h)	50 50 45
Notes: [1] Or minimum hourly L_{eq} of background noise; whichever is higher. [2] Applicable for windows opening into "noise-sensitive spaces" as defined in NPC-300. [3] Sound level limits during night-time hours are not applicable at outdoor points of reception.		

The Class 1 minimum exclusionary limits were applied in the assessment.

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

3.3 Predicted Stationary Source Sound Levels

The "building evaluation" feature of Cadna/A was used to assess facade sound levels on the residential portions of the proposed development podiums and towers. This feature allows for noise levels to be predicted across the entire façade of a structure. Outdoor sound levels were assessed at a height of 1.5 m above the 8th floor rooftop amenity area.

3.3.1 Façade Sound Levels - Unmitigated

A summary of the predicted sound levels on each façade due to simultaneous operation of all modelled stationary sources are shown in

Table 12, summarized in Figure 6 (daytime / evening), and Figure 7 (nighttime), respectively.

Table 12: Summary of Predicted Stationary Source Façade Sound Levels - Unmitigated

Project Building	Façade	Predicted Sound Levels ^[1] L_{eq} (1-hr) (dBA)	Applicable Sound Level Limit $L_{eq}(1\text{-hr})$ (dBA)	Compliance with Applicable Limit? (D/E/N)
		Daytime/Evening/Nighttime	Day/Eve/Night	(Y/N)
Podium (Ground Floor to 7th Floor)	Northeast	57 / 57 / 56	50 / 50 / 45	N / N / N
	Southeast	45 / 45 / 44	50 / 50 / 45	Y / Y / Y
	Southwest	46 / 46 / 46	50 / 50 / 45	Y / Y / N
	Northwest	49 / 49 / 47	50 / 50 / 45	Y / Y / N
North Tower (8th Floor to 34th Floor)	Northeast	53 / 53 / 52	50 / 50 / 45	N / N / N
	Southeast	40 / 40 / 39	50 / 50 / 45	Y / Y / Y
	Southwest	50 / 50 / 50	50 / 50 / 45	Y / Y / N
	Northwest	51 / 51 / 51	50 / 50 / 45	N / N / N



Project Building	Façade	Predicted Sound Levels ^[1] L _{eq} (1-hr) (dBA)	Applicable Sound Level Limit L _{eq} (1-hr) (dBA)	Compliance with Applicable Limit? (D/E/N)
		Daytime/Evening/Nighttime	Day/Eve/Night	(Y/N)
South Tower (8th Floor to 34th Floor)	Northeast	47 / 47 / 45	50 / 50 / 45	Y / Y / Y
	Southeast	45 / 45 / 45	50 / 50 / 45	Y / Y / Y
	Southwest	51 / 51 / 51	50 / 50 / 45	N / N / N
	Northwest	52 / 52 / 52	50 / 50 / 45	N / N / N
8th floor terrace	OPOR-1 (between the towers on the northwest side)	47 / 47 / - ^[2]	50 / 50 / - ^[2]	Y / Y / - ^[2]

Notes: [1] The highest predicted sound level at the façade is presented.
[2] Outdoor points of reception are not assessed during the nighttime period.

3.3.2 Discussion of Results and Mitigation Measures

The predicted excess of the applicable limits is caused by several of the offsite surrounding mechanical unit operations at the proposed development. A preliminary review of feasible mitigation options was undertaken as discussed in the following sections.

3.3.3 Source-Based Noise Controls

The excess of the sound level limits at the proposed development is predicted to be caused by the following sources:

- Residential building on 85 Seagram Dr.
 - Rooftop HVAC (5-ton unit); and
 - 3 x Exhaust Fan.
- Waterloo College Hall
 - 3 x Rooftop HVAC (10-ton unit) on the southeast side; and
 - Air Cooled Condenser (8 fan).

Actual sound level measurements for the above units could not be completed as part of this study (as access was not granted). It is recommended that actual measurements be conducted for the above units in the future to verify actual source sound levels. As modelled in this assessment, compliance with the applicable limits can be achieved by the following maximum source sound levels:

- Residential building on 85 Seagram Drive:
 - Maximum Sound Power Level of 68 dBA on the Rooftop HVAC (5-ton unit); and
 - Maximum Sound Power Level of 64 dB the three (3) Exhaust Fans.



- Waterloo College Hall:
 - Maximum Sound Power Level of 85 dBA on the Air-Cooled Condenser (8 fan); and
 - Maximum Sound Power Level of 80 dBA on the three (3) Rooftop HVAC (10-ton units).

This amount of sound level reduction can normally be achieved through a variety of measures such as one or more of the following; the installation of low noise fans, compressor blankets, relocation of the units further away from the proposed development or selection of a new quieter unit. These measures can be proposed to neighbouring building owners at a later stage if determined to be required based on the results of more detailed studies.

The “building evaluation” feature of the Cadna/A was used to assess noise impacts on the proposed re-development. Mitigated stationary noise impacts were predicted with “building evaluations” and shown in Figures 8 and 9 for the daytime/evening and night-time periods, respectively.

With the inclusion of the above proposed mitigation measures, the predicted sound levels at the proposed development due to the surroundings are predicted to meet the application limits during all periods of the day.

An MECP Type E warning clause is recommended for all residential units due to the proximity of the proposed development to nearby noise sources.

3.3.4 Receiver-Based Noise Controls

The following is summary of the possible development (i.e., receptor-based) noise controls considered to address excesses from nearby stationary sources.

Site Configuration

- Increase set back distances of residential units to offsite surrounding mechanical equipment. Given the surrounding mechanical equipment are on three sides of the development, this option would not be technically feasible. This does not meet code or zoning requirements as indicated by the Client.

Blank Facades or Single Loaded Corridors

- Blank facades (no noise sensitive spaces “facing” towards the stationary noise sources) or single loaded corridors (the main hallway access is located along the exterior wall of the building facing the stationary noise sources) for the sides of the building facing the offsite mechanical units. This would reduce the total number of units within the development and may not be economically feasible. This does not meet code or zoning requirements as indicated by the Client.

Acoustic Wall

- The design of an acoustic wall on the Project lands, would not be technically feasible.

Class 4 Designation

“Class 4 area classification is based on the principle of formal confirmation of the classification by the land use planning authority. Such confirmation would be issued at the discretion of the land use planning authority and under the procedures developed by the land use planning authority, in the exercise of its responsibility and authority under the Planning Act.



The following considerations apply to new noise sensitive land uses proposed in a Class 4 area:

- an appropriate noise impact assessment should be conducted for the land use planning authority as early as possible in the land use planning process that verifies that the applicable sound level limits will be met;
- noise control measures may be required to ensure the stationary source complies with the applicable sound level limits at the new noise sensitive land use;
- noise control measures may include receptor-based noise control measures and/or source-based noise control measures;
- source based noise control measures may require an MECP approval;
- receptor based noise control measures may require agreements for noise mitigation, as described in Part A of this guideline;
- prospective purchasers should be informed that this dwelling is in a Class 4 area through appropriate means and informed of the agreements for noise mitigation. Registration on title of the agreements for noise mitigation is recommended. Additionally, registration on title of an appropriate warning clause to notify purchasers that the applicable Class 4 area sound level limits for this dwelling are protective of indoor areas and assume of closed windows, such as warning clause F in Section C8.3 is also recommended; and
- any final agreements for noise mitigation as described in Part A of this guideline and all other relevant documentation are to be submitted to the MECP by the stationary source owner(s) when applying for an MECP approval. These agreements will be assessed during the review of the application for MECP approvals.”
- The Project meets the definitions and requirements for a Class 4 area listed in Publication NPC-300:
- the Project site is close proximity to an area that contains existing and proposed mixed-use developments and is intended for new high-intensity developments.
- the Project site is in proximity to existing lawfully established noise generating sources.
- the Project site does not contain existing noise-sensitive land-uses.
- An appropriate, detailed noise impact assessment will be conducted as part of the zoning by-law amendment application (i.e., this study and report).

Therefore, it could be appropriate for the Municipal Authority to declare the development property as a Class 4 area, under their role as the land use planning authority, in the exercise of its responsibility and authority under the Planning Act.

The table below set out the exclusion limits from the guideline for continuous, non-impulsive sounds in Class 4 areas.



Table 13: Class 4 NPC-300 Exclusion Limits for Non-Impulsive Sounds (L_{eq} (1-hr), dBA)

Receiver Category	Time Period	Class 4 Area Exclusionary Sound Level Limits (L_{eq} (1-hr), dBA) ^[1]
Outdoor	0700-1900h	55
	1900-2300h	55
	2300-0700h	-
Plane of Window ^[2]	0700-1900h	60
	1900-2300h	60
	2300-0700h	55
Notes: [1] Tables values or minimum hourly L_{eq} of background noise, whichever is higher. [2] Applicable for "Noise Sensitive Spaces", as defined in NPC-300.		

Based on a preliminary assessment of stationary noise impacts (as presented in Table 12), the predicted sound levels are predicted to meet the applicable Class 4 exclusionary guideline limits. The OPOR for the site is also in compliance with the applicable Class 4 limits. No additional noise mitigation measures are required.

A MECP Type F noise warning clause is recommended. See Appendix D for warning clause details.

Part 2: Impacts of The Development on Itself

4.0 Stationary Source Noise from the Development on Itself

At the time of this assessment, mechanical systems for the proposed development have not been sufficiently designed to complete a detailed assessment of stationary source noise from the development on itself.

For common mechanical systems that will be implemented as part of the proposed development, sound levels from all noise-generating equipment should comply with the guideline limits in MECP Publication NPC-300. The potential noise from mechanical equipment in the proposed development (such as from make-up air units, cooling towers, parking garage exhaust fans, emergency generators, etc.) should be assessed as part of the final building design. The applicable criteria can be met at all on-site 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. This can be confirmed either later in the site plan approval process, or at the building permit approval stages.

If individual air conditioning systems are to be implemented for individual residential units within the proposed development, the sound levels from each unit should meet the requirements of MECP Publication NPC-216.

It is recommended that the mechanical systems be reviewed by an acoustical consultant prior to final equipment selection.



Part 3: Impacts of The Development on The Surrounding Area

5.0 Stationary Source Noise from the Development on the Surroundings

With respect to the acoustic environment of the area, it is expected that the proposed development will have a negligible effect on neighbouring noise-sensitive properties.

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 potential transportation noise.

Other sources associated within the proposed development with the potential to generate noise are mechanical equipment (e.g., air conditioning units, make up air units, cooling units, and parking garage exhaust fans). Sound levels due to operation of these sources should meet MECP Publication NPC-300 noise guidelines at all off-site noise sensitive receptors.

Off-site sound levels are not expected to be of concern are not anticipated because systems will be designed to ensure that the applicable noise guidelines are met at on-site receptors.

Regardless, off-site sound levels from mechanical equipment should be assessed as part of the final building designs. The applicable criteria can be met at all surrounding receptors though the use of routine mitigation measures, including the appropriate selection of mechanical equipment, by locating equipment with sufficient setback from noise sensitive locations, and by incorporating control measures (e.g., silencers, barriers) into the designs.

If individual air conditioning systems are to be implemented for individual residential units within the proposed development, the sound levels from each unit should meet the requirements of MECP Publication NPC-216.

It is recommended that the mechanical systems be reviewed by an acoustical consultant prior to final selection of equipment.

6.0 Conclusions and Recommendations

The potential for noise impacts on and from the proposed development have been assessed. Impacts of the environment on the development, the development on itself, and the development on the surrounding area have been considered. Based on the results of this assessment, the following conclusions have been reached:

Transportation Noise

- An assessment of transportation sound levels from surrounding roadways has been completed.
- Based on transportation façade sound levels, exterior wall and window (glazing) construction meeting the minimum non-acoustical requirements of the OBC are expected to be sufficient to meet MECP indoor transportation noise guidelines.
- Ventilation and warning clause recommendations are outlined in Section 2.5.2.
 - The provision for installing air conditioning at a later date and a warning clause are recommended for all suites within the proposed development. It is assumed the building will include air conditioning and this clause will be met.



- Warning clauses should be included in agreements registered on Title for the residential units and included in agreements of purchase and sale/rental agreements.
 - Warning clauses are summarized in Appendix D.

Stationary Source Noise

- An assessment of stationary noise has been completed, as outlined in Section 3. Various mitigation measures are described in Section 3.3. The two main alternatives are:
 - Verification of offsite mechanical equipment sound levels and appropriate noise mitigation measures to meet maximum sound power level of units, or
 - A Class 4 designation can be sought for the proposed development and compliance can be demonstrated without the further assessment of offsite sources of mechanical noise.
- Type E and / or F noise warning clauses are required. Warning clauses are summarized in Appendix D.

Overall Assessment

- Impacts of the environment on the proposed development can be adequately controlled through the feasible mitigation measures, façade designs, and warning clauses detailed in Part 1 of this report.
- Impacts of the proposed development on the surrounding area are anticipated to be negligible and can be adequately controlled by following the design guidance outlined in Part 2 of this report.
- Impacts of the proposed development on itself are anticipated to be negligible and can be adequately controlled by following the design guidance outlined in Part 3 of this report.
- As the mechanical systems for the proposed development have not been designed at the time of this assessment, the acoustical requirements above should be confirmed by an Acoustical Consultant as part of the final building design.

7.0 Closure

Regards,

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1 electronic copy – SLR Consulting (Canada) Ltd.



8.0 References

- Federation of Canadian Municipalities and the Railway Association of Canada, Guidelines for New Development in Proximity to Railway Operations, 2013.
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- Ontario Ministry of the Environment, Conservation and Parks, 1989, Ontario Road Noise Analysis Method for Environment and Transportation (ORNAMENT).
- Ontario Ministry of the Environment, Conservation and Parks, Publication NPC-300: Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning, 2013.
- Ontario Ministry of the Environment, Conservation and Park, STAMSON v5.04: Road, Rail and Rapid Transit Noise Prediction, 1996.
- Ontario Ministry of the Environment and Energy, Publication NPC-216: Residential Air Conditioning Devices, 1993.





Figures

Environmental Noise Assessment

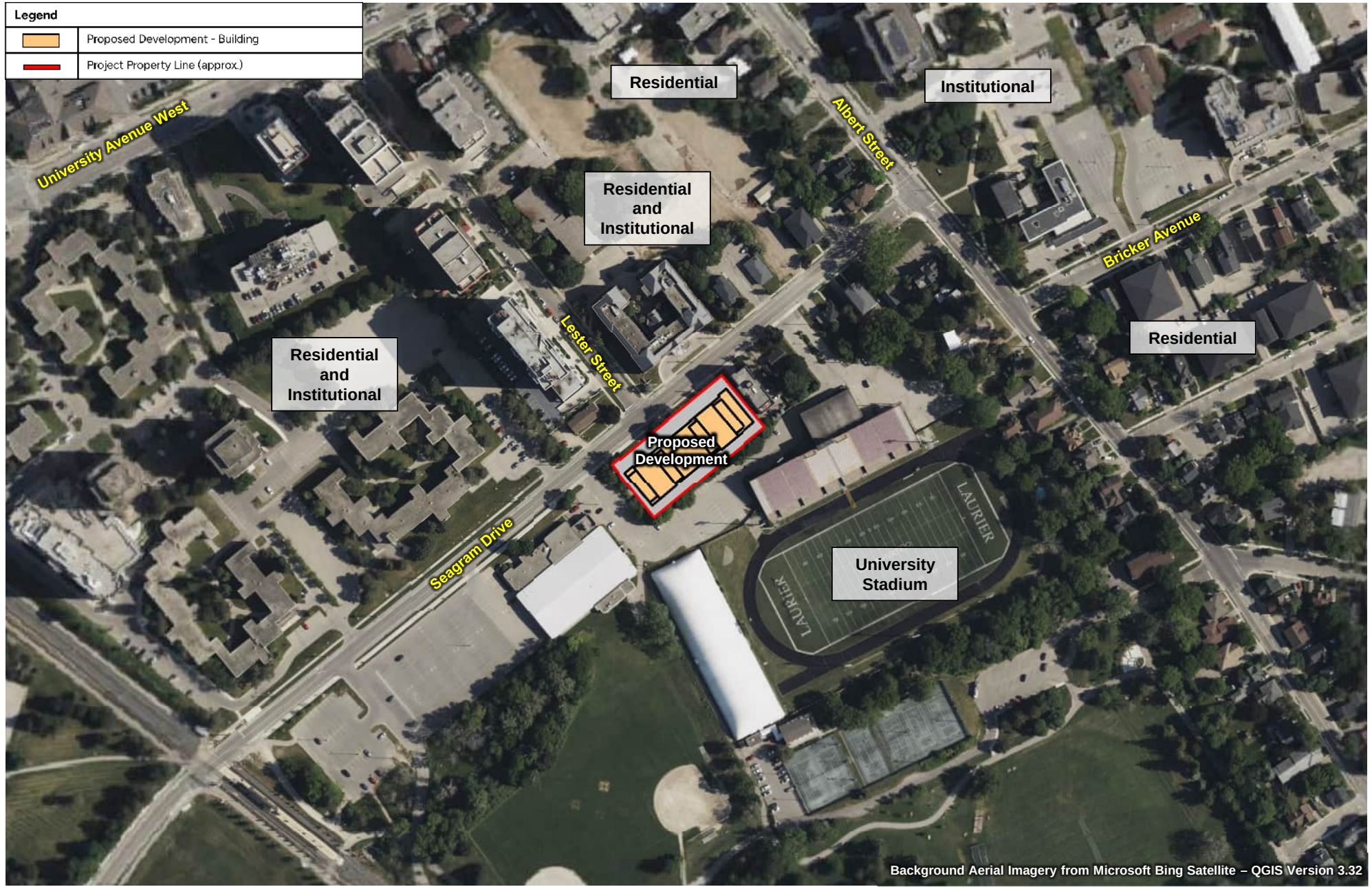
87-95 Seagram Drive, Waterloo

Masri O Inc. Architects

SLR Project No.: 241.031930.00001

December 15, 2025

Legend	
	Proposed Development - Building
	Project Property Line (approx.)



MASRI O INC. ARCHITECTS
87-95 SEAGRAM DRIVE, WATERLOO
CONTEXT PLAN

	Scale:	1:3,000	METRES
	Date: Dec. 2025	Rev. 1	Figure No.
	Project No.		1
	241.031930.00001		



Legend	
	Proposed Development - Building
	Project Property Line (approx.)
	Façade Sound Level (dBA) (see below Legend)
	Line Source (Road)

Sound Level Legend	
	< 30 dBA
	≥30 ... ≤40 dBA
	≥41 ... ≤45 dBA
	≥46 ... ≤50 dBA
	≥51 ... ≤55 dBA
	≥56 ... ≤60 dBA
	≥61 ... ≤65 dBA
	≥66 ... ≤70 dBA
	≥71 ... ≤75 dBA



Background Aerial Imagery from Microsoft Bing Satellite – QGIS Version 3.32

MASRI O INC. ARCHITECTS

87-95 SEAGRAM DRIVE, WATERLOO

PREDICTED FAÇADE SOUND LEVELS – ROAD AND RAIL TRAFFIC – DAYTIME

True North



Scale:

1:500

METRES

Date: Dec. 2025

Rev. 1

Figure No.

2

Project No.
241.031930.00001



Legend	
	Proposed Development - Building
	Project Property Line (approx.)
	Façade Sound Level (dBA) (see below Legend)
	Line Source (Road)

Sound Level Legend	
	< 30 dBA
	≥30 ... ≤40 dBA
	≥41 ... ≤45 dBA
	≥46 ... ≤50 dBA
	≥51 ... ≤55 dBA
	≥56 ... ≤60 dBA
	≥61 ... ≤65 dBA
	≥66 ... ≤70 dBA
	≥71 ... ≤75 dBA



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87-95 SEAGRAM DRIVE, WATERLOO

PREDICTED FAÇADE SOUND LEVELS – ROAD AND RAIL TRAFFIC – NIGHT-TIME

True North



Scale:

1:500

METRES

Date: Dec. 2025

Rev. 1

Figure No.

Project No.
241.031930.00001

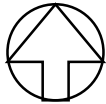
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Legend	
	Proposed Development - Building
	Project Property Line (approx.)
	Outdoor Assessment Location
	Line Source



Background Aerial Imagery from Microsoft Bing Satellite – QGIS Version 3.32

MASRI O INC. ARCHITECTS 87-95 SEAGRAM DRIVE, WATERLOO PREDICTED OUTDOOR LIVING AREA SOUND LEVELS – ROAD TRAFFIC – DAYTIME	True North 	Scale: 1:500		METRES	
		Date: Dec. 2025	Rev. 1	Figure No.	
		Project No. 241.031930.00001		4	



MASRI O INC. ARCHITECTS

87-95 SEAGRAM DRIVE, WATERLOO

SURROUNDING STATIONARY SOURCE LOCATIONS

True North



Scale:

1:1,500

METRES

Date: Dec. 2025

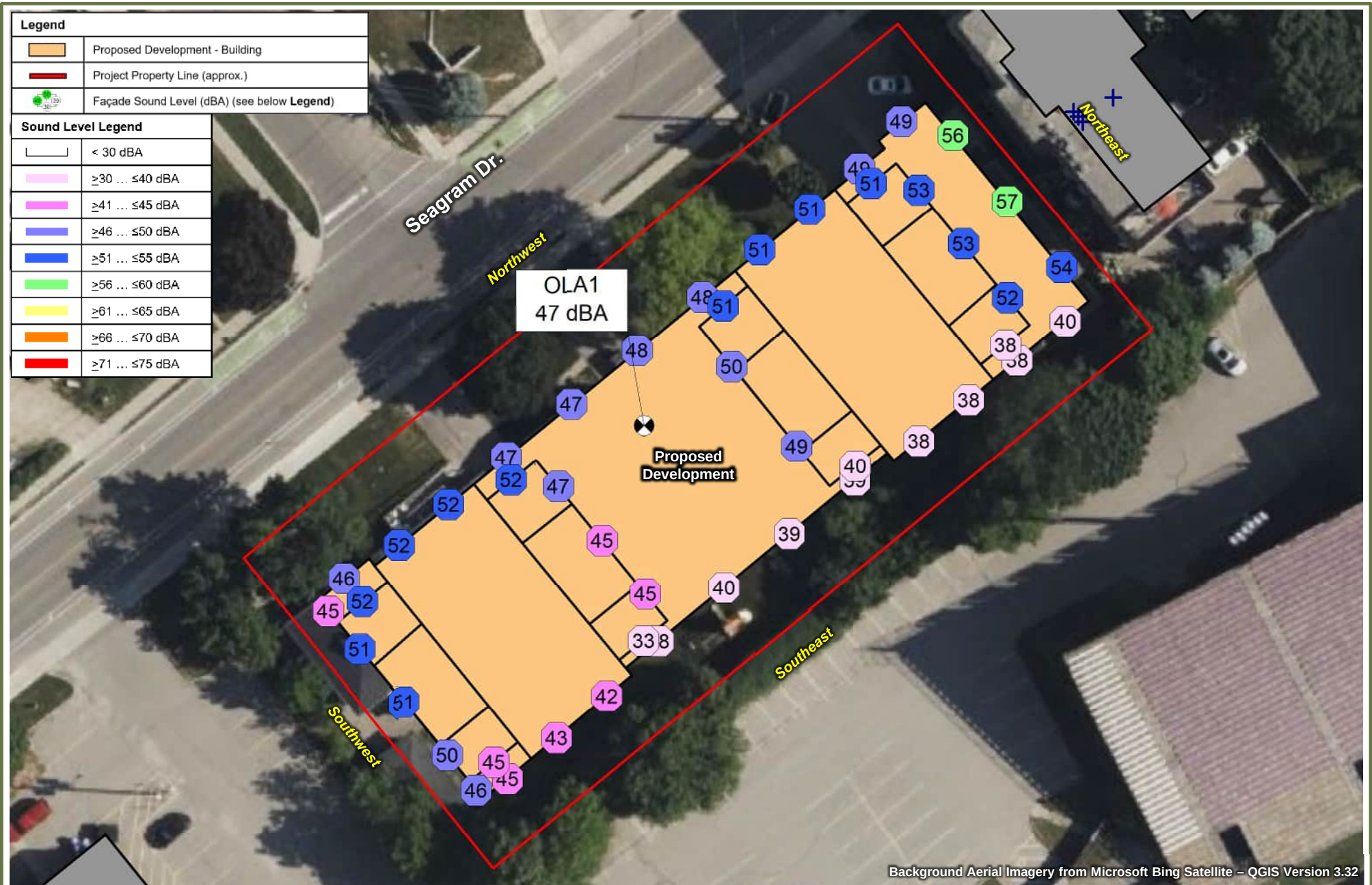
Rev. 1

Figure No.

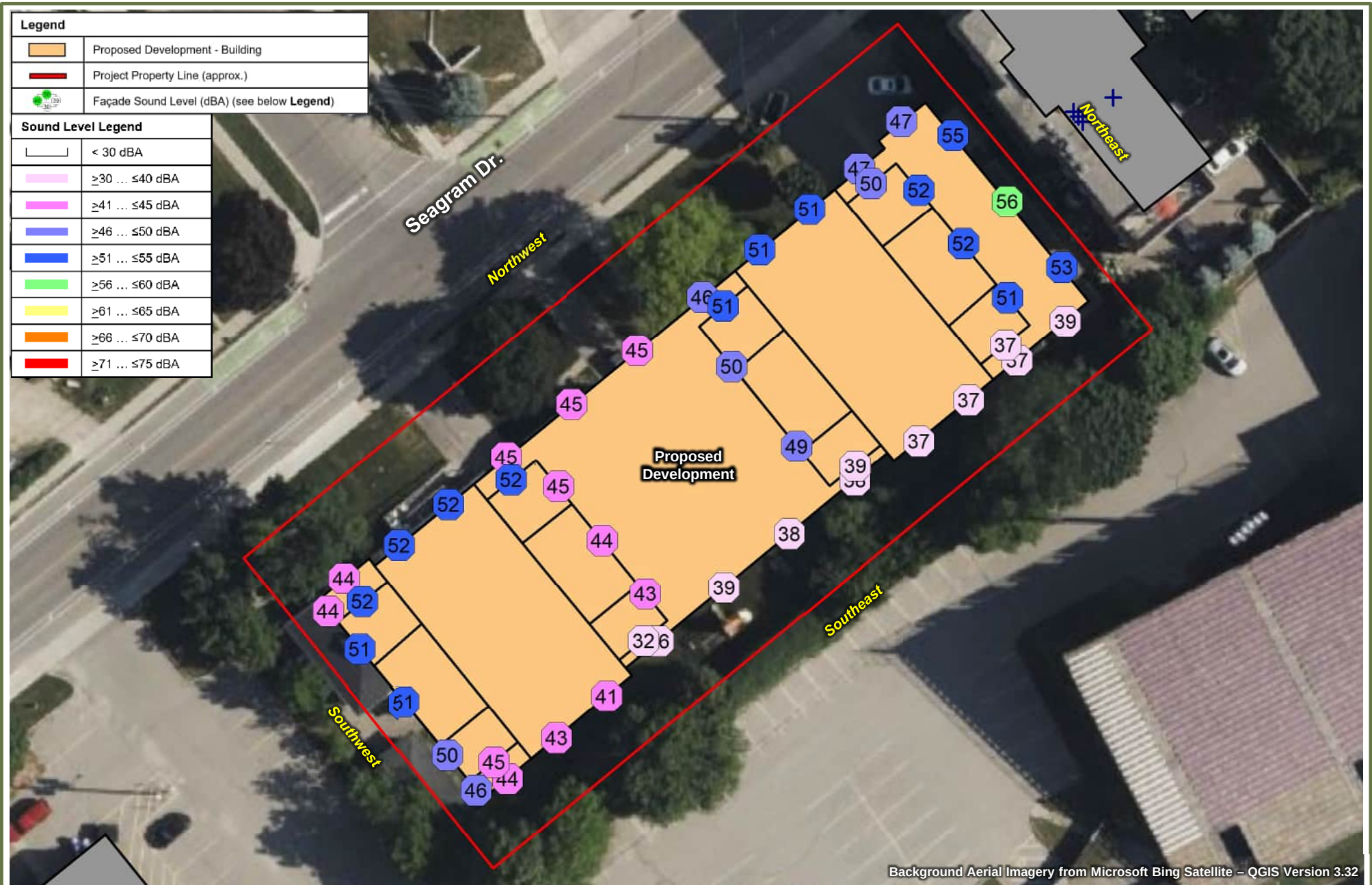
Project No.
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5





MASRI O INC. ARCHITECTS	True North 	Scale: 1:500		METRES	
87-95 SEAGRAM DRIVE, WATERLOO		Date: Dec. 2025	Rev. 1	Figure No. 6	
PREDICTED FAÇADE SOUND LEVELS – STATIONARY SOURCES – DAYTIME/EVENING - UNMITIGATED		Project No. 241.031930.00001			



MASRI O INC. ARCHITECTS	True North 	Scale: 1:500		METRES	
87-95 SEAGRAM DRIVE, WATERLOO		Date: Dec. 2025	Rev. 1	Figure No. 7	
PREDICTED FAÇADE SOUND LEVELS – STATIONARY SOURCES – NIGHT-TIME - UNMITIGATED		Project No. 241.031930.00001			

Legend	
	Proposed Development - Building
	Project Property Line (approx.)
	Outdoor Assessment Location



Background Aerial Imagery from Microsoft Bing Satellite – QGIS Version 3.32

MASRI O INC. ARCHITECTS

87-95 SEAGRAM DRIVE, WATERLOO

SURROUNDING STATIONARY NOISE – FAÇADE SOUND LEVELS –
DAYTIME/EVENING - MITIGATED

True North



Scale:

1:500

METRES

Date: Dec. 2025

Rev. 1

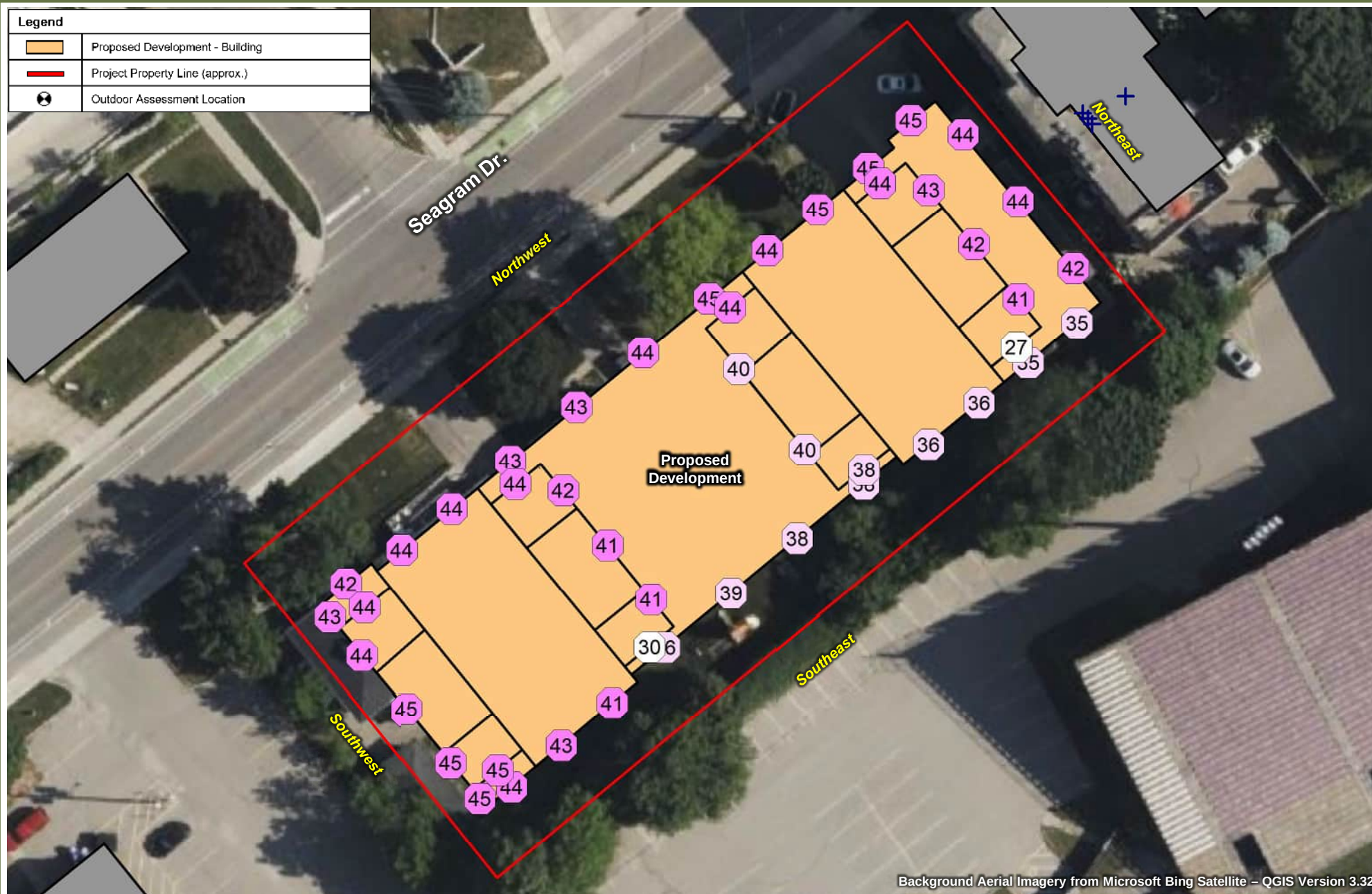
Figure No.

8

Project No.
241.031930.00001



Legend	
	Proposed Development - Building
	Project Property Line (approx.)
	Outdoor Assessment Location



Background Aerial Imagery from Microsoft Bing Satellite – QGIS Version 3.32

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87-95 SEAGRAM DRIVE, WATERLOO

SURROUNDING STATIONARY NOISE – FAÇADE SOUND LEVELS – NIGHT-TIME -
MITIGATED

True North



Scale:

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METRES

Date: Dec. 2025

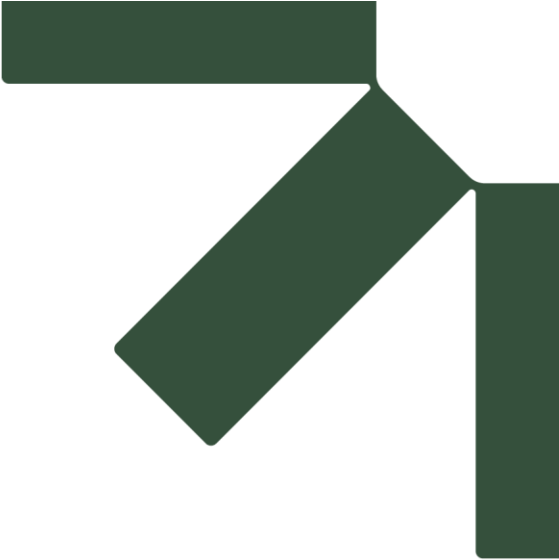
Rev. 1

Figure No.

Project No.
241.031930.00001

9





Appendix A Development Drawings

Environmental Noise Assessment

87-95 Seagram Drive, Waterloo

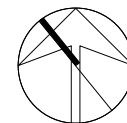
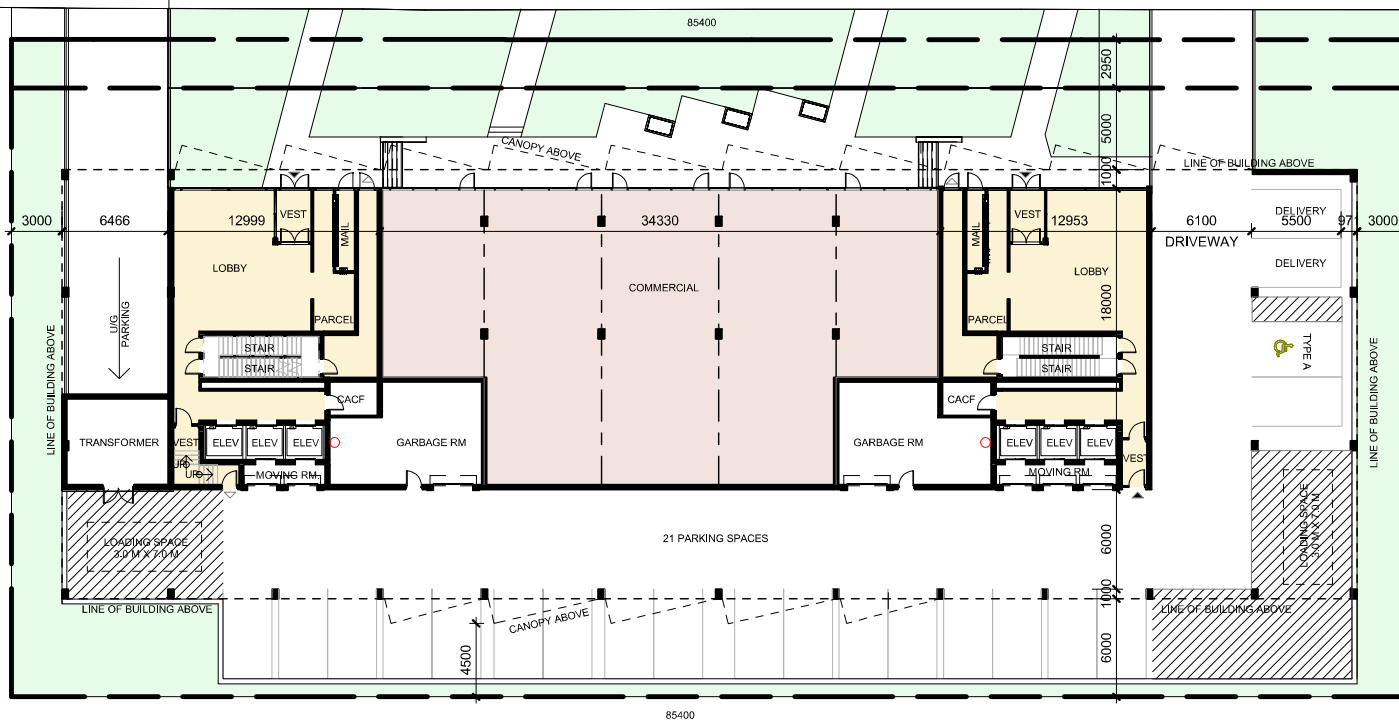
Masri O Inc. Architects

SLR Project No.: 241.031930.00001

December 15, 2025

SEAGRAM DRIVE

LEGEND	
	RESIDENTIAL
	COMMERCIAL
	AMENITY - LOUNGE
	AMENITY - FITNESS
	AMENITY - STUDY AREA



SITE PLAN
SCALE: 1 : 300

MIXED USE BUILDING

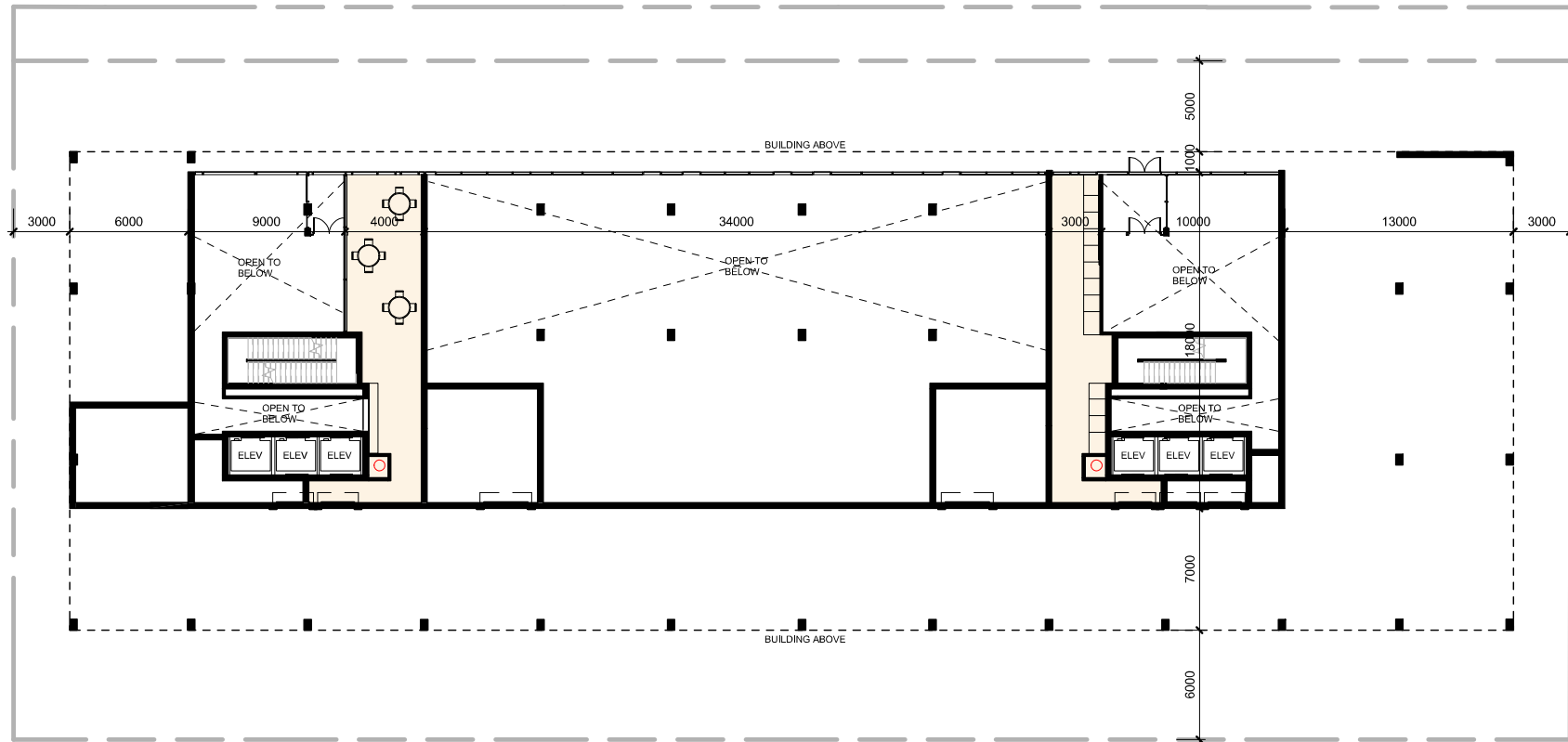
87-95 SEAGRAM DRIVE,
WATERLOO
2025.08.25



MODERN
REAL ESTATE
DEVELOPMENT

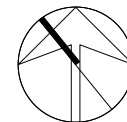


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MEZZANINE FLOOR PLAN

SCALE: 1 : 250



MIXED USE BUILDING

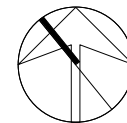
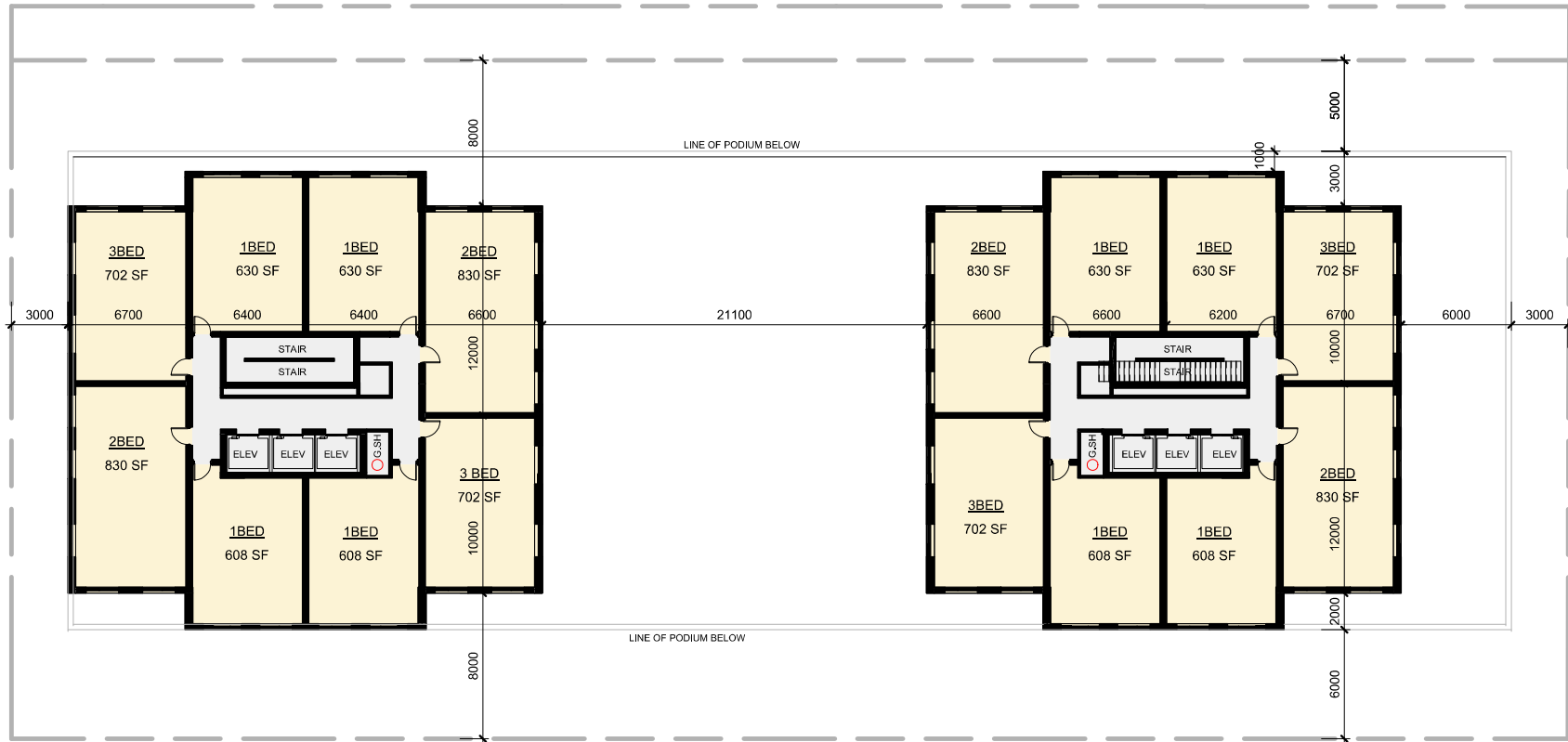
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8TH-29TH FLOOR PLAN

SCALE: 1 : 250

MIXED USE BUILDING

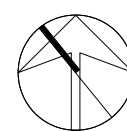
87-95 SEAGRAM DRIVE,
WATERLOO
2025.08.25



MODERN
REAL ESTATE
DEVELOPMENT

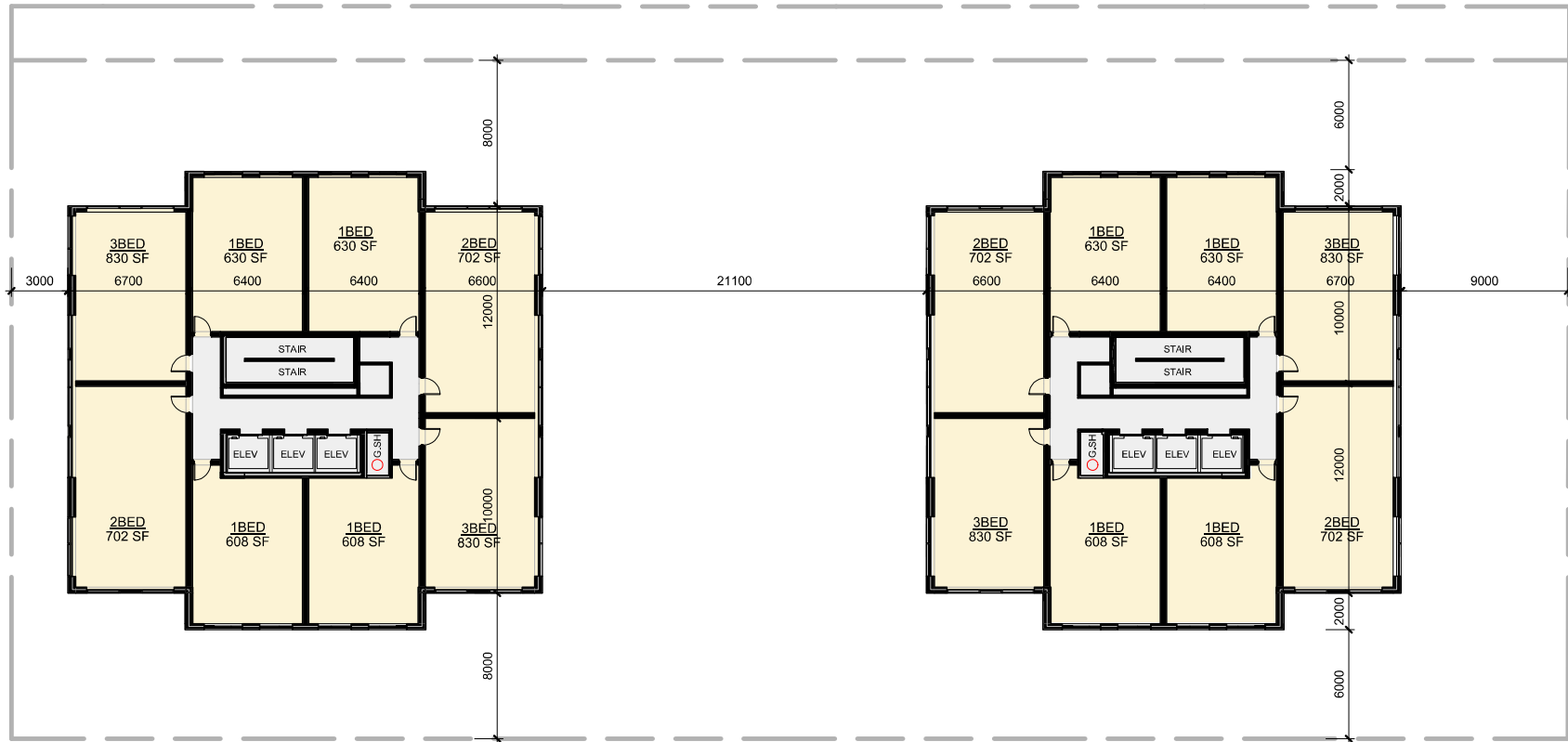


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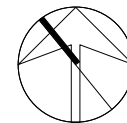


SCALE: 1 : 250

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30TH-31ST FLOOR PLAN
SCALE: 1 : 250



MIXED USE BUILDING

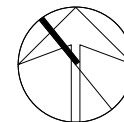
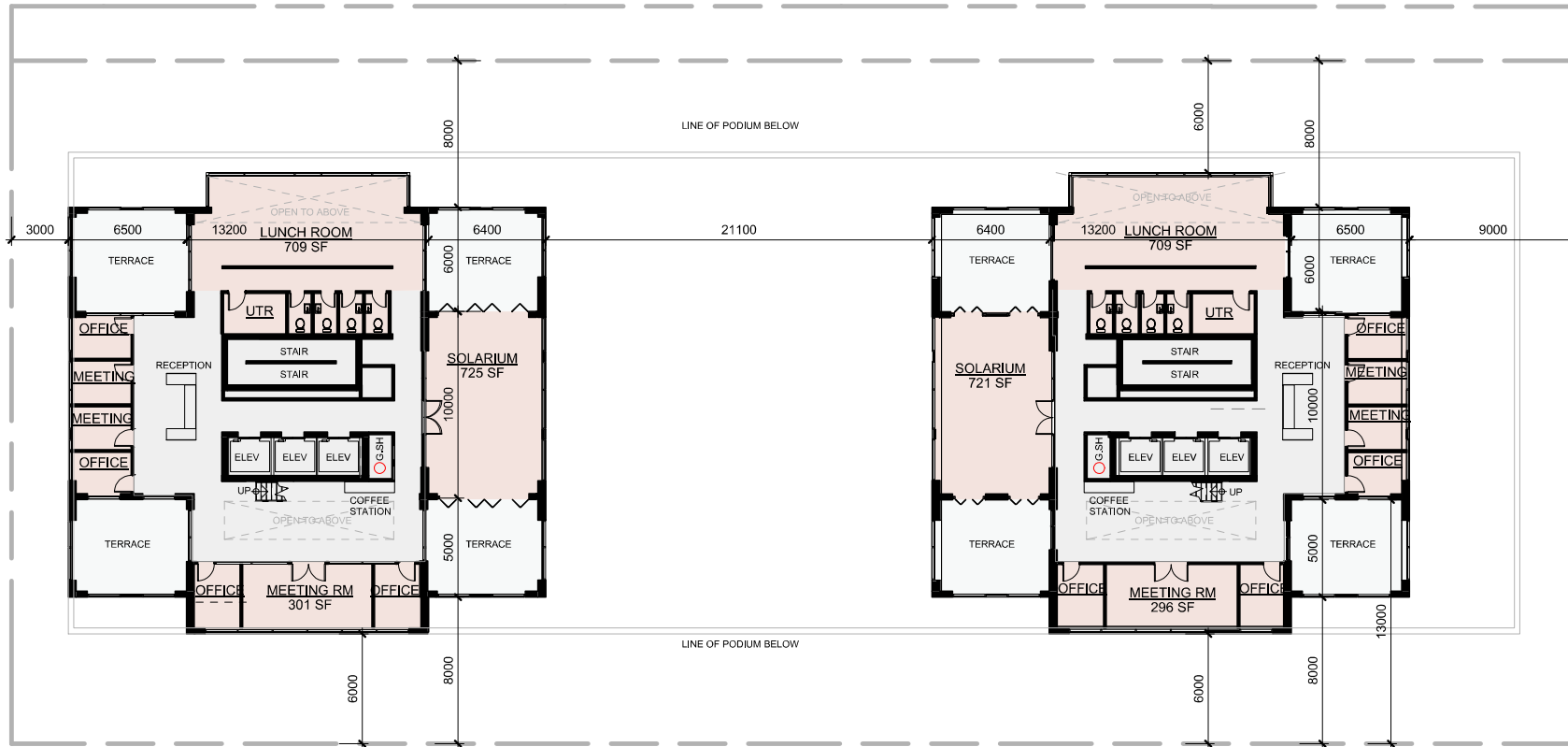
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2025.08.25



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32ND FLOOR PLAN

SCALE: 1 : 250

MIXED USE BUILDING

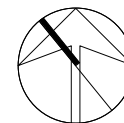
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2025.08.25



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33RD FLOOR PLAN

SCALE: 1 : 250

MIXED USE BUILDING

87-95 SEAGRAM DRIVE,
WATERLOO
2025.06.03



MODERN
REAL ESTATE
DEVELOPMENT

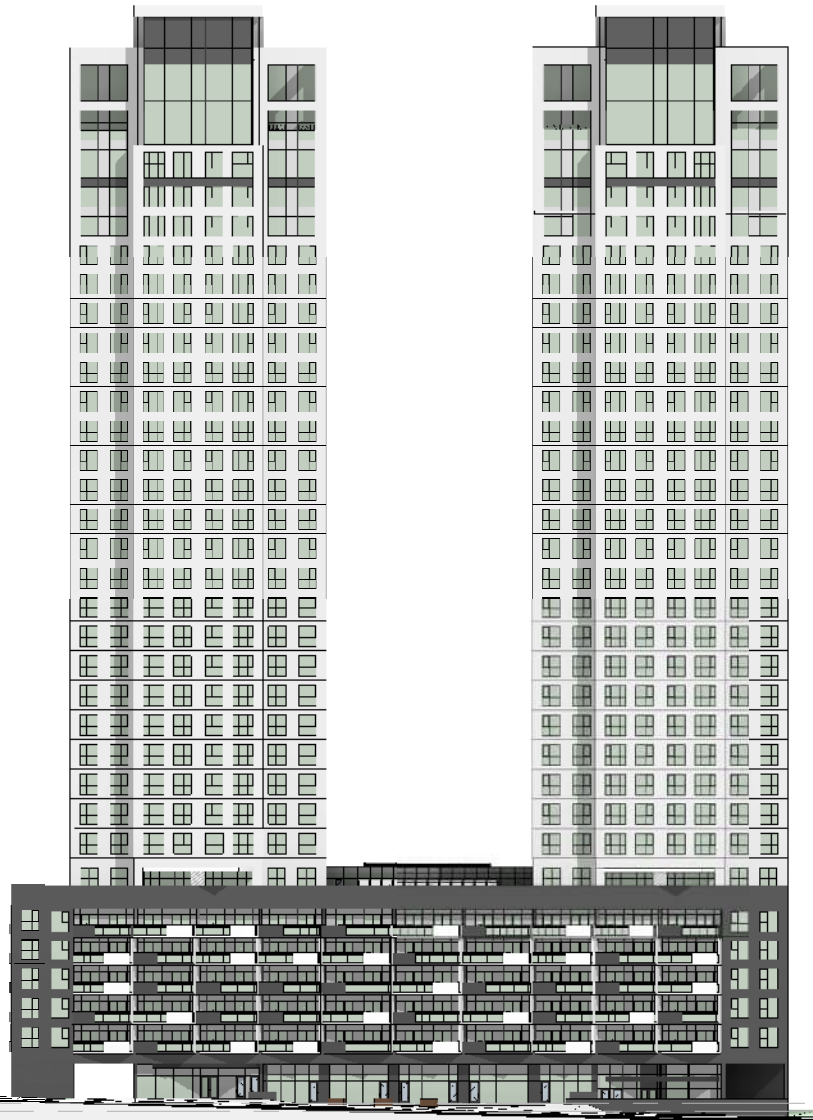


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ROOF	
33TH FLOOR	4700
32TH FLOOR	4400
31TH FLOOR	3700
30TH FLOOR	3000
29TH FLOOR	3000
28TH FLOOR	3000
27TH FLOOR	3000
26TH FLOOR	3000
25TH FLOOR	3000
24TH FLOOR	3000
23TH FLOOR	3000
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12TH FLOOR	3000
11TH FLOOR	3000
10TH FLOOR	3000
9TH FLOOR	3000
8TH FLOOR	3000
7TH FLOOR	4200
6TH FLOOR	3700
5TH FLOOR	3000
4TH FLOOR	3000
3RD FLOOR	3000
2ND FLOOR	3000
T/O GROUND FLOOR	4800
334,750	
T/O COMM-GROUND	800
334,300	
T/O LOWER GROUND	
333,500	

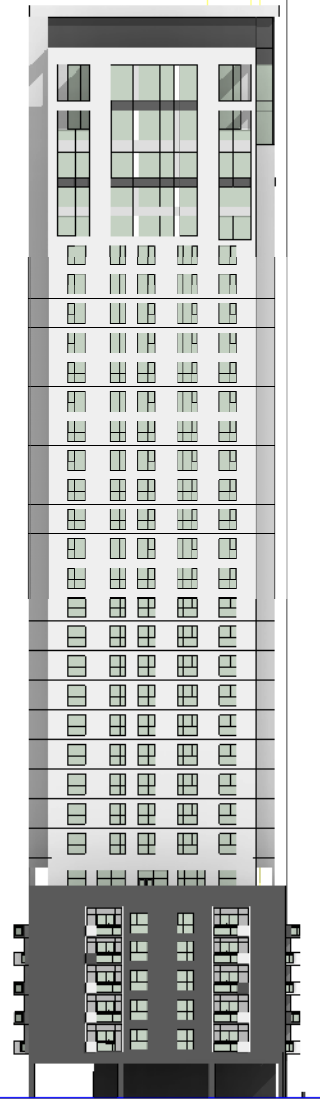
NORTH ELEVATION

SCALE: 1 : 500



EAST ELEVATION

SCALE: 1 : 500



ELEVATIONS

MIXED USE BUILDING

87-95 SEAGRAM DRIVE,
WATERLOO
2025.06.03



MODERN
REAL ESTATE
DEVELOPMENT



MASRI O Inc.
ARCHITECTS
101-609 KUMPF DRIVE
WATERLOO, ON, N2V 1K8
PH: 519.579.0072
www.masriarchitects.ca



SOUTH ELEVATION
SCALE: 1 : 500

WEST ELEVATION
SCALE: 1 : 500

ELEVATIONS

MIXED USE BUILDING

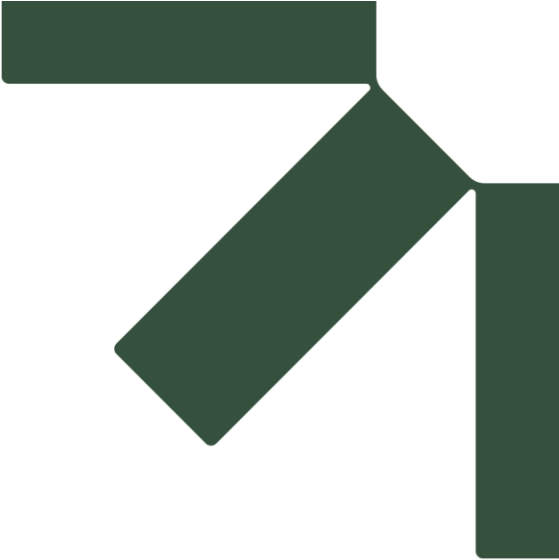
87-95 SEAGRAM DRIVE,
WATERLOO
2025.06.03



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Appendix B Traffic Data and Calculations

Environmental Noise Assessment

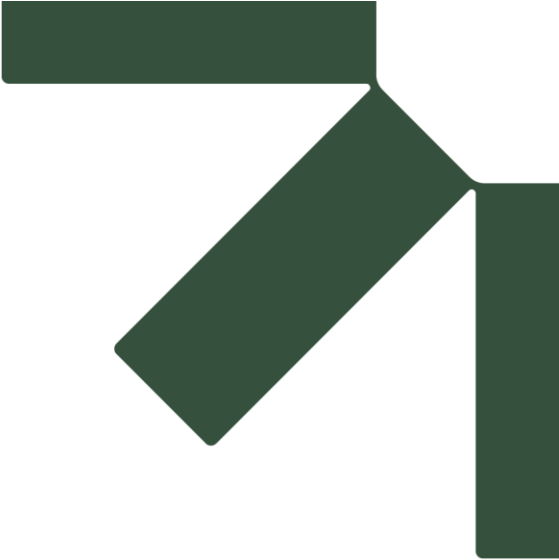
87-95 Seagram Drive, Waterloo

Masri O Inc. Architects

SLR Project No.: 241.031930.00001

December 15, 2025

Region of Waterloo AADT Forecast for Noise Studies		
1. Development/Location	87 Seagram Dr	
2. Current AADT (2025)	Albert St	Seagram Dr
	9,900	4,600
3. Forecast AADT (2035)	Albert St	Seagram Dr
	10,400	4,800
4. Commercial Vehicle Rates		Albert StSeagram Dr
	% Medium Trucks	1%1%
	% Heavy Trucks	1%1%
5. Posted Speed Limit	Albert St	Seagram Dr
	50 km/h	40 km/h
6. Day/Night Splits	Regional Standard 90/10 Day/Night Split	
7. Expiry	Dec 31 2026	
8. Notes	This forecast is intended for the purpose of carrying out a noise assessment for the above mentioned location only. The above AADTs represents the traffic volumes on Seagram Dr adjacent to the property and Albert St to the East of the property. As Albert St and Seagram Dr are under the jurisdiction of City of Waterloo, City of Waterloo should verify these forecasts. 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.	



Appendix C STAMSON Validation Files

Environmental Noise Assessment

87-95 Seagram Drive, Waterloo

Masri O Inc. Architects

SLR Project No.: 241.031930.00001

December 15, 2025

STAMSON 5.0 NORMAL REPORT Date: 29-10-2025 00:49:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 87.te Time Period: 16 hours
Description:

Road data, segment # 1: Seagram Dr

Car traffic volume : 4234 veh/TimePeriod
Medium truck volume : 43 veh/TimePeriod
Heavy truck volume : 43 veh/TimePeriod
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Seagram Dr

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 17.40 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↑
Results segment # 1: Seagram Dr

Source height = 1.00 m

ROAD (0.00 + 53.01 + 0.00) = 53.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	56.66	0.00	-0.64	-3.01	0.00	0.00	0.00	53.01

Segment Leq : 53.01 dBA

Total Leq All Segments: 53.01 dBA

↑
TOTAL Leq FROM ALL SOURCES: 53.01

↑
↑



MASRI O INC. ARCHITECTS

87-95 SEAGRAM DRIVE, WATERLOO

CADNA/A VS. ST5 VALIDATION

True North



Scale: 1:500

Date: October 2025

Rev 0.0

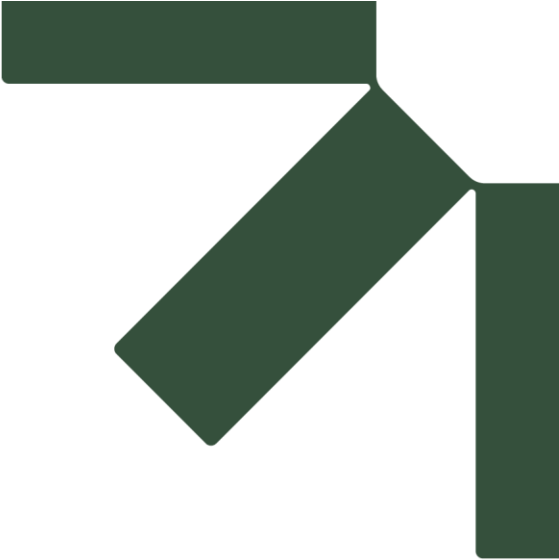
Project No.
241.031930.00001

METRES

Figure No.

C.1





Appendix D Ventilation, Warning Clause and Mitigation Summary

Environmental Noise Assessment

87-95 Seagram Drive, Waterloo

Masri O Inc. Architects

SLR Project No.: 241.031930.00001

December 15, 2025

Summary of Mitigation Measures and Warning Clauses

Warning Clauses

Warning Clauses may be used individually or in combination. The following Warning Clauses should be included in agreements registered on Title for the residential units, and included in all agreements of purchase and sale or lease, and all rental agreements:

Transportation Sources (Road and Rail)

MECP Type C Warning Clause

“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.”

MECP Type E Warning Clause

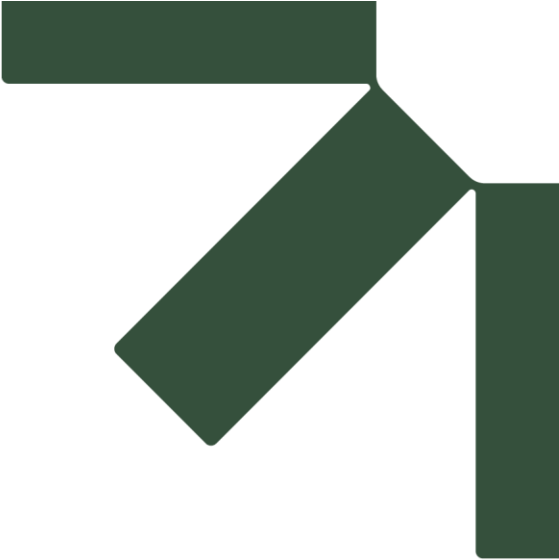
“Purchasers/tenants are advised that due to the proximity of adjacent industries, noise from these facilities may at times be audible.”

MECP Type F Warning Clause

“Purchasers/tenants are advised that sound levels due to the adjacent industries are required to comply with sound level limits that are protective of indoor areas and are based on the assumption that windows and exterior doors are closed. This dwelling unit has been supplied with a ventilation/air conditioning system which will allow windows and exterior doors to remain closed.”

Canadian National Railways Warning Clause

“Purchasers are advised that the Canadian National Railway Company or its assigns or successors in interest has or have a right-of-way within 300 metres from the land the subject thereof. There may be alterations to or expansions of the rail facilities on such right-of-way in the future, including the possibility that the railway or its assigns or successors as aforesaid may expand its operations, which expansion may affect the living environment of the residents in the vicinity, notwithstanding the inclusion of any noise and vibration attenuating measures in the design of the development and individual dwelling(s). CNR will not be responsible for any complaints or claims arising from use of such facilities and/or operations on, over or under the aforesaid right-of-way.”



Appendix E Stationary Source Modelling Data

Environmental Noise Assessment

87-95 Seagram Drive, Waterloo

Masri O Inc. Architects

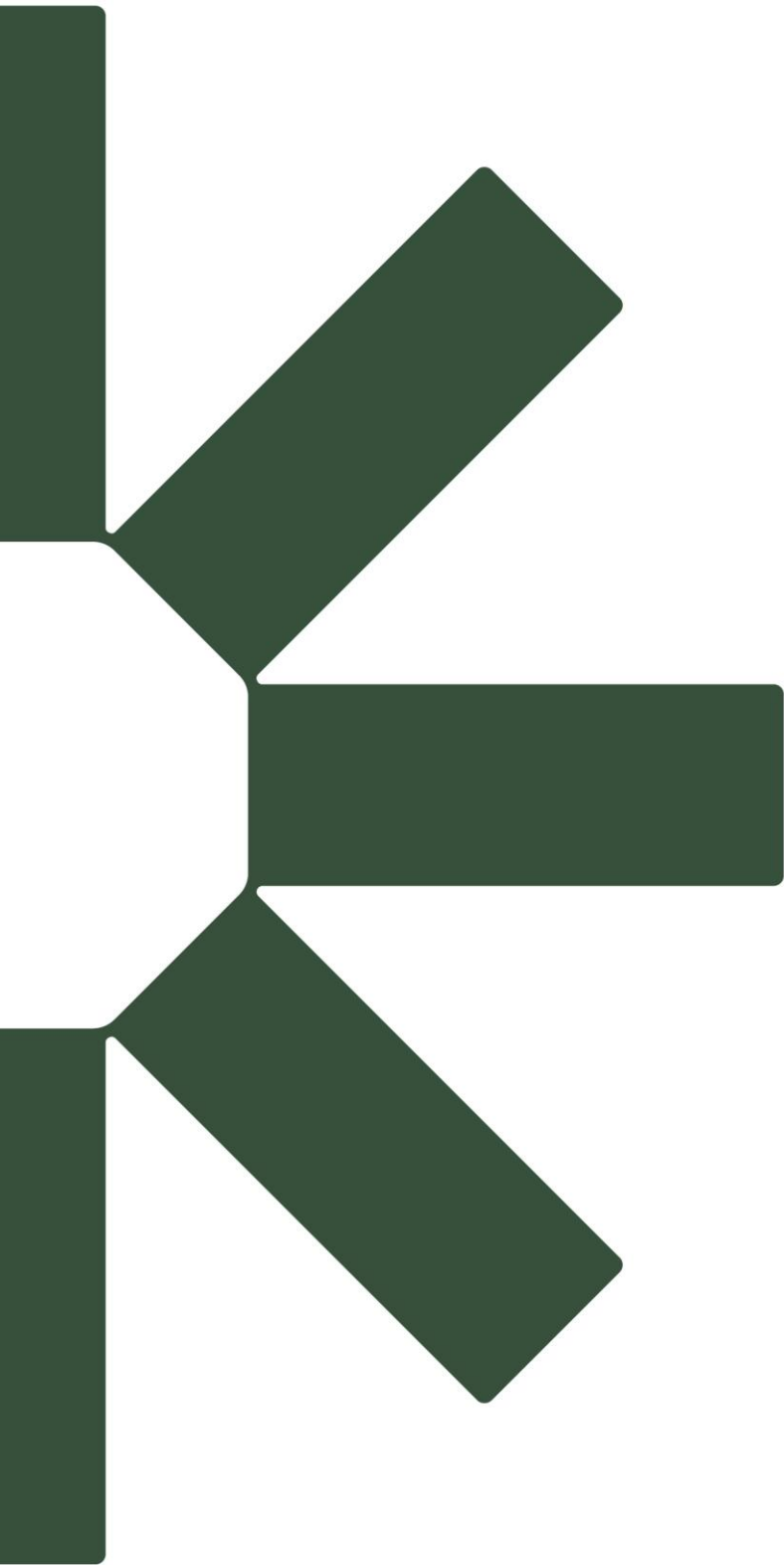
SLR Project No.: 241.031930.00001

December 15, 2025

STATIONARY SOURCE MODELLING DATA

Source Description	Maximum Sound Power Level (1/1 Octave Bands)									Modelled Sound Power Level (dBA)	Source Notes
	31.5	63	125	250	500	1000	2000	4000	8000		
Air Cooled Condenser - 8 fan	--	89	95	89	85	81	76	70	61	87	Based on historical SLR data - Operates 45 minutes per hour during daytime/evening hours - Operates 45 minutes per hour during night-time
Air Cooled Condenser - 2 fan	--	78	84	78	74	70	65	59	50	76	Based on historical SLR data - Operates 45 minutes per hour during daytime/evening hours - Operates 45 minutes per hour during night-time
HVAC unit - 10 ton CC (Option 1)	--	83	84	84	83	81	77	73	67	86	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 30 minutes per hour during night-time
HVAC Unit (5 ton) (Option1)	77	80	81	81	80	78	74	70	64	83	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 30 minutes per hour during night-time
HVAC Unit (5 ton) (Option 2)	74	77	78	78	77	75	71	67	61	80	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening hours - Operates 30 minutes per hour during night-time
Upblast Mushroom Fan - Small	--	--	80	76	79	71	67	64	59	79	Based on historical SLR data - Operates 60 minutes per hour during daytime/evening/night-time hours
15 HP Cooling Tower (single cell)	100	103	103	100	97	93	90	87	79	99	Based on historical SLR data - Operates 45 minutes per hour during daytime/evening hours - Operates 45 minutes per hour during night-time
Air Cooled Condenser - 6 fan	--	55	63	67	75	77	77	68	54	81	Based on historical SLR data - Operates 45 minutes per hour during daytime/evening hours - Operates 45 minutes per hour during night-time





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