ENVIRONMENTAL NOISE ASSESSMENT
EARL OF MARCH ADDITION
OTTAWA, ON

For
Ottawa-Carleton District School Board

Prepared by
State of the Art Acoustik Inc.

Report Date: 2024-11-06

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2024-11-06

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Ottawa-Carleton District School Board – Earl of March Addition, Kanata
Traffic Noise Impact Study

Dear Barry,

This report assesses the traffic noise impact on the proposed addition to Earl of March Secondary School at 4 The Parkway, Kanata. The calculations and methodology presented here comply with the City of Ottawa Environmental Noise Control Guidelines (2016) as well as the Ministry of Environment, Conservation and Parks' publication NPC-300.

Per **Section 2.0,** the noise impact from the mechanical and electrical equipment to the surrounding area did not exceed the Ministry of the Environment, Conservation and Parks Environmental Noise Guideline NPC-300 limit of 45 dBA during the day and 40 dBA at night. No acoustic mitigation measures are required.

Per **Section 3.0**, we have determined that the traffic noise levels generated from The Parkway exceeds 55 dBA at the plane of window. Consequently, it is required that the rooms be designed with a provision for future installation of central air conditioning and that a warning clause be included to inform users about the high noise levels associated with the proximity to The Parkway. The specific details regarding this warning clause can be found in **Section 3.11**.

Should you have any questions regarding this report, please do not hesitate to contact us.

Sincerely,

Tiffany-Rose Filler, M.Sc.
Acoustic Consultant

Contents

1.0 Introduction & Site Description

The Ottawa-Carleton District School Board has commissioned State of the Art Acoustik Inc. to complete a noise study for a new 2-storey, 25-classroom addition that will be located to the north of the existing Earl of March Secondary School located at 4 The Parkway in Kanata, Ontario. It is located in a mainly residential area and the new addition will be within 100 meters of The Parkway, a collector road. We have reviewed the projected impact of traffic noise from the Parkway and projected environmental noise impact to the residential area to review conformance with the City of Ottawa Environmental Control Guidelines (ENCG), which are compliant with the Ministry of Environment, Conservation and Parks (MECP) NPC-300.

1.1 Scaled Area Location Plan

Figure 1.1 shows the site plan for the new development and **Figure 1.2** shows a satellite view of the site and surrounding area. Adjacent noise-sensitive buildings include mainly residential homes and buildings.

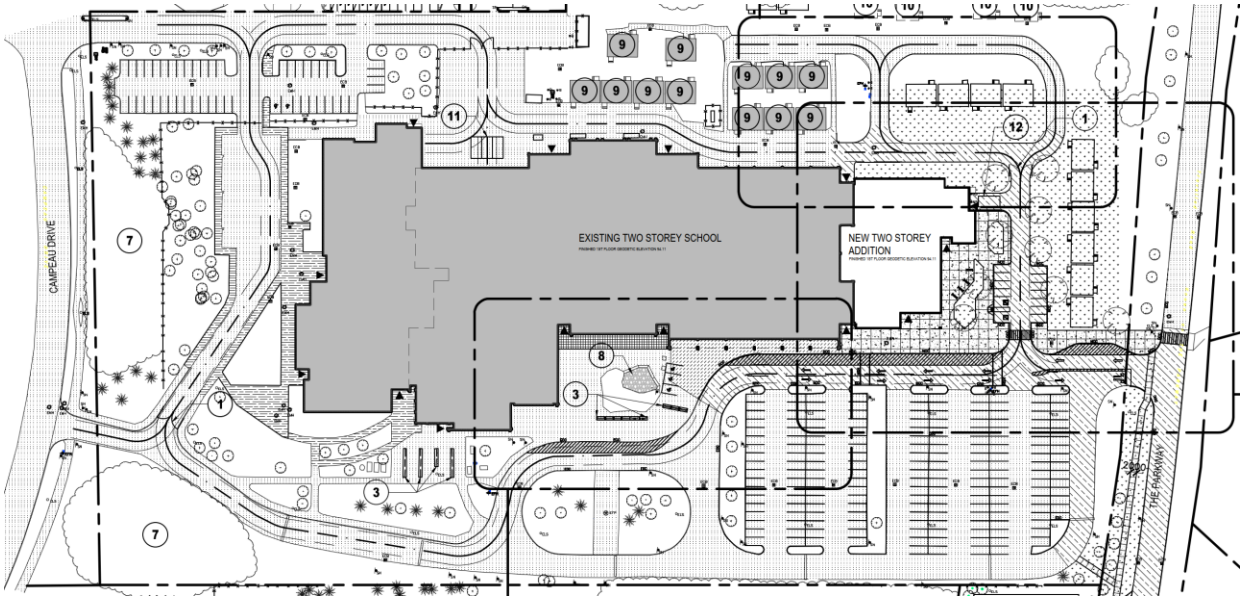

Figure 1.1 – Site plan of the Earl of March

The Earl of March Secondary School and its surrounding area will be classified as a Class 2 area according to MECP's NPC-300 guidelines.

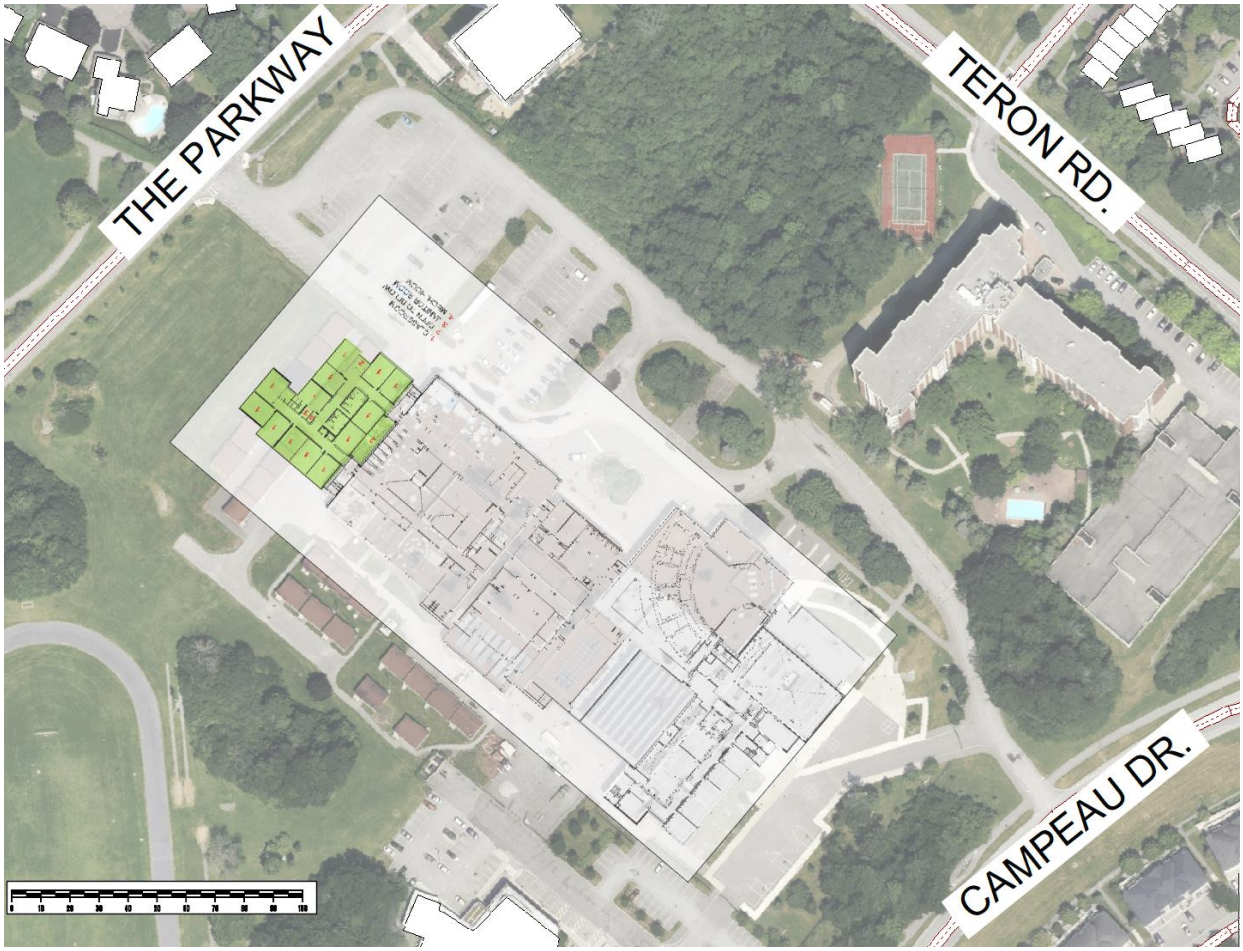

Figure 1.2 – Surrounding area around the Earl of March (Google Earth Pro)

2.0 Environmental Noise Assessment

In this section, we provide our environmental noise assessment from the new building to the surrounding area. We detail the noise limits, noise sources, points of reception used in our modelling, modelling and calculation procedures, and predicted noise levels.

2.1 Environmental Noise Control Guidelines

The Ministry of the Environment, Conservation and Parks (MECP) Environmental Noise Guideline NPC-300 has the limit for daytime permissible Sound Pressure Level (SPL) at a noise-sensitive location in a Class 2 area is 50 dBA and 45 dBA for nighttime permissible SPL at a noise-sensitive location in a Class 2 area. Therefore, when analyzing equipment for environmental noise studies, all non-emergency equipment in operation during the day must meet the MECP limit of 50 dBA during the day and the MECP limit of 45 dBA at night.

It should also be mentioned that the MECP allows emergency equipment, such as generators, to be analyzed separately from all other equipment, permitting a limit of 5 dBA over the sound level limits otherwise applicable to stationary sources during non-emergency daytime use, such as testing. However, as no emergency equipment is part of this development, no analysis of emergency equipment is required.

The points of reception (POR) are chosen at the nearest residential homes and hotels, which will allow us to calculate the largest noise impact and mitigate it accordingly. These are discussed in further detail below.

2.2 Significant Noise Sources

The noise sources that are being considered for this assessment of the mechanical noise to nearby residences is listed in **Table 2.1** below.

Noise Source	Noise Source ID	Quantity	Location
Packaged Rooftop Unit	RTU-1 and RTU-2	2	Rooftop
Condensing Unit	CU-1	1	Rooftop
Dedicated Outdoor Air System	DOAS-1	1	Rooftop

Table 2.1 – Quantity and location of noise sources considered.

Table 2.1 shows that the noise sources are located on the rooftop of the building. To analyze the worst-case noise impact on the surrounding area, our analysis will include these sources in operation during the day and at night.

The specific equipment and sound levels used in the analysis are detailed in **Table 2.2**.

Noise Source ID	Manufacturer	Model	Quantity	Sound Levels Used (dBA)
RTU-1	Daikin	DPSH25B	1	Inlet: 81 / Radiated: 83
RTU-2	Daikin	DPSH20B	1	Inlet: 80 / Radiated: 83
CU-1	Daikin	RXYQ120TTJU	1	61.0
DOAS-1	Tempeff	RG 2000 Type 1	1	Inlet: 72 / Outlet: 81

Table 2.2 – Summary of equipment and sound levels in this analysis

The detailed octave band sound power levels of each noise source are detailed in **Table 2.3**.

Noise Source ID	Octave Band Sound Power Levels (dB)								dBA
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
RTU-1: Inlet	79	78	86	78	73	72	67	64	81
RTU-1: Radiated	80	74	76	76	78	76	76	67	83
RTU-2: Inlet	78	77	85	77	72	71	66	63	80
RTU-2: Radiated	80	74	76	76	78	76	76	67	83
CU-1[1]	62	74	59	67	65	60	55	50	69
DOAS-1: Inlet	78	71	75	69	65	65	56	51	72
DOAS-1: Outlet	87	80	84	78	74	74	65	60	81

Note[1]: CU-1 sound power levels were estimated using the sound pressure levels given in the CU-1 data sheet.

Table 2.3 – Octave band sound power levels of noise sources

2.3 Points of Reception

Points of reception (PORs) have been selected to evaluate the noise levels at locations of nearby noise-sensitive buildings. **Figure 2.1** and **Table 2.4** detail the locations and heights of the PORs used.

POR Number	Height (m)	Address	Daytime Sound Pressure Level Limit (dBA)	Nightime Sound Pressure Level Limit (dBA)
1	4.5	9 Casgrain Court	50	45
2	15.0	2 The Parkway		
3	15.0	960 Teron Road		

Table 2.4 – POR Locations and Heights along with Daytime/Nighttime Sound Pressure Level Limit (dBA) per MOECP's NPC-300 (Table B-2)

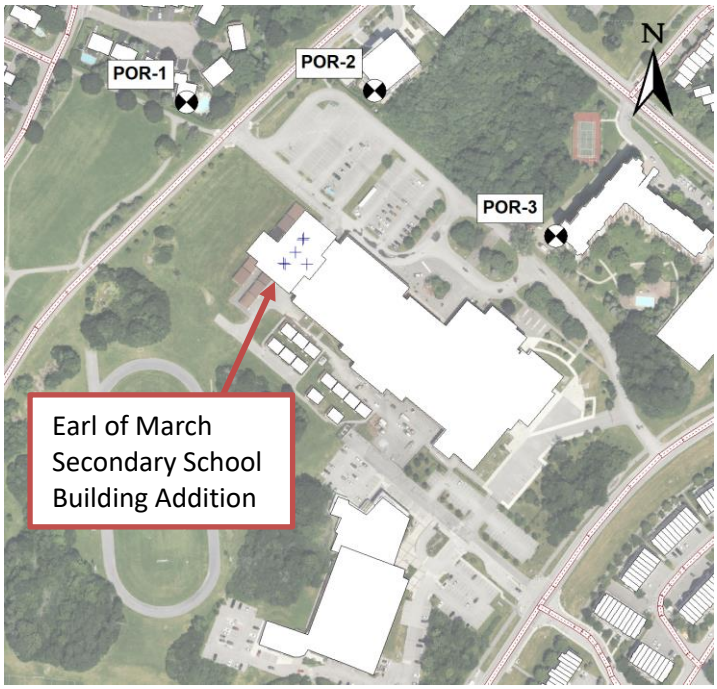

Figure 2.1 – Illustration showing locations of points of reception for stationary noise assessment of equipment at the new building addition to Earl of March Secondary School.

2.4 Methodology Used in Environmental Noise Impact Calculation

The following sections describe the methodology and software used to model the sound pressure levels at the points of reception due to the noise sources while considering parameters such as source levels, distance, topography, barriers, and building geometry.

2.5 Procedure Used to Assess Noise Impact at Each Point of Reception

This environmental noise analysis was done using an environmental noise modeling software called CadnaA which references ISO 9613. CadnaA predicts environmental noise through calculations based on a 3D model which uses geometrical, landscape, and topographical data, combined with details of the proposed construction and the noise source power levels.

We created a 3D rendering of the neighbourhood around the building and placed the noise sources in the model at the appropriate locations and then applied the sound power levels described in this report. The colours on the ground and building represent the sound pressure level in that area. Sound power levels per octave band were entered into CadnaA at the source's location and the resulting sound pressure levels were calculated at the points of reception.

2.6 Other Parameters/Assumptions Used in Calculations

The following table describes the parameters used in the CadnaA model:

Parameter	Value/Condition
Ground Absorption	0
Building Reflections	On
Temperature (°C)	10
Relative Humidity (%)	70

Table 2.5 – Parameters used in CadnaA modelling

2.7 Environmental Noise Levels

This section summarizes the CadnaA noise mapping results. **Table 2.6** shows the steady-state sound levels from all noise sources with the current equipment for daytime operations. We analyzed the worst-case scenario with all equipment running, as there is no emergency equipment in the building. This ensures we meet the strictest noise limit, which is 45 dBA for nighttime. Although not all equipment operates simultaneously most of the time, analyzing this worst-case scenario is required per NPC-300.

2.8 Results with Current Selections for Daytime and Nighttime Operations

Figure 2.2 shows the noise grid prediction at a height of 15 meters. This elevation helps illustrate the noise map relative to the height of nearby buildings and the impact of rooftop equipment with all outdoor mechanical systems in operation. The MOECP NPC-300 nighttime limit of 45 dBA must be met.

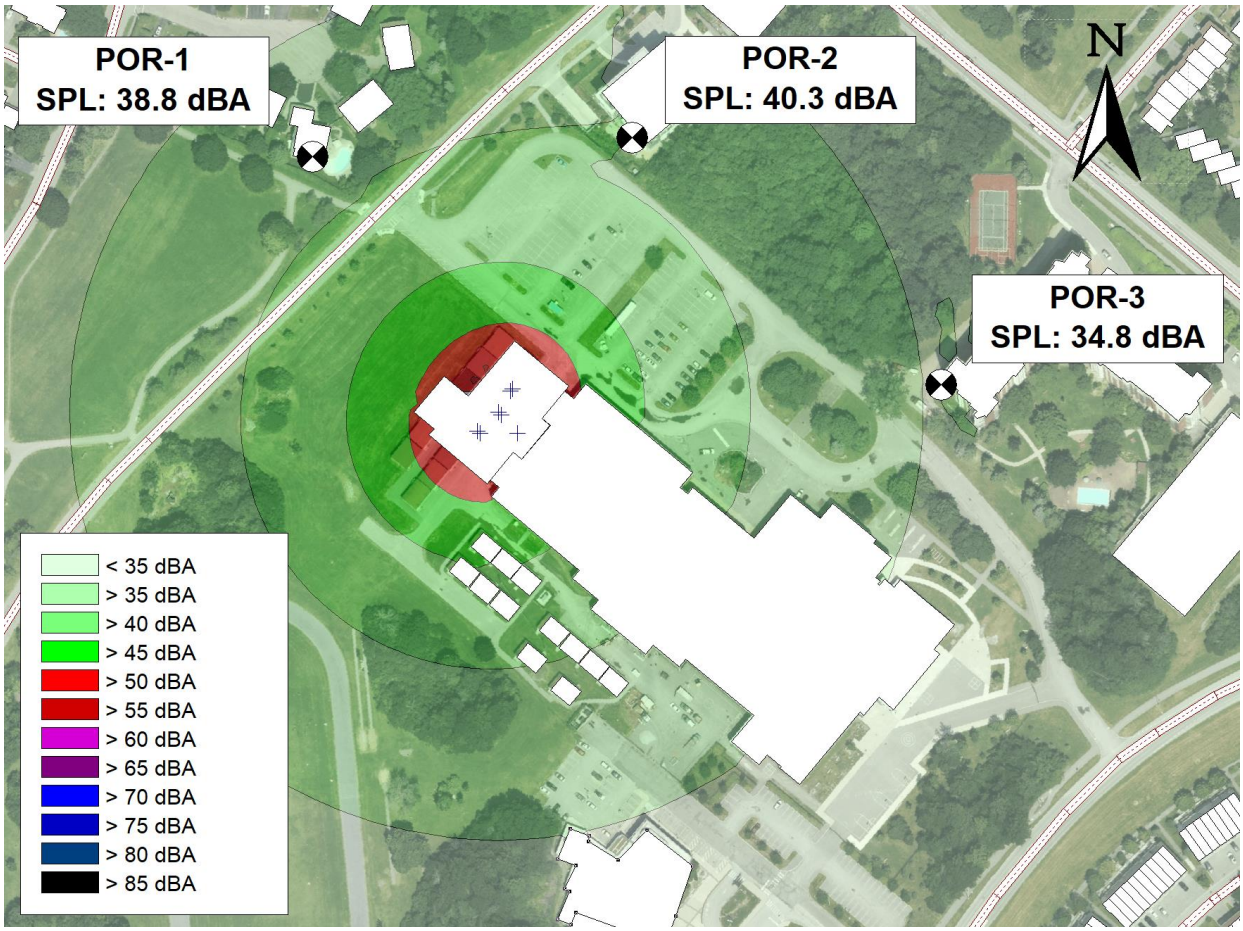

Figure 2.2 – Noise map at 15.0 m elevation with current equipment selections for daytime and nighttime operations.

ID	Predicted SPL (dBA)	Maximum SPL Limit (dBA)	Acoustic Compliance?
POR-1	38.8	45.0	Yes
POR-2	40.3		Yes
POR-3	34.8		Yes

Table 2.6 – Parameters used in CadnaA modelling Comparison of Predicted value at PORs to the MECP's NPC-300 acoustic limits.

Based on our modelling, no modifications are required to the rooftop equipment, as it does not generate noise above the applicable sound level limits.

3.0 Traffic Noise Study

The following section describes our analysis of the impact of the road noise on the proposed building addition to Earl of March Secondary School at 60 Drummond Street West.

3.1 MECP Environmental Noise Guidelines for Traffic Noise (Road & Rail)

This assessment uses the MECP's NPC-300 Guidelines, dated August 2013, to assess and mitigate noise from roads, transit ways, railways, and aircraft. The maximum road and rail noise levels for indoor and outdoor living areas are taken from Tables C-1 and C-2 of NPC-300 and summarized in **Table 3.1** and **Table 3.2** below. There are no specific guidelines for indoor Leq levels inschools, but it is reasonable to assume a daytime noise limit of 45 dBA, equivalent to that for living/dining areas between 07:00 and 23:00 as per **Table 3.1**.

Time	Indoor Leq Levels (dBA)	
	Road Traffic Noise Level Limit (dBA)	Rail Traffic Noise Level Limit (dBA)
07:00 – 23:00	**45** for living/dining areas of residences and sleeping quarters	**40** for living/dining areas of residences and sleeping quarters
23:00 – 07:00	**40** for sleeping quarters	**35** for sleeping quarters

Table 3.1 – Criteria for Indoor Area Road/Rail Noise Levels

Time	Outdoor Leq Levels (dBA)
	Road/Rail Traffic Noise Level Limit (dBA)
07:00 – 23:00	**55** for Outdoor Living Areas

Table 3.2 – Criteria for Outdoor Living Area Road/Rail Noise Levels

A noise feasibility and/or detailed noise study is required for new noise-sensitive developments in proximity to surface transportation sources in the City of Ottawa, according to the Official Plan. The study is necessary if the development is located within:

- 100 meters of an arterial road, (major) collector road, light rail corridor, or bus transitway.
- 250 meters of a highway or secondary main railway line.
- 300 meters of a rail corridor or secondary main railway line.
- 500 meters of a 400-series highway, freeway, or principal main railway line.

The traffic noise sources for this site are determined via the City of Ottawa's Urban Road Network Schedule E, which identifies roads and railways to be considered as traffic noise sources. For the future EOM Addition, the nearby road/rail noise sources are the following:

Roads and Railways	Road/Rail Classification	Distance to Façade[1]	Exclusionary Distance Limit
The Parkway	Collector	61 metres	100 meters
Teron Road	Major Collector	195 metres	100 meters
Campeau Drive	Arterial	252 metres	100 meters

[1]Note: The Distance to the Façade Line is calculated from the façade of the proposed development to the right-of-way of the road/railway.

Table 3.3 – List of nearby road noise sources

The noise source must be analyzed when the listed distance to the property line is lower than the respective exclusionary distance limit. Based on the distances in **Table 3.3**, an analysis of the impact of traffic noise is required for The Parkway. The distance between the Earl of March Secondary School addition and The Parkway is illustrated in **Figure 3.1**.

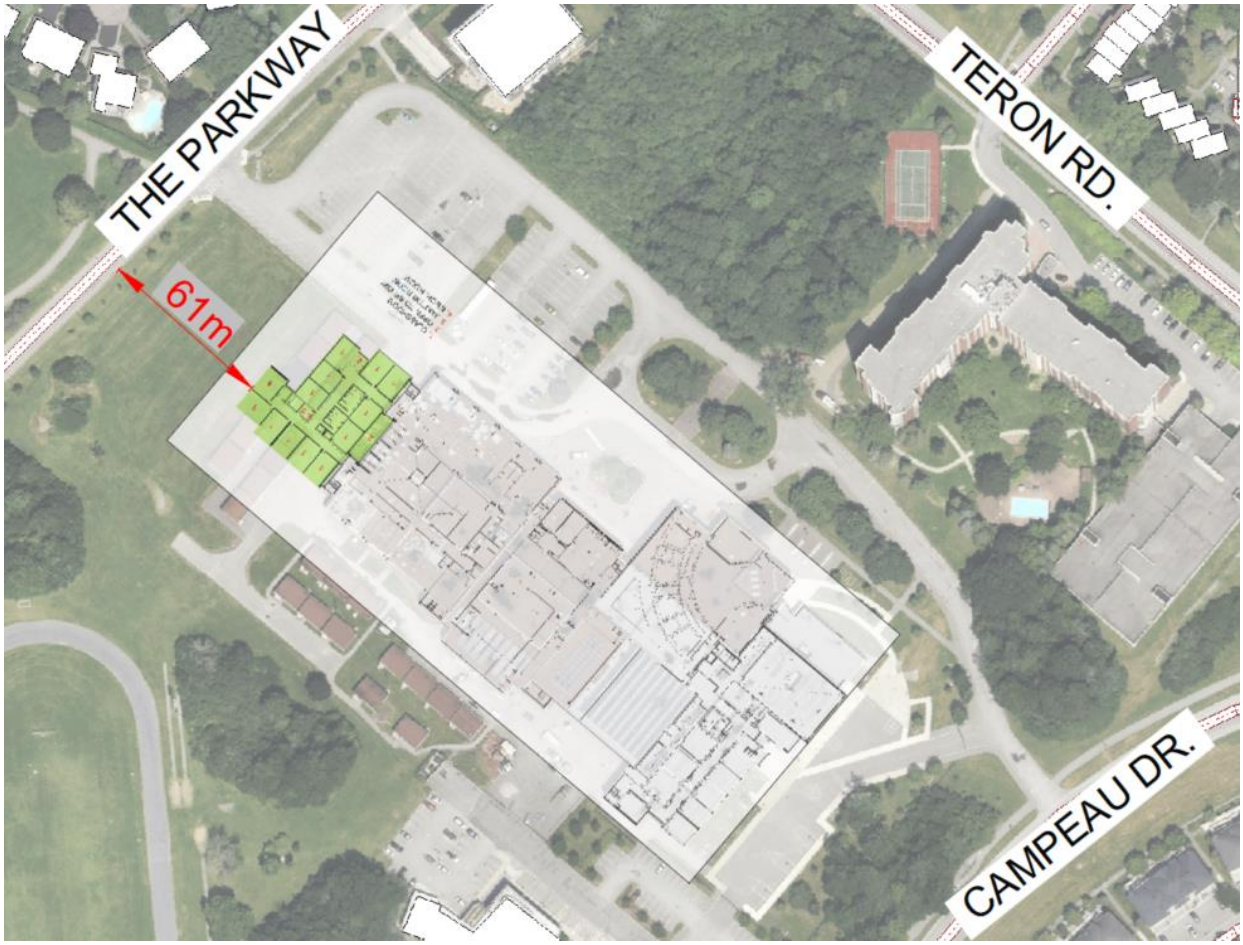

Figure 3.1 – Surrounding area around the Earl of March and distance to The Parkway (Google Earth Pro)

3.2 Noise Attenuation Requirements

This section outlines the required noise control measures and warning clauses and when to apply them, as stipulated by the ENCG and Ministry of Environment, Conservation and Parks (MOECP) for placement within purchase agreements.

If sound levels are predicted to be less than the specified criteria, no attenuation measures are required on the part of the proponent. If the predicted noise exceeds the criteria, the City of Ottawa recommends several attenuation measures.

These attenuation measures may include any or all of the following:

- construction of a noise barrier wall and/or berm;
- installation of a forced air ventilation system with provision for central air;

- installation of central air;
- acoustically selected building façade components.

Where excessive noise levels may adversely affect the property or its use, the ENCG requires notices in the form of a Warning Clause to be placed on the title in order to alert the buyer or renter of a possible environmental noise condition or a limitation on their property rights. The notices on titles must be included in the Development Agreement(s) and the Agreement(s) or Offer(s) of Purchase and Sale.

The City of Ottawa, via MOECP NPC-300, requires a Warning Clause whenever noise could meet or exceed 55 dBA 16-hour L_{eq} at the Outdoor Living Area or Plane of Window of any living area or 50 dBA at the Plane of Window of any sleeping area prior to any noise mitigation. **Table 3.4** provides the types of warning clauses which are taken from Section C8.1 Transportation Sources of the MOECP NPC-300, which also states:

"The use of warning clauses or easements in respect of noise are recommended when circumstances warrant. Noise warning clauses may be used to warn of potential annoyance due to an existing source of noise and/or to warn of excesses above the sound level limits. Direction on the use of warning clauses should be included in agreements that are registered on title to the lands in question. The warning clauses would be included in agreements of Offers of Purchase and Sale, lease/rental agreements and condominium declarations."

In addition, Section C8 also notes: "*A warning clause is not considered a form of noise mitigation. It is not acceptable therefore to use warning clauses in place of physical noise control measures to identify an excess over the MOE or City noise limits*."

TYPE	Warning Clause Text
Type A	Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transit way traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.
Type B	Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road/rail/Light Rail/transitway traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment.
Type C	This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air condition 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 City and the Ministry of Environment.
Type D	This dwelling has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of Environment.

Table 3.4 - Warning Clause Types (from MOECP NPC-300 Section C8.1)

3.3 Building Component Assessment (AIF Analysis)

According to the ENCG, when noise levels could exceed 65 dBA at the Plane of Windows (POW) of a living area (day) or sleeping quarters (night), the exterior cladding system of the building envelope must be acoustically designed to ensure the indoor noise criteria is achieved. The City of Ottawa recognizes the Acoustic Insulation Factor (AIF[1]) method as an appropriate analysis technique.

To comply with the City of Ottawa policies, the building envelope will require a minimum AIF rating to provide the indoor noise level required for living, dining and bedrooms of residential dwellings as described below.

The City of Ottawa's ENCG outlines the following maximum indoor L_{eq} limits:

- maximum daytime indoor L_{eq} for living spaces should be 45 dBA
- maximum nighttime indoor L_{eq} for bedrooms should be 40 dBA

For the overall exterior wall of any room, the required AIF for road and rail transportation noise is:

Required AIF = Outside L_{eq} - Indoor L_{eq} (Req) + 2dB (1)

When the exterior is comprised of components, then the AIF required of each component is determined by the following equation[1]:

Required AIF = Outside L_{eq} - Indoor L_{eq} (Req) + 10 $\log_{10}$ (Number of Components) + 2dB (2)

The required AIF is based on the Outside L_{eq}, Indoor L_{eq} required and the total number of exterior façade components. The AIF method allows for the number of components to be reduced if any component significantly exceeds the required AIF[1]:

"If the AIF of any component exceeds the required AIF by 10 or more, the calculation should be repeated for the other components with the 'total number of components' reduced by one. This reduction in the number of components lowers the required AIF for the others."

[1] J.D. Quirt, Building Research Note: Acoustic Insulation Factor: A Rating for the Insulation of Buildings against Outdoor Noise, National Research Council [Revised June 1980]

3.4 Road Traffic Information

This study focuses exclusively on the traffic noise generated by The Parkway, the collector road north of the new building addition's façade. The proposed building is positioned at a distance greater than 100 meters from any other collector or arterial road, with no nearby rail lines or influence from the airport. Consequently, no other surface noise sources have been considered for this study.

Table 3.5 below summarizes the roadway's parameters obtained from Table B1 on p. 75 of The City of Ottawa Environmental Noise Control Guidelines 2016, "Appendix B: Table of Traffic and Road Parameters to Be Used For Sound Level Predictions" for the respective roadway class.

Roadway	Implied Roadway Class	Annual Average Daily Traffic (AADT) Veh/Day	Posted Speed	Day/Night Split (%)	Medium Trucks (%)	Heavy Trucks (%)
The Parkway	2-Lane Urban Collector (2-UCU)	8,000	40 km/h	92/8	7	5

Table 3.5 – Summary of Major Roadways

3.5 Procedure Used for Roadway Noise Analysis

To assess the impact of road noise on the proposed development, we employed the Ministry of Environment's STAMSON modelling software version 5.04. This program enables us to input various road variables, including traffic volume, vehicle types, speed, barrier locations, and topography. We can accurately determine the environmental noise impact at specific reception points by utilizing these inputs.

3.6 Points of Reception (POR)

To identify the most severe noise impact on the building's façade, we have selected two PORs based on their proximity to The Parkway. These PORs include one on the first-floor façade and one on the second-floor façade, both located at classrooms. **Figure 3.2** shows the elevation of PORs A and B. Figures **3.3 and 3.4** show the floor plans for POR A and POR B. POR A is located at a height of 1.5m on the first floor, aligned with the plane of the window (POW). POR B is located at a height of 4.5m on the second floor, also aligned with the POW. **Figures 3.5 and 3.6** depict the angles of the PORs relative to the noise source, The Parkway. **Table 3.6** summarizes the POR heights, distances to noise sources, and the angles to these sources.

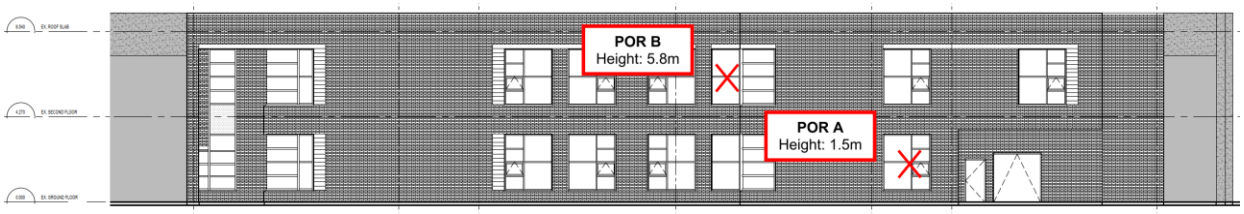

Figure 3.2 –Elevation of Northwest Side of New Addition showing the plane of window (POW) point of reception, with the locations and heights of PORs A and B. The red 'X' denotes the receiver location used in STAMSON.

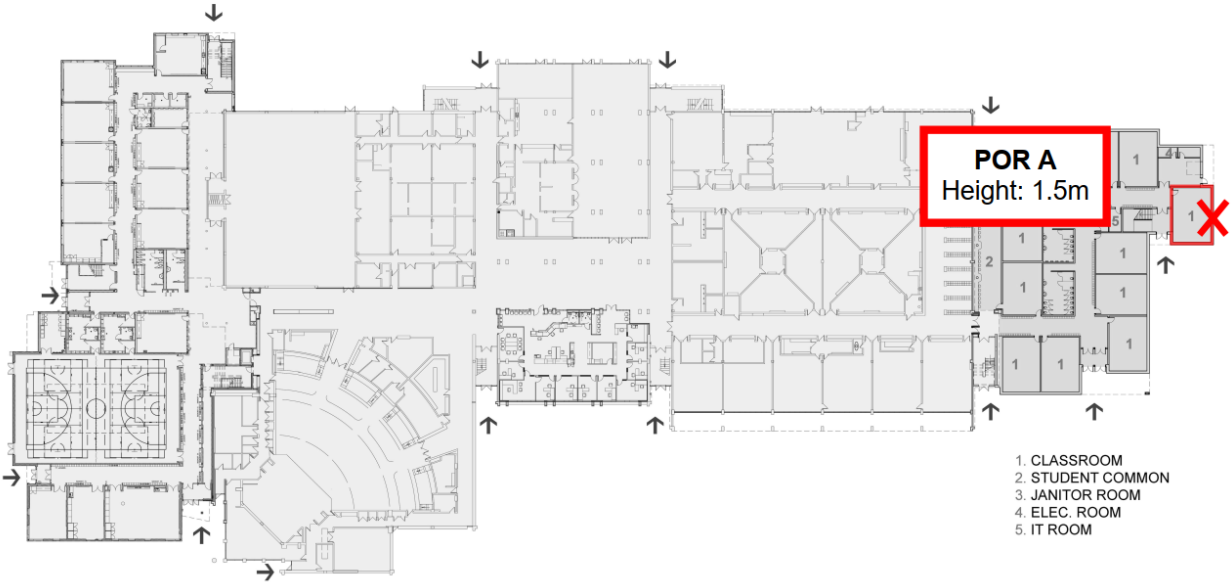

Figure 3.3 – Floor plan section of 1st floor showing the plane of window (POW) point of reception, with the location of POR A. The room associated with the POR is outlined in red. The red 'X' denotes the receiver location used in STAMSON.

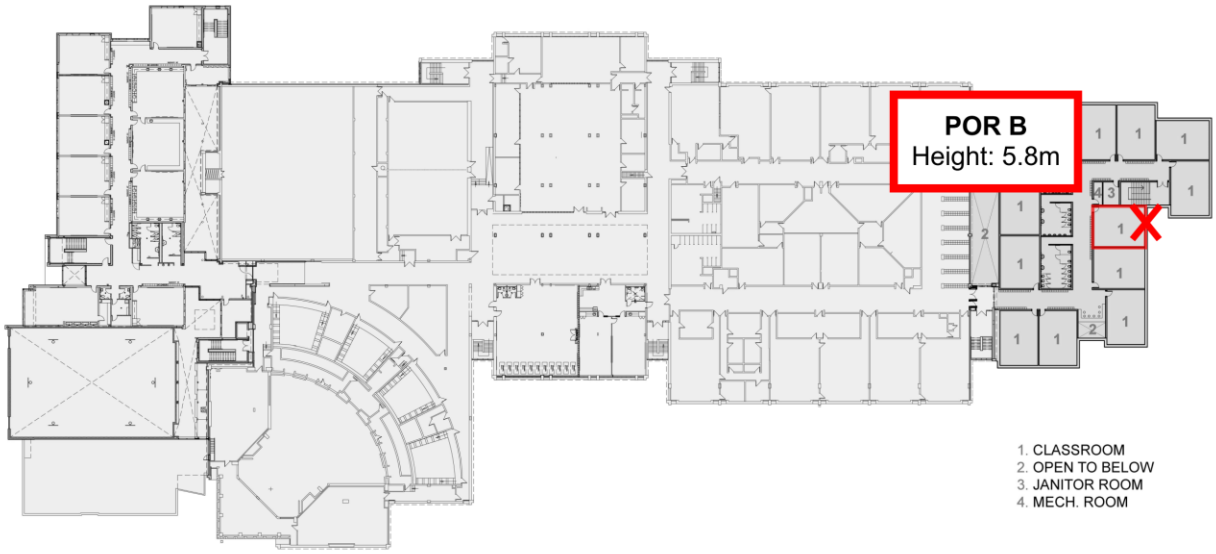

Figure 3.4 – Floor plan section of 2nd floor showing the plane of window (POW) point of reception, with the location of POR B. The room associated with the POR is outlined in red. The red 'X' denotes the receiver location used in STAMSON.

Receiver	Height (m)	Noise Source		
		The Parkway		
		Distance from Source (m)	Angle to source from left	Angle to source from right
POR A	1.5	66	90	90
POR B	5.8	77	0[1]	90

Note[1]: POR B is partially shielded by the building, limiting the source angle from 90° to 0° for the left source angle.

Table 3.6 – Points of Reception and Corresponding Noise Exposure Details

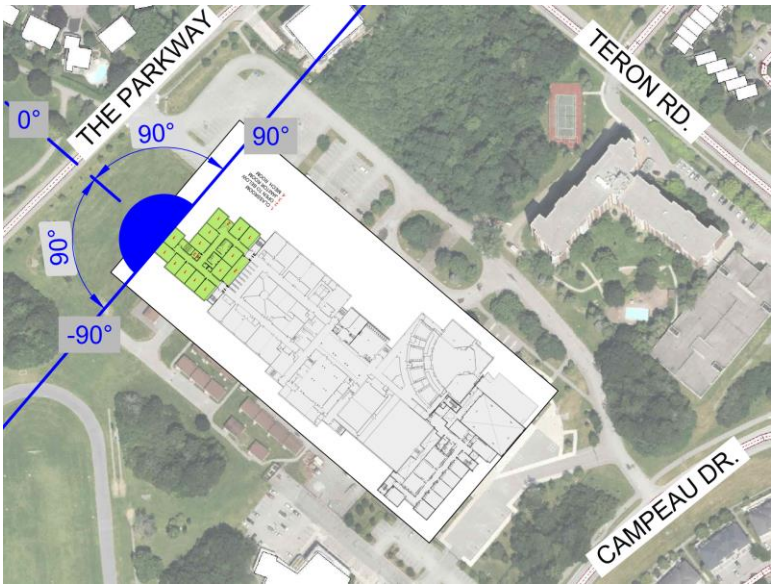

Figure 3.5 – Site plan of EOM showing angles between POR A and The Parkway (angle in blue).

Figure 3.6 – Site plan of EOM showing angles between POR B and The Parkway (angle in purple).

3.7 Methodology Used in Traffic Noise Impact Calculation

To assess the impact of rail noise on the proposed development, we utilized the Ministry of Environment's STAMSON modelling software version 5.04. This software allows us to input various variables related to rail transportation, such as traffic volume, speed, day and night traffic splits, and topography. We can accurately determine the noise impact on specific PORs by utilizing these inputs.

According to the guidelines provided by the City of Ottawa, if noise levels are expected to exceed 65 dBA at the POW of a noise-sensitive building, the building's exterior cladding system must be acoustically designed to ensure compliance with the indoor noise criteria.

3.8 STAMSON Analysis Parameters

The parameters used in STAMSON to assess the noise impact at PORs A and B are indicated in **Tables 3.7 and 3.8**, respectively.

Parameter	Values Used
Road	The Parkway
Time Period	16h/8h
Topography	Not elevated
Rows of Houses	0
Intermediate Surface	Reflective
Receiver Height (m)	1.5
Source Receiver Distance (m)	66.0

Table 3.7 – Parameters used in the STAMSON model for POR A (1st-floor classroom)

Parameter	Values Used
Road	The Parkway
Time Period	16h/8h
Topography	Elevated
Rows of Houses	0
Intermediate Surface	Reflective
Receiver Height (m)	5.8
Source Receiver Distance (m)	77.0
Source Elevation (m)	1.5

Table 3.8 – Parameters used in the STAMSON model for POR B (2nd-floor classroom)

3.9 Predicted Surface Transportation Noise Levels

Table 3.9 below shows the predicted sound pressure levels at the points of reception from the results of the STAMSON noise software calculation (**Appendix A**).

Noise Source	POR A (dBA)		POR B (dBA)	
	Day	Night	Day	Night
The Parkway	57.5	49.9	53.8	46.3

Table 3.9 – Predicted traffic noise at the PORs

3.10 Roadway Noise Summary and Analysis

We have calculated the predicted noise level caused by traffic using STAMSON and have shown a 16h Leq for daytime hours of **57.5 dBA** at POR A and **53.8 dBA** at POR B. The 8h Leq for nighttime hours is **49.9 dBA** at POR A and **46.3 dBA** at POR B. According to the ENCG, since the levels do not exceed 60 dBA during the day or 55 dBA at night, it is not required to analyze the exterior building components (AIF analysis) to ensure the indoor sound level targets are achieved. However, as the predicted noise levels are above 50 dBA for the daytime period at all PORs, the rooms must be designed with provisions for future installation of central air conditioning and warning clauses are required, per the Ministry of Environment requirements.

For POR A, since the daytime sound level at the plane of the window exceeds 55 dBA but is below 65 dBA, the rooms in this addition must be designed with provisions for future installation of central air conditioning. Warning clause **Type C** is also required.

For POR B, the daytime and nighttime sound level at the plane of the window is lower than 55 dBA. No further analysis is required.

3.11 Warning Clauses

The following warning clauses are required for this property:

Due to the daytime predicted noise at the Plane of Window Receptor (POR A) being between 55 and 60 dBA, a **Type C** warning clause is required:

"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air condition 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 City and the Ministry of Environment."

4.0 Conclusion

We have completed an environmental noise assessment and a traffic noise impact study for the EOM Addition at 4 The Parkway, Kanata, Ontario.

The noise impact from the mechanical and electrical equipment to the surrounding area did not exceed the Ministry of the Environment, Conservation and Parks Environmental Noise Guideline NPC-300 limit of 45 dBA during the day and 40 dBA at night. No acoustic mitigation measures are required.

The only road/rail noise source to consider for this project is The Parkway, which will be located approximately 61 meters northwest of the property. The predicted daytime noise levels at the plane of window exceed 55 dBA but remain below 60 dBA. As a result, the rooms in this addition must be designed with provisions for future central air conditioning, and a Type C warning is required.

The required warning clause is as follows:

Type C:

"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air condition 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 City and the Ministry of Environment."

If you have any questions or concerns regarding this report, please let us know.

Sincerely,

Tiffany-Rose Filler, M.Sc.,
Acoustic Consultant

Approved By:

Donald Buchan, P.Eng
Principal
Buchan Lawton Parent Ltd.

APPENDIX

APPENDIX A1 – STAMSON CALCULATION FOR POR A
APPENDIX A2 – STAMSON CALCULATION FOR POR B

APPENDIX A1: STAMSON Calculations for POR A

STAMSON 5.0 NORMAL REPORT Date: 16-09-2024 03:53:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: eom1.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: The Parkway (day/night)

Car traffic volume : 6477/563 veh/TimePeriod
Medium truck volume : 515/45 veh/TimePeriod
Heavy truck volume : 368/32 veh/TimePeriod
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: The Parkway (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 66.00 / 66.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: The Parkway (day)

Source height = 1.50 m

ROAD (0.00 + 57.52 + 0.00) = 57.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	63.96	0.00	-6.43	0.00	0.00	0.00	0.00	57.52

Segment Leq : 57.52 dBA

Total Leq All Segments: 57.52 dBA

Results segment # 1: The Parkway (night)

Source height = 1.50 m

ROAD (0.00 + 49.93 + 0.00) = 49.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	56.36	0.00	-6.43	0.00	0.00	0.00	0.00	49.93

Segment Leq : 49.93 dBA

Total Leq All Segments: 49.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.52
(NIGHT): 49.93

APPENDIX A2: STAMSON Calculations for POR B

STAMSON 5.0 NORMAL REPORT Date: 16-09-2024 03:51:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: EOM2.te Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: The Parkway (day/night)

Car traffic volume : 6477/563 veh/TimePeriod
Medium truck volume : 515/45 veh/TimePeriod
Heavy truck volume : 368/32 veh/TimePeriod
Posted speed limit : 40 km/h
Road gradient : 0 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: The Parkway (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 77.00 / 77.00 m
Receiver height : 1.50 / 4.50 m
Topography : 3 (Elevated; no barrier)
Elevation : 3.00 m
Reference angle : 0.00

Results segment # 1: The Parkway (day)

Source height = 1.50 m

ROAD (0.00 + 53.84 + 0.00) = 53.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	63.96	0.00	-7.10	-3.01	0.00	0.00	0.00	53.84

Segment Leq : 53.84 dBA

Total Leq All Segments: 53.84 dBA

Results segment # 1: The Parkway (night)

Source height = 1.50 m

ROAD (0.00 + 46.25 + 0.00) = 46.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	56.36	0.00	-7.10	-3.01	0.00	0.00	0.00	46.25

Segment Leq : 46.25 dBA

Total Leq All Segments: 46.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.84
(NIGHT): 46.25