

REPORT

PROJECT: 148185-6.04-01

ENVIRONMENTAL NOISE IMPACT ASSESSMENT 801 Eagleson Road



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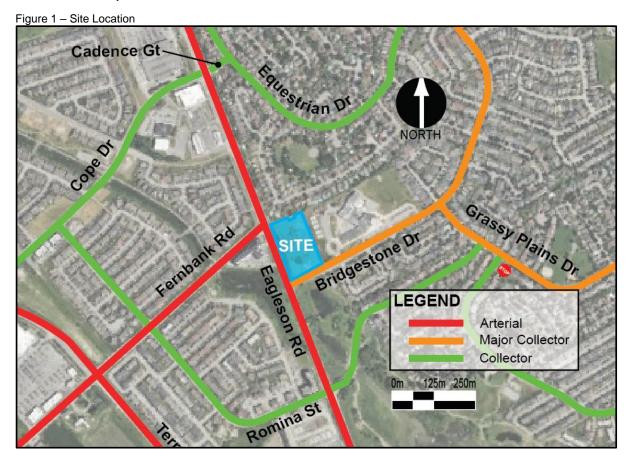
1 Introduction

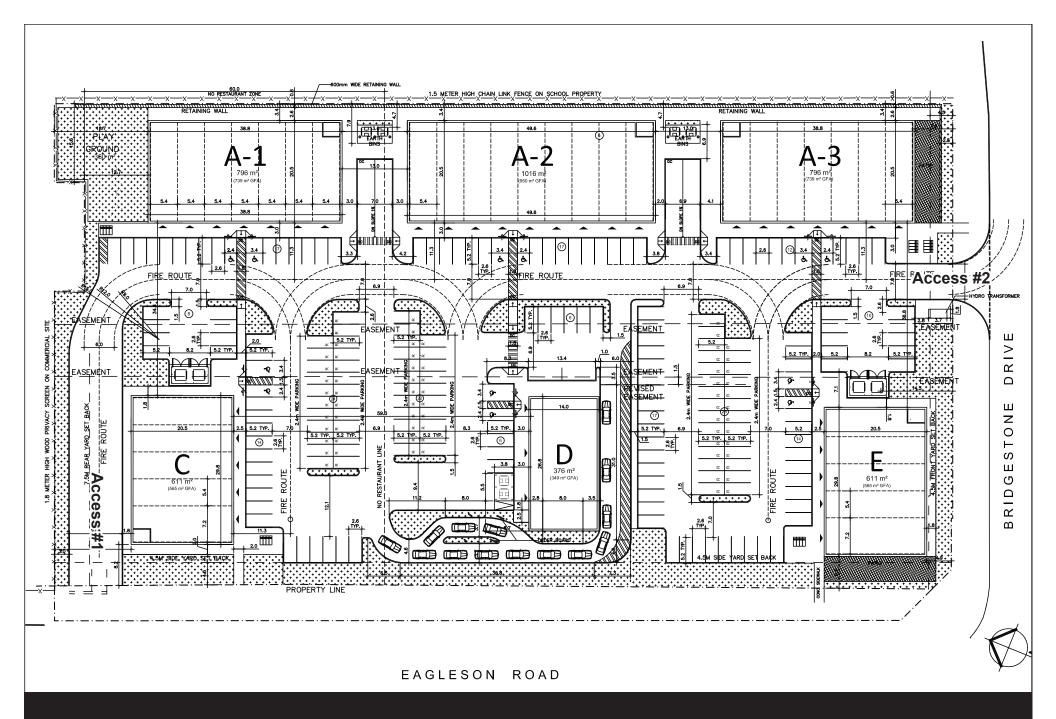
This Environmental Noise Impact Assessment (ENIA) has been prepared in support of a Site Plan Control application for a proposed commercial development at 801 Eagleson Road, Ottawa. This study evaluated the expected noise levels from transportation (road) noise sources on the adjacent road network, as well as any on- and off-site stationary noise sources/receivers. The results of the noise analysis conducted for this study informed recommendations regarding appropriate warning clauses and associated noise abatement measures to include in the Tenancy or Lease Agreement for each 'noise sensitive' land use.

The site occupies the northeastern quadrant of the Eagleson & Bridgestone intersection and is bound by Bridgestone Drive to the south, Eagleson Road to the west, single-family residential uses to the north and Maurice-Lapointe Elementary Public School to the east. The site location and its surrounding context are shown in **Figure 1**, while the proposed development is presented in **Exhibit 1** below.

The proposed development consists of only one 'noise sensitive' land use, a daycare centre located in Building 'A-1' and accompanying playground amenity area. As such, the transportation (road) noise review conducted as part of this study was limited to the daycare land use.

The stationary noise component of this ENIA evaluated the impact of proposed on-site buildings and considered potential sources such as rooftop mechanical equipment (all buildings) and external speakers associated with the proposed drive-thru facility serving Building 'D'. No off-site noise sources of significance were identified through a desktop review of the existing buildings and land uses adjacent to the site.





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801 Eagleson Road **Environmental Noise Impact Assessment**

Exhibit 1: **Proposed Development** PROJECT No. 148185

SCALE:

0m 10m 20m

2 Background

2.1 Noise Sources

2.1.1 Transportation Noise

The study area is primarily subjected to roadway noise from both Eagleson Road and Bridgestone Drive which abut the site to the west and south, respectively. There are no other collector or higher-order roadways within close enough proximity to generate on-site transportation noise sources of any significance.

The subject property is located outside of the Airport Vicinity Development Zone (AVDZ), as shown on Schedule C-14 of the 2022 Official Plan. As such, aircraft noise will not be explicitly considered in this study.

In accordance with the City of Ottawa Environmental Noise Control (ENC) Guidelines (January 2016), any passenger or freight rail lines within 500 metres of the site is typically considered in the noise analysis. Given that there are no existing or planned rail lines within this distance from the subject property, rail noise will not be explicitly considered in this study either and transportation-related noise impacts will be limited to vehicular traffic from the site's boundary streets.

2.1.2 Stationary Noise

CadnaA v2025, produced by DataKustik, was employed for the stationary noise evaluation carried out as part of this ENIA. This software is recognized in the industry for noise modeling and utilizes ISO 9613-2.

2.1.2.1 On-Site Stationary Noise

Upon review of the site plan in **Exhibit 1** above, the following potential stationary noise sources were identified. Assumptions were made as to the position and type of equipment based on the proposed building layouts and using typical sound power levels and operating times for such equipment.

- Building 'A-1' (assumed to include multiple commercial units + daycare centre): The
 building rooftop equipment assumed seven medium rooftop chiller units (one per
 commercial unit), each with a sound power level of 82 dBA operating in steady-state during
 the daytime and 30 minutes per hour during the nighttime.
- Building 'A-2' (assumed to include multiple commercial units): The building rooftop equipment assumed is nine medium rooftop chiller units (one per commercial unit), each with a sound power level of 82 dBA operating in steady-state during the daytime and 30 minutes per hour during the nighttime.
- Building 'A-3' (assumed to include multiple commercial units): The building rooftop equipment assumed is seven medium rooftop chiller units (one per commercial unit), each with a sound power level of 82 dBA operating in steady-state during the daytime and 30 minutes per hour during the nighttime.
- <u>Building 'C' (assumed to include multiple commercial units)</u>: The building rooftop equipment assumed is five medium rooftop chiller units (one per commercial unit), each with a sound power level of 82 dBA operating in steady-state during the daytime and 30 minutes per hour during the nighttime.
- Building 'D' (assumed to be a restaurant with a drive-thru): The building rooftop equipment
 assumed is one medium rooftop chiller unit, with a sound power level of 82 dBA operating

in steady-state during the daytime and 30 minutes per hour during the nighttime, one electric fan with a sound power level of 70 dBA operating in steady-state during the daytime. The drive-thru will include up to four speakers, each with a sound power level of 75 dBA operating for 30 minutes per hour during the daytime and nighttime.

 Building 'E' (assumed to include multiple commercial units): The building rooftop equipment assumed is five medium rooftop chiller units (one per commercial unit), each with a sound power level of 82 dBA operating in steady-state during the daytime and 30 minutes per hour during the nighttime.

2.1.2.2 Off-Site Stationary Noise

Based on a review of the site's environs using aerial photography, no off-site stationary noise sources were identified that would impact on-site sensitive noise receivers.

2.2 Sound Level Limits for Road Noise

Sound level criteria for road traffic were extracted from the ENC Guidelines. Noise levels were expressed in the form Leq (T) which refers to a weighted level of a steady sound carrying the same total energy in the time period T (in hours) as the observed fluctuation sound.

2.2.1 Indoor sound level criterion – ventilation and warning clause requirements

The recommended indoor sound level criteria from Table 2.2b of the ENC Guidelines are as follows:

Daycare – 07:00 to 23:00 – 45 dBA Leq (16 hours)

The sound levels are based on the windows and doors to an indoor space being closed. Daycares are exempt from night-time land analysis, given that these facilities are not expected to be occupied or in use overnight.

As discussed previously, Building 'A-1' consists of a daycare unit and an adjacent playground (i.e. outdoor living area). For the purpose of assessing the most significant indoor noise in this study, receptor locations were observed at 1.5 metres above the ground for the plane of window and outdoor living area (OLA) with the highest exposure to the arterial road network.

As per NPC-300 C7.1.3, if the daytime outdoor sound levels exceed 65 dBA at the plane of the window, then the building must be compliant with the Ontario Building Code. Should the outdoor sound levels exceed this criterion, then the Building Component (walls, windows, etc.) must be designed to achieve indoor sound level criteria.

In accordance with NPC-300 C7.1.2.1 and C7.1.2.2, when the outdoor noise levels are greater than 55 dBA and less than or equal to 65 dBA at the plane of the window, then a warning clause is compulsory. This warning clause specifies that forced air heating with a provision for central air conditioning is required. Should the outdoor sound levels exceed this criteria, central air conditioning is mandatory, and a warning clause is required.

2.2.2 Outdoor sound level criterion

As per Table 2.2a of the ENC Guidelines, the sound level criterion for the outdoor living area (OLA) under daytime conditions (i.e. 07:00 and 23:00 hours) is 55 dBA Leq (16). Sound levels for the OLA are calculated at locations with the highest potential exposure to traffic noise from the adjacent road network, as indicated on the **Transportation Noise Plan** (see **Appendix B**), at a height of 1.5 metres above the ground.

If the Leq sound level is less than or equal to 55 dBA (daytime), no further action is required by the proponent. In the event that the sound level exceeds the criteria by less than 5 dBA, a warning clause may be provided to prospective tenants or the proponent may install physical attenuation. For sound levels greater than 5 dBA above the criteria (i.e. greater than 60 dBA), control measures are required to reduce the noise levels as close to 55 dBA as technically, economically and administratively possible. Should the sound levels with the barrier in place exceed 55 dBA, a warning clause is also required.

2.2.3 Indoor Sound Level Criterion – Building Components

As per NPC-300 C7.1.3, when the outdoor sound levels are less than or equal to 65 dBA at the plane of the window and/or less than or equal to 60 dBA at the bedroom level, then the building must be compliant with the Ontario Building Code. Should the outdoor sound levels exceed this criterion then the Building Components, including windows, walls and doors must be designed to achieve indoor sound level criteria described previously and extracted from Table 2.2b of the ENC Guidelines.

2.3 Sound Level Limits for Stationary Noise

The potential stationary noise sources that may impact the existing adjacent residential 'noise sensitive' receivers are mechanical equipment, including HVAC systems, electric fans and external speakers associated with the proposed on-site drive-thru.

The MECP criteria resulting from stationary noise sources is the greater of the ambient background noise level or the exclusionary noise levels summarized in **Table 2-1** below.

TIME PERIOD	LOCATION	CLASS 1	CLASS 2	CLASS 3	CLASS 4
0700 – 1900	Outdoor Living Area	50 dBA	50 dBA	45 dBA	55 dBA
1900 – 2300	Outdoor Living Area	50 dBA	45 dBA	40 dBA	55 dBA
0700 – 1900	Plane of Window	50 dBA	50 dBA	45 dBA	60 dBA
1900 – 2300	Plane of Window	50 dBA	50 dBA	40 dBA	60 dBA
2300 – 0700	Plane of Window	45 dBA	45 dBA	40 dBA	55 dBA

Table 2-1 - Stationary Noise Level Criteria

Given the subject property is located in an urban population center where the background sound level is dominated by urban hum, it will be assumed that the development and surroundings are located in a 'Class 1' area (urban), as defined in NPC-300. For the purposes of this study, it will also be assumed that the exclusionary limits for 'Class 1' will be the applicable noise level criteria for this study. It is possible that the ambient noise level may be higher and, as such, this can be considered a conservative assumption.

3 Noise Analysis

3.1 Road Traffic Data Parameters

Based on the configuration of the road transportation network in relation to the proposed development, it is assumed that the major sources of transportation noise impacting the site will originate externally from Eagleson Road and Bridgestone Drive, as described in **Table 3-1** below:

Table 3-1 - Existing Roadways

NAME	CLASS	JURISDICTION	ORIENTATION & EXTENTS	CROSS- SECTION	EXISTING ROW [m] (OFFICIAL PLAN ROW PROTECTION [m])	POSTED SPEED LIMIT (km/h)
Eagleson Road	Arterial	City of Ottawa	North-South, Campeau Dr to Brophy Dr	2-Lane, Urban, Undivided	~27 (44.5)	60
Bridgestone Drive	Major Collector	City of Ottawa	North-South, Stonehaven Dr to Eagleson Road	2-Lane, Urban, Undivided	~25.5 (N/A)	40

The 2013 Transportation Master Plan (TMP) outlines future road network modifications required in the 2031 'Affordable Network'. The 2024 City-wide and Area-Specific Development Charges (DC) Background Study (July 2024), published well after the 2013 TMP, provides updated timelines for projects within the study area. The following project was noted that may have an impact on area traffic within the vicinity of the site:

Eagleson Road: Planned widening from two to four lanes between Cope Drive and Terry
Fox Drive. The DC study suggests that this widening will be implemented between 2025
and 2029. As such, Eagleson Road will be modelled with its ultimate 4-lane cross-section
for the purposes of assessing transportation noise impacts in this study.

Table 3-2 below summarizes the traffic and road parameters used in this report for both Eagleson Road and Bridgestone Drive. These parameters were extracted from Appendix B: Table B1 of the ENC Guidelines.

Table 3-2 - Traffic & Road Data Summary

NOISE PARAMETERS	EAGLESON ROAD (4-UAD)	BRIDGESTONE DRIVE (2-UMCU)
Annual Average Daily Traffic (AADT)	35,000	12,000
Posted Speed Limit (km/h)	60	40
% Medium Trucks	7%	7%
% Heavy Trucks	5%	5%
% Daytime Traffic	92%	92%

All other collector or higher-order roads are separated from the subject property by a significant distance which is well in excess of the 100 metres specified in the ENC Guidelines, therefore the transportation-related noise impacts from these roads were not considered explicitly in the analysis for this study.

3.2 Unattenuated Traffic Noise Analysis

Roadway noise was calculated using the STAMSON v5.04 computer program, an industry-standard program which applies the ORNAMENT methodology developed by the Ontario Ministry of the Environment, Conservation and Parks (MECP).

STAMSON noise calculations conducted for this study are included in Appendix A.

Unattenuated daytime and nighttime noise levels at the building face, calculated to determine indoor sound levels, are presented in **Table 3-3** below. Parameters applied to calculate the noise levels, including the perpendicular distance from source to receiver and the roadway segment angles, are also indicated. Noise angles governed by off-site buildings were determined by superimposing the site plan on aerial imagery of the surrounding area, as shown in **Appendix B**, following the **Transportation Noise Plan**. As per standard practice for four-lane arterial, divided roads, the noise levels are calculated separately for opposing directions of travel and then combined.

Table 3-3 – Unattenuated Noise Levels at Building Face

LOCATION	ROADWAY	SOURCE - RECEIVER	SEGMENT ANGLES		'INDOOR' NOISE LEVELS AT BUILDING FACE (dBA)
		DISTANCE (m) ¹	LEFT	RIGHT	DAYTIME
D 1111 (A 41 O 11)	Eagleson Road NB	88.5	-35	20	
Building 'A-1' – Southwest Corner (P1)	Eagleson Road SB	101.0	-25	20	57.88
Comer (F1)	Bridgestone Drive	135.0	0	20	
(A. 41 G. 11	Eagleson Road NB	89.5	-30	0	55.54
Building 'A-1' – South Façade (P2)	Eagleson Road SB	102.0	-30	0	
r açaue (F2)	Bridgestone Drive	135.0	5	20	
Building 'A-1' – North	Eagleson Road NB	90.0	5	40	FF 0.4
Façade (P3)	Eagleson Road SB	102.5	5	40	55.94
D 11 11 (A 41 O 41 4	Eagleson Road NB	109.0	-25	0	
Building 'A-1' – Southeast Corner (P4)	Eagleson Road SB	121.5	-25	0	53.78
Comer (P4)	Bridgestone Drive	135.0	-45	0	
5 11 11 /4 /1 11 11	Eagleson Road NB	108.5	0	30	
Building 'A-1' – Northeast Corner (P5)	Eagleson Road SB	121.0	0	30	54.33
Comer (F5)	Bridgestone Drive	174.0	-35	0	

Note: ¹ For roads divided by a median (or potential for this configuration in the future), source-receiver distances are measured from the centre of each direction of travel.

As indicated in **Table 3-3** above, receptor locations on the north, south and west sides of Building 'A-1' are shown to experience noise levels above the 55 dBA threshold established by the City of Ottawa/MECP, therefore mitigation measures were considered through additional analysis presented in subsequent sections of this study.

The **Transportation Noise Plan** (see **Appendix B**) identifies one outdoor living area (OLA), the playground immediately north of Building 'A-1'. An analysis has been conducted of this OLA, and is presented in **Table 3-4** below. Receptors OLA-1, OLA-2 and OLA-3 were selected to evaluate locations with the highest noise exposure with respect to the surrounding collector or higher-order road network.

Table 3-4 - Unattenuated Noise Levels at OLA

LOCATION	ROADWAY	SOURCE - SEGMENT ANGLES RECEIVER DISTANCE (m)		OUTDOOR NOISE LEVELS (dBA)	
		DISTARGE (III)	LEFT	RIGHT	
	Eagleson NB	88.5	-5	30	
Playground – OLA-1	Eagleson SB	101.0	-5	30	56.26
	Bridgestone	186.0	0	15	
	Eagleson NB	112.0	5	30	
Playground – OLA-2	Eagleson SB	124.5	5	30	53.38
	Bridgestone	174.0	-35	5	
Dlayground OLA 2	Eagleson NB	101.5	-5	30	55.20
Playground – OLA-3	Eagleson SB	114.0	-5	30	55.28

As identified in **Table 3-4** above, the noise levels in the proposed playground (OLA) slightly exceed 55 dBA at its midpoint and the western half of this outdoor amenity area but remain well below 60 dBA, the threshold at which physical attenuation is typically recommended. Alternative mitigation strategies, including appropriate warning clauses, were considered further in this study and are presented later on in this report.

It is noteworthy that the proposed playground (OLA) and 'noise-sensitive' daycare land use planned for Building 'A-1' have been strategically situated to minimize impacts associated with vehicular traffic noise on Eagleson Road, being located at the rear of the property and allowing for additional screening from adjacent buildings.

3.3 Stationary Noise Analysis

3.3.1 On-Site & Off-Site Receiver Locations

The off-site and on-site stationary noise sensitive receiver locations are summarized in **Table 3-5** and **Table 3-6**, respectively, and represent critical 'noise sensitive' receiver locations.

Table 3-5– Off-Site Stationary Noise Receiver Locations

RECEIVER	LOCATION	FLOORS
Receiver R1	Residential Building 79 Huntsman Crescent – South Façade	1 to 2
Receiver R2	Residential Building 81 Huntsman Crescent - South Façade	1 to 2
Receiver R3	Residential Building 83 Huntsman Crescent - South Façade	1 to 2
Receiver R4	Residential Building 85 Huntsman Crescent - South Façade	1 to 2
Receiver R5	Residential Building 87 Huntsman Crescent - South Façade	1 to 2
Receiver R6	Residential Building 89 Huntsman Crescent - South Façade	1 to 2

Table 3-6 – On-Site Stationary Noise Receiver Locations

RECEIVER	LOCATION	FLOOR
Receiver R7	Daycare Playground Outdoor Living Area (OLA)	1

3.3.2 On- & Off-Site Stationary Receiver Results (Unattenuated)

The noise levels produced by on-site stationary noise sources were modeled/predicted utilizing CadnaA v2025. The following sections review the modelled/predicted on-site and off-site noise impacts.

Table 3-7 below summarizes the unattenuated noise levels from on-site sources for each of the seven 'noise sensitive' receiver locations selected for the stationary noise evaluation.

The CadnaA output, which includes sound-level bands for unattenuated on-site noise sources, is provided in **Appendix C-1**.

Table 3-7 – Unattenuated Noise Levels from On & Off-Site Stationary Noise Sources

	RECEIVER NOISE LEVEL (DBA)				
RECEIVER	FL	OOR 1	FLOOR 2		
	DAY	NIGHT	DAY	NIGHT	
R1	42.1	39.1	44.5	41.5	
R2	42.6	39.6	44.9	41.9	
R3	43.6	40.6	45.7	42.7	
R4	43.4	40.4	45.0	42.0	
R5	43.0	40.0	45.0	42.0	
R6	40.2	37.2	42.9	39.9	
R7 (OLA)	44.7	-	-	-	

As shown in **Table 3-7** above, the noise levels produced by the proposed on-site stationary sources are not anticipated to exceed the Class 1 exclusionary limits of 50 dBA during the daytime and 45 dBA during the nighttime. Accordingly, noise mitigation will not be required as a result of the on-site stationary noise sources.

From a noise impact perspective, the proposed drive-thru and associated with restaurant planned for Building 'D' is ideally located adjacent to Eagleson Road. As such, based on the CadnaA model, the external speakers are not anticipated to significantly impact on-site or adjacent off-site 'noise sensitive' uses.

The portable school buildings associated with Maurice-Lapointe Elementary Public School, located immediately west of the subject site, were not specifically considered in the stationary noise analysis, given their temporary nature. The permanent school building is also well separated from the commercial uses on-site by at least 100 metres and the school yard is on the opposite side of the school building, affording further separation distance and screening for this shared outdoor amenity area in relation to the proposed development. As such, the commercial uses on-site are expected to have a negligible impact on 'noise-sensitive' uses associated with the adjacent elementary school and therefore this institutional land use was not explicitly considered in the CadnaA model.

4 Abatement Measures

4.1 Indoor Sound Levels

As per the indoor noise analysis presented in **Table 3-3** above, noise levels at Building 'A-1' (daycare) exceed the noise criteria of 55 dBA on the north, west and south facades.

Based on this noise analysis, an alternative means of ventilation is required, as well as a Type 'C' warning clause in the Tenancy Agreement for the commercial units in Building 'A-1' which have exterior walls on the north, west or south facades of the building. An alternative means of ventilation usually consists of a forced air heating system with ducts sized for future installation of central air conditioning.

4.2 Outdoor Living Area (OLA)

In accordance with the indoor noise analysis presented in **Table 3-4** above, the proposed playground associated with Building 'A-1' exceeds the noise criteria of 55 dBA but remains below 60 dBA, therefore warning clause Type 'A' is proposed in lieu of a noise barrier.

4.3 Stationary Noise Sound Levels

As summarized in Section 3.3, noise levels from off-site stationary sources at Receivers 1 to 7 were not shown to exceed Class 1 MECP exclusion limits, therefore additional mitigation measures have not been considered.

5 Summary of Attenuation Measures

5.1 Warning Clauses

A noise warning clause must appear on the Tenancy or Lease Agreement for applicable 'noise sensitive' buildings and outdoor living areas (OLAs) indicated on the **Transportation Noise Plan** (**Appendix B**) and listed in **Table 5-1** below.

Table 5-1 - Warning Clause Summary

WARNING CLAUSE	LOCATION	APPLICABLE BUILDING/FAÇADE/UNITS
Type 'A'	Playground Amenity Area	OLA associated with Building 'A-1'
Type 'C'	Building 'A-1'	North, South and West Facades

The following warning clauses are taken from Section C8.1 and C8.2 of NPC-300 Guidelines.

TYPE 'A'	"Purchasers/tenants are advised that sound levels due to increasing Eagleson Road and Bridgestone Drive traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment, Conservation and Park's noise criteria."
TYPE 'C'	"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment, Conservation and Park's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MECP Publication NPC-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property."

5.2 Ventilation Requirements and Building Components

The indoor noise analysis presented in Section 3 identified critical receptor locations in exceedance of the 55 dBA threshold associated with Building 'A-1', requiring forced air heating systems or central air conditioning to satisfy MECP noise requirements. It is noted as well that all buildings within the proposed development will be designed and constructed in accordance with the Ontario Building Code.

5.3 Noise Barrier

Based on the foregoing analysis results, it is not anticipated that any noise barriers will be required to accommodate the proposed development.

6 Conclusion

This Environmental Noise Impact Assessment (ENIA) was conducted in support of a Site Plan Control application for a proposed commercial development at 801 Eagleson Road, Ottawa. The impacts of transportation (road) noise within the proposed development were evaluated and, based on the analysis conducted for this study, it is expected that noise levels will remain within the standards established by the by the City of Ottawa and Ministry of the Environment, Conservation and Parks (MECP), with the exception of the proposed daycare in Building 'A-1', as well as the adjacent playground (i.e. outdoor amenity area). Warning clauses Type 'A' and 'C' are proposed to be included on the Lease or Tenancy Agreement to address these slight exceedances, per standard practice.

In terms of stationary noise, the analysis conducted as part of this study indicated that the on- an off-site 'noise-sensitive' receptors did not exceed the exclusionary limits for Class 1 at any of the seven locations evaluated in this study. As such, no noise mitigation measures were identified as being required through this study to accommodate on-site stationary noise sources. It is recommended, however, that on-site stationary noise sources including rooftop mechanical equipment such as HVAC systems for each commercial unit, as well as drive-thru speakers and rooftop electric fan(s) to support the proposed drive-thru restaurant be confirmed at the final site design stage, along with any other potential stationary sources. Once these relevant mechanical details are finalized, the ENIA may need to be updated to reflect any adjustments to noise levels and a review of potential mitigation measures, as required.

7 Professional Authorization

Prepared by:



Ben Pascolo-Neveu, P. Eng.

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Appendix A – STAMSON Noise Calculations

- o Appendix A-1 Indoor Noise Levels at Building Face
- Appendix A-2 Outdoor Living Area (OLA)

January 16, 2025

Appendix A-1 – STAMSON Noise Calculations Indoor Noise Levels at Building Face

NORMAL REPORT STAMSON 5.0 Date: 13-01-2025 23:12:15 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p1.te Time Period: Day/Night 16/8 hours

Description: p1 indoor

Road data, segment # 1: Eagleson Rd NB (day/night) _____

Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 : 7.00 Medium Truck % of Total Volume Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night) -----

Angle1 Angle2 : -35.00 deg 20.00 deg

0 Wood depth (No woods.) :

No of house rows 0 / 0

: (Absorptive ground surface) Surface 1

Receiver source distance : 88.50 / 88.50 m Receiver height : 1.50 / 4.50

Topography 1 (Flat/gentle slope; no barrier)

veh/TimePeriod *

: 0.00 Reference angle

Road data, segment # 2: Eagleson Rd SB (day/night) _____

Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod

Heavy truck volume : 1610/140 Posted speed limit : 60 km/h 1 % Road gradient :

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth 0.00

```
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
   Heavy Truck % of Total Volume
                               : 5.00
   Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Eagleson Rd SB (day/night)
-----
Angle1 Angle2 : -25.00 deg 20.00 deg Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive
                         1 (Absorptive ground surface)
Receiver source distance : 101.00 / 101.00 m
Receiver height : 1.50 / 4.50 m
                    : 1 (Flat/gentle slope; no barrier)
Topography
Reference angle : 0.00
Road data, segment # 3: Bridgestone Drive (day/night)
Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume: 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod Posted speed limit : 40 \text{ km/h}
Road gradient :
                    1 %
Road pavement : 1 (Typical asphalt or concrete)
Data for Segment # 3: Bridgestone Drive (day/night)
Angle1 Angle2 : 0.00 deg 20.00 deg
No of house rows : 0 / 0

Surface
Surface
                     :
                           1
                                 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Eagleson Rd NB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 55.59 + 0.00) = 55.59 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -35 20 0.66 73.68 0.00 -12.80 -5.29 0.00 0.00 0.00 55.59
______
```

Segment Leq: 55.59 dBA

```
Results segment # 2: Eagleson Rd SB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 53.83 + 0.00) = 53.83 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -25 20 0.66 73.68 0.00 -13.75 -6.10 0.00 0.00
                                                 0.00 53.83
______
Segment Leq: 53.83 dBA
Results segment # 3: Bridgestone Drive (day)
-----
Source height = 1.50 m
ROAD (0.00 + 40.28 + 0.00) = 40.28 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
       20 0.66 65.72 0.00 -15.84 -9.60 0.00 0.00
                                                 0.00 40.28
Segment Leq: 40.28 dBA
Total Leq All Segments: 57.88 dBA
Results segment # 1: Eagleson Rd NB (night)
Source height = 1.50 m
ROAD (0.00 + 48.71 + 0.00) = 48.71 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -35 20 0.57 66.08 0.00 -12.10 -5.27 0.00 0.00 0.00 48.71
Segment Leq: 48.71 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
```

```
ROAD (0.00 + 46.99 + 0.00) = 46.99 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-25 20 0.57 66.08 0.00 -13.00 -6.09 0.00 0.00 0.00 46.99
```

Segment Leq: 46.99 dBA

^

Results segment # 3: Bridgestone Drive (night)

Source height = 1.50 m

ROAD (0.00 + 33.54 + 0.00) = 33.54 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 20 0.57 58.12 0.00 -14.98 -9.59 0.00 0.00 0.00 33.54

Segment Leq: 33.54 dBA

Total Leq All Segments: 51.02 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 57.88 (NIGHT): 51.02

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NORMAL REPORT STAMSON 5.0 Date: 14-01-2025 11:04:37 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Time Period: Day/Night 16/8 hours Filename: p2.te

Description: p2 indoor

Road data, segment # 1: Eagleson Rd NB (day/night) _____

Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00 Number of Years of Growth : 0.00 : 7.00 Medium Truck % of Total Volume Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night) -----

Angle1 Angle2 : -30.00 deg 0.00 deg

Wood depth 0 (No woods.) :

No of house rows 0 / 0

: (Absorptive ground surface) Surface 1

Receiver source distance : 89.50 / 89.50 m Receiver height : 1.50 / 4.50

Topography 1 (Flat/gentle slope; no barrier)

veh/TimePeriod *

: 0.00 Reference angle

Road data, segment # 2: Eagleson Rd SB (day/night) _____

Car traffic volume : 28336/2464 veh/TimePeriod * Medium truck volume : 2254/196 veh/TimePeriod

Heavy truck volume : 1610/140 Posted speed limit : 60 km/h 1 % Road gradient :

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth 0.00

```
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
   Heavy Truck % of Total Volume
                               : 5.00
   Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Eagleson Rd SB (day/night)
-----
Angle1 Angle2 : -30.00 deg 0.00 deg Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive
                        1 (Absorptive ground surface)
Surface
Receiver source distance : 102.00 / 102.00 m
Receiver height : 1.50 / 4.50 m
                    : 1 (Flat/gentle slope; no barrier)
Topography
Reference angle : 0.00
Road data, segment # 3: Bridgestone Drive (day/night)
Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume: 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod Posted speed limit : 40 km/h
Road gradient :
                    1 %
Road pavement : 1 (Typical asphalt or concrete)
Data for Segment # 3: Bridgestone Drive (day/night)
Angle1 Angle2 : 5.00 deg 20.00 deg
No of house rows : 0 / 0

Surface
Surface
                     :
                           1
                                 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Eagleson Rd NB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 52.88 + 0.00) = 52.88 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -30 0 0.66 73.68 0.00 -12.88 -7.91 0.00 0.00 0.00 52.88
-----
```

Segment Leq: 52.88 dBA

```
Results segment # 2: Eagleson Rd SB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 51.94 + 0.00) = 51.94 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -30 0 0.66 73.68 0.00 -13.82 -7.91 0.00 0.00
                                               0.00 51.94
______
Segment Leq: 51.94 dBA
Results segment # 3: Bridgestone Drive (day)
-----
Source height = 1.50 m
ROAD (0.00 + 39.01 + 0.00) = 39.01 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
       20 0.66 65.72 0.00 -15.84 -10.87 0.00 0.00
                                               0.00 39.01
Segment Leq: 39.01 dBA
Total Leq All Segments: 55.54 dBA
Results segment # 1: Eagleson Rd NB (night)
_____
Source height = 1.50 m
ROAD (0.00 + 46.00 + 0.00) = 46.00 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -30 0 0.57 66.08 0.00 -12.18 -7.90 0.00 0.00 0.00 46.00
Segment Leq: 46.00 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
```

```
ROAD (0.00 + 45.11 + 0.00) = 45.11 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-30 0 0.57 66.08 0.00 -13.07 -7.90 0.00 0.00 0.00 45.11
```

Segment Leq: 45.11 dBA

^

Results segment # 3: Bridgestone Drive (night)

Source height = 1.50 m

ROAD (0.00 + 32.28 + 0.00) = 32.28 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

5 20 0.57 58.12 0.00 -14.98 -10.86 0.00 0.00 0.00 32.28

Segment Leq: 32.28 dBA

Total Leq All Segments: 48.69 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 55.54 (NIGHT): 48.69

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STAMSON 5.0 NORMAL REPORT Date: 15-01-2025 13:07:02 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p3.te Time Period: Day/Night 16/8 hours

Description: p3 indoor

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night)

Angle1 Angle2 : 5.00 deg 40.00 deg Wood depth : 0 (No woods.)

Wood depth : 0
No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 90.00 / 90.00 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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Road data, segment # 2: Eagleson Rd SB (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Eagleson Rd SB (day/night) -----Angle1 Angle2 : 5.00 deg 40.00 deg Wood depth : 0 (No woods.) No of house rows : 0 / 0 1 Surface (Absorptive ground surface) Receiver source distance : 102.50 / 102.50 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00 Results segment # 1: Eagleson Rd NB (day) ______ Source height = 1.50 m ROAD (0.00 + 53.37 + 0.00) = 53.37 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -----5 40 0.66 73.68 0.00 -12.92 -7.39 0.00 0.00 0.00 53.37 ______ Segment Leq: 53.37 dBA Results segment # 2: Eagleson Rd SB (day) _____ Source height = 1.50 m

ROAD (0.00 + 52.43 + 0.00) = 52.43 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ______ 5 40 0.66 73.68 0.00 -13.85 -7.39 0.00 0.00 0.00 52.43

Segment Leq: 52.43 dBA

Total Leq All Segments: 55.94 dBA

Results segment # 1: Eagleson Rd NB (night)

```
Source height = 1.50 m
ROAD (0.00 + 46.51 + 0.00) = 46.51 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
    5 40 0.57 66.08 0.00 -12.22 -7.35 0.00 0.00 0.00 46.51
Segment Leq: 46.51 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
ROAD (0.00 + 45.62 + 0.00) = 45.62 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
       40 0.57 66.08 0.00 -13.10 -7.35 0.00 0.00 0.00 45.62
______
Segment Leq: 45.62 dBA
Total Leq All Segments: 49.10 dBA
♠
TOTAL Leg FROM ALL SOURCES (DAY): 55.94
                    (NIGHT): 49.10
```

STAMSON 5.0 NORMAL REPORT Date: 14-01-2025 11:21:32 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p4.te Time Period: Day/Night 16/8 hours

Description: p4 indoor

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night)

Δngle1 Δngle2 · -25 00 deg 0 00 de

Angle1 Angle2 : -25.00 deg 0.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 109.00 / 109.00 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

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Road data, segment # 2: Eagleson Rd SB (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00

```
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
   Heavy Truck % of Total Volume
                               : 5.00
   Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Eagleson Rd SB (day/night)
-----
Angle1 Angle2 : -25.00 deg 0.00 deg Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive
Surface
                           1 (Absorptive ground surface)
Receiver source distance : 121.50 / 121.50 m
Receiver height : 1.50 / 4.50 m
                    : 1 (Flat/gentle slope; no barrier)
Topography
Reference angle : 0.00
Road data, segment # 3: Bridgestone Drive (day/night)
Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume: 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod Posted speed limit : 40 km/h
Road gradient :
                    1 %
Road pavement : 1 (Typical asphalt or concrete)
Data for Segment # 3: Bridgestone Drive (day/night)
                : 0 (No woods.)
: 0 / 0
Angle1 Angle2 : -45.00 deg 0.00 deg
Wood depth
No of house rows
Surface
                     :
                           1
                                 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Eagleson Rd NB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 50.71 + 0.00) = 50.71 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -25 0 0.66 73.68 0.00 -14.30 -8.67 0.00 0.00 0.00 50.71
______
```

Segment Leq: 50.71 dBA

```
Results segment # 2: Eagleson Rd SB (day)
-----
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
  -25 0 0.66 73.68 0.00 -15.08 -8.67 0.00 0.00
                                               0.00 49.93
______
Segment Leq: 49.93 dBA
Results segment # 3: Bridgestone Drive (day)
-----
Source height = 1.50 m
ROAD (0.00 + 43.55 + 0.00) = 43.55 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
       0 0.66 65.72 0.00 -15.84 -6.33 0.00 0.00
                                               0.00 43.55
Segment Leq: 43.55 dBA
Total Leq All Segments: 53.78 dBA
Results segment # 1: Eagleson Rd NB (night)
_____
Source height = 1.50 m
ROAD (0.00 + 43.90 + 0.00) = 43.90 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
  -25 0 0.57 66.08 0.00 -13.52 -8.65 0.00 0.00 0.00 43.90
Segment Leq: 43.90 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
```

```
ROAD (0.00 + 43.16 + 0.00) = 43.16 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-25 0 0.57 66.08 0.00 -14.26 -8.65 0.00 0.00 0.00 43.16
```

Segment Leq: 43.16 dBA

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Results segment # 3: Bridgestone Drive (night)

Source height = 1.50 m

ROAD (0.00 + 36.85 + 0.00) = 36.85 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-45 0 0.57 58.12 0.00 -14.98 -6.29 0.00 0.00 0.00 36.85

Segment Leq: 36.85 dBA

Total Leq All Segments: 47.00 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 53.78 (NIGHT): 47.00

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STAMSON 5.0 NORMAL REPORT Date: 14-01-2025 11:27:20 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: p5.te Time Period: Day/Night 16/8 hours

Description: p5 indoor

Road data, segment # 1: Eagleson Rd NB (day/night)
-----Car traffic volume : 28336/2464 veh/TimePeriod *

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night)

Angle1 Angle2 : 0.00 deg 30.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 108.50 / 108.50 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

1

Road data, segment # 2: Eagleson Rd SB (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00

```
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
   Heavy Truck % of Total Volume
                              : 5.00
   Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Eagleson Rd SB (day/night)
-----
Angle1 Angle2 : 0.00 deg 30.00 deg Wood depth : 0 (No woods.)
No of house rows :
                         0/0
                       1 (Absorptive ground surface)
Surface
Receiver source distance : 121.00 / 121.00 m
Receiver height : 1.50 / 4.50 m
                    : 1 (Flat/gentle slope; no barrier)
Topography
Reference angle : 0.00
Road data, segment # 3: Bridgestone Drive (day/night)
Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume: 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod Posted speed limit : 40 km/h
Road gradient :
                   1 %
Road pavement : 1 (Typical asphalt or concrete)
Data for Segment # 3: Bridgestone Drive (day/night)
Angle1 Angle2 : -35.00 deg 0.00 deg
No of house rows : 0 / 0
Surface
                                (No woods.)
                          0 / 0
                                (Absorptive ground surface)
Receiver source distance : 174.00 / 174.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Eagleson Rd NB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 51.50 + 0.00) = 51.50 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
    0 30 0.66 73.68 0.00 -14.27 -7.91 0.00 0.00 0.00 51.50
______
```

Segment Leq: 51.50 dBA

```
Results segment # 2: Eagleson Rd SB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 50.71 + 0.00) = 50.71 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
   0 30 0.66 73.68 0.00 -15.05 -7.91 0.00 0.00 0.00 50.71
______
Segment Leq: 50.71 dBA
Results segment # 3: Bridgestone Drive (day)
-----
Source height = 1.50 m
ROAD (0.00 + 40.75 + 0.00) = 40.75 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -35 0 0.66 65.72 0.00 -17.67 -7.29 0.00 0.00
                                               0.00 40.75
Segment Leq: 40.75 dBA
Total Leq All Segments: 54.33 dBA
Results segment # 1: Eagleson Rd NB (night)
_____
Source height = 1.50 m
ROAD (0.00 + 44.69 + 0.00) = 44.69 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
------
       30 0.57 66.08 0.00 -13.49 -7.90 0.00 0.00 0.00 44.69
Segment Leq: 44.69 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
```

```
ROAD (0.00 + 43.95 + 0.00) = 43.95 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

0 30 0.57 66.08 0.00 -14.24 -7.90 0.00 0.00 0.00 43.95

Segment Leq : 43.95 dBA

Results segment # 3: Bridgestone Drive (night)

Source height = 1.50 m

ROAD (0.00 + 34.14 + 0.00) = 34.14 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-35 0 0.57 58.12 0.00 -16.71 -7.27 0.00 0.00 0.00 34.14
```

Segment Leq: 34.14 dBA

Total Leq All Segments: 47.55 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 54.33 (NIGHT): 47.55

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Appendix A-2 – STAMSON Noise Calculations Outdoor Living Area (OLA)

STAMSON 5.0 NORMAL REPORT Date: 13-01-2025 23:16:31 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola1.te Time Period: Day/Night 16/8 hours

Description: ola 1

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night)

Angle1 Angle2 : -5.00 deg 30.00 deg Wood depth : 0 (No woods.)

Wood depth : 0
No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 88.50 / 88.50 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

•

Road data, segment # 2: Eagleson Rd SB (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00

```
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
   Heavy Truck % of Total Volume
                               : 5.00
   Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Eagleson Rd SB (day/night)
-----
Angle1 Angle2 : -5.00 deg 30.00 deg Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive
                        1 (Absorptive ground surface)
Surface
Receiver source distance : 101.00 / 101.00 m
Receiver height : 1.50 / 4.50 m
                    : 1 (Flat/gentle slope; no barrier)
Topography
Reference angle : 0.00
Road data, segment # 3: Bridgestone Drive (day/night)
Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume: 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod Posted speed limit : 40 km/h
Road gradient :
                    1 %
Road pavement : 1 (Typical asphalt or concrete)
Data for Segment # 3: Bridgestone Drive (day/night)
Angle1 Angle2 : 0.00 deg 15.00 deg
No of house rows : 0 / 0

Surface
Surface
                     :
                           1
                                 (Absorptive ground surface)
Receiver source distance : 186.00 / 186.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Eagleson Rd NB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 53.65 + 0.00) = 53.65 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
   -5 30 0.66 73.68 0.00 -12.80 -7.23 0.00 0.00 0.00 53.65
______
```

Segment Leq: 53.65 dBA

```
Results segment # 2: Eagleson Rd SB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 52.70 + 0.00) = 52.70 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
   -5 30 0.66 73.68 0.00 -13.75 -7.23 0.00 0.00
                                               0.00 52.70
______
Segment Leq: 52.70 dBA
Results segment # 3: Bridgestone Drive (day)
-----
Source height = 1.50 m
ROAD (0.00 + 36.74 + 0.00) = 36.74 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
       15 0.66 65.72 0.00 -18.15 -10.82 0.00 0.00
                                               0.00 36.74
Segment Leq: 36.74 dBA
Total Leq All Segments: 56.26 dBA
Results segment # 1: Eagleson Rd NB (night)
_____
Source height = 1.50 m
ROAD (0.00 + 46.76 + 0.00) = 46.76 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
       30 0.57 66.08 0.00 -12.10 -7.21 0.00 0.00 0.00 46.76
Segment Leq: 46.76 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
```

0 15 0.57 58.12 0.00 -17.17 -10.82 0.00 0.00 0.00 30.13

Segment Leq: 30.13 dBA

Total Leq All Segments: 49.40 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 56.26 (NIGHT): 49.40

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STAMSON 5.0 NORMAL REPORT Date: 15-01-2025 13:08:06 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola2.te Time Period: Day/Night 16/8 hours

Description: ola 2

Road data, segment # 1: Eagleson Rd NB (day/night)
-----Car traffic volume : 28336/2464 veh/TimePeriod *

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night)

Angle1 Angle2 : 5.00 deg 30.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 112.00 / 112.00 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

•

Road data, segment # 2: Eagleson Rd SB (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00

```
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
   Heavy Truck % of Total Volume
                               : 5.00
   Day (16 hrs) % of Total Volume : 92.00
Data for Segment # 2: Eagleson Rd SB (day/night)
-----
Angle1 Angle2 : 5.00 deg 30.00 deg Wood depth : 0 (No woods.)
No of house rows :
                          0/0
                        1 (Absorptive ground surface)
Surface
Receiver source distance : 124.50 / 124.50 m
Receiver height : 1.50 / 4.50 m
                    : 1 (Flat/gentle slope; no barrier)
Topography
Reference angle : 0.00
Road data, segment # 3: Bridgestone Drive (day/night)
Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume: 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod Posted speed limit : 40 km/h
Road gradient :
                    1 %
Road pavement : 1 (Typical asphalt or concrete)
Data for Segment # 3: Bridgestone Drive (day/night)
ueg 5.00 deg
: 0 (No woods.)
No of house rows : 0 / 0
Surface
                                (Absorptive ground surface)
Receiver source distance : 174.00 / 174.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Results segment # 1: Eagleson Rd NB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 50.45 + 0.00) = 50.45 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
-----
    5 30 0.66 73.68 0.00 -14.49 -8.73 0.00 0.00 0.00 50.45
______
```

Segment Leq: 50.45 dBA

```
Results segment # 2: Eagleson Rd SB (day)
-----
Source height = 1.50 m
ROAD (0.00 + 49.69 + 0.00) = 49.69 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
   5 30 0.66 73.68 0.00 -15.26 -8.73 0.00 0.00
                                               0.00 49.69
______
Segment Leq: 49.69 dBA
Results segment # 3: Bridgestone Drive (day)
-----
Source height = 1.50 m
ROAD (0.00 + 41.35 + 0.00) = 41.35 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
  -35 5 0.66 65.72 0.00 -17.67 -6.69 0.00 0.00
                                               0.00 41.35
Segment Leq: 41.35 dBA
Total Leq All Segments: 53.38 dBA
Results segment # 1: Eagleson Rd NB (night)
_____
Source height = 1.50 m
ROAD (0.00 + 43.66 + 0.00) = 43.66 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
______
       30 0.57 66.08 0.00 -13.71 -8.71 0.00 0.00 0.00 43.66
Segment Leq: 43.66 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
```

```
ROAD (0.00 + 42.94 + 0.00) = 42.94 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

5 30 0.57 66.08 0.00 -14.43 -8.71 0.00 0.00 0.00 42.94

Segment Leq : 42.94 dBA
```

↑
Results segment # 3: Bridgestone Drive (night)

Source height = 1.50 m

ROAD (0.00 + 34.74 + 0.00) = 34.74 dBA

Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq

-35 5 0.57 58.12 0.00 -16.71 -6.67 0.00 0.00 0.00 34.74

Segment Leq: 34.74 dBA

Total Leq All Segments: 46.62 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 53.38 (NIGHT): 46.62

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STAMSON 5.0 NORMAL REPORT Date: 13-01-2025 23:13:01 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ola3.te Time Period: Day/Night 16/8 hours

Description: ola 3

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: Eagleson Rd NB (day/night)

Angle1 Angle2 : -5.00 deg 30.00 deg Wood depth : 0 (No woods.)

No of house rows : 0 / 0

Surface : 1 (Absorptive ground surface)

Receiver source distance : 101.50 / 101.50 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00

^

Road data, segment # 2: Eagleson Rd SB (day/night)

Car traffic volume : 28336/2464 veh/TimePeriod *
Medium truck volume : 2254/196 veh/TimePeriod *
Heavy truck volume : 1610/140 veh/TimePeriod *

Posted speed limit : 60 km/h Road gradient : 1 %

Road pavement : 1 (Typical asphalt or concrete)

* Refers to calculated road volumes based on the following input:

24 hr Traffic Volume (AADT or SADT): 35000 Percentage of Annual Growth : 0.00

Number of Years of Growth : 0.00 Medium Truck % of Total Volume : 7.00 Heavy Truck % of Total Volume : 5.00 Day (16 hrs) % of Total Volume : 92.00 Data for Segment # 2: Eagleson Rd SB (day/night) -----: -5.00 deg 30.00 deg : 0 (No woods Angle1 Angle2 Wood depth (No woods.) No of house rows : Surface : 0 / 0 Surface 1 (Absorptive ground surface) Receiver source distance : 114.00 / 114.00 m Receiver height : 1.50 / 4.50 m

Topography : 1 (Flat/gentle slope; no barrier)

Reference angle : 0.00 Results segment # 1: Eagleson Rd NB (day) _____ Source height = 1.50 m ROAD (0.00 + 52.67 + 0.00) = 52.67 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq ------5 30 0.66 73.68 0.00 -13.78 -7.23 0.00 0.00 0.00 52.67 ______ Segment Leq: 52.67 dBA Results segment # 2: Eagleson Rd SB (day) ______ Source height = 1.50 m

ROAD (0.00 + 51.83 + 0.00) = 51.83 dBAAngle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq -5 30 0.66 73.68 0.00 -14.62 -7.23 0.00 0.00 0.00 51.83 ------

Segment Leq: 51.83 dBA

Total Leq All Segments: 55.28 dBA

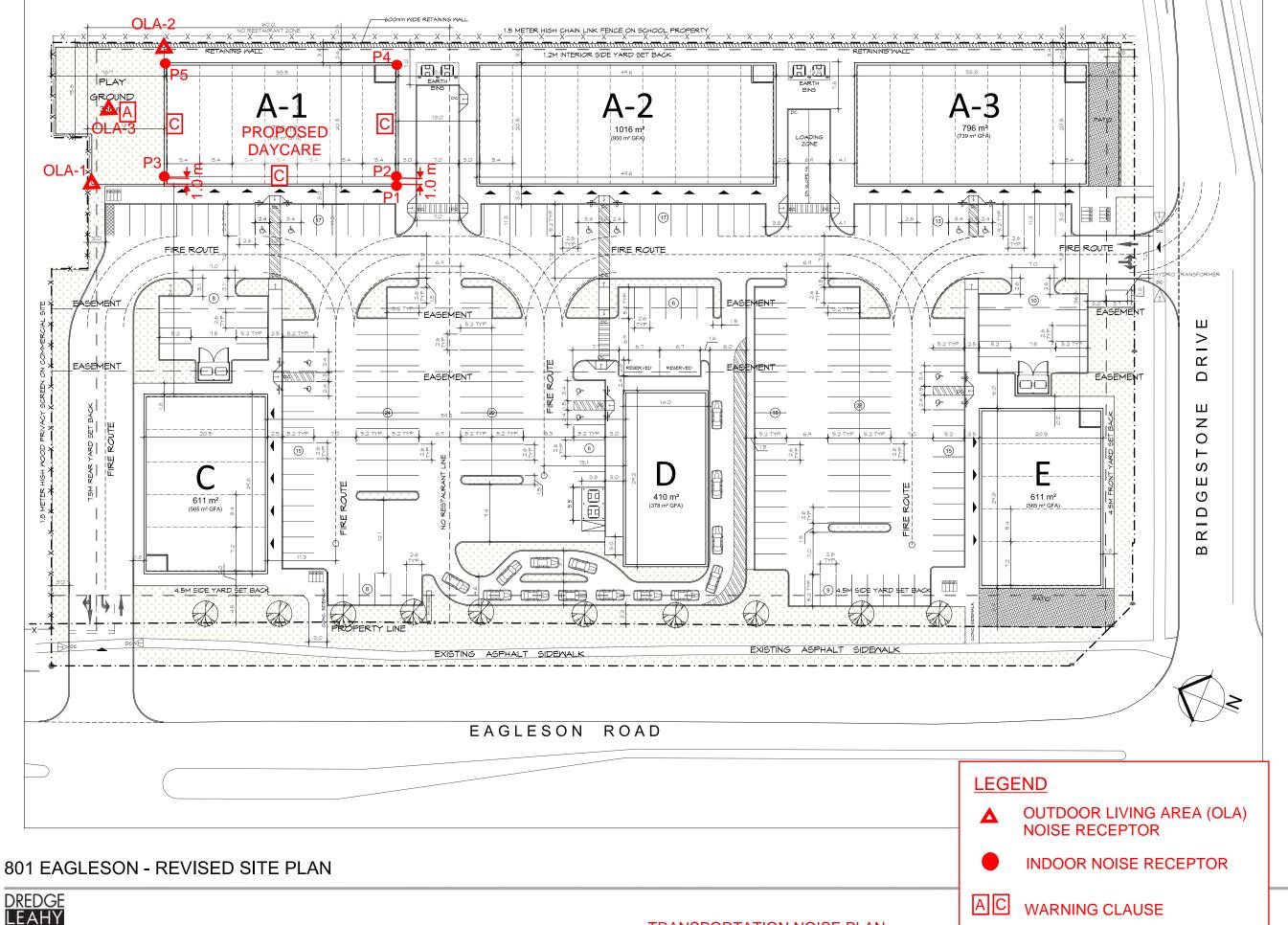
Results segment # 1: Eagleson Rd NB (night)

```
Source height = 1.50 m
ROAD (0.00 + 45.83 + 0.00) = 45.83 dBA
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
   -5 30 0.57 66.08 0.00 -13.04 -7.21 0.00 0.00 0.00 45.83
Segment Leq: 45.83 dBA
Results segment # 2: Eagleson Rd SB (night)
-----
Source height = 1.50 m
ROAD (0.00 + 45.04 + 0.00) = 45.04 \text{ dBA}
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq
   -5 30 0.57 66.08 0.00 -13.83 -7.21 0.00 0.00 0.00 45.04
______
Segment Leq: 45.04 dBA
Total Leq All Segments: 48.46 dBA
♠
TOTAL Leg FROM ALL SOURCES (DAY): 55.28
                    (NIGHT): 48.46
```

ARCADIS
ENVIRONMENTAL NOISE IMPACT ASSESSMENT
801 EAGELESON ROAD
Prepared for Urbandale Corporation

Appendix B – Transportation Noise Plan

January 16, 2025



SITE PLAN LEGEND SYMBOL DESCRIPTION BUILDING LANDSCAPED AREA CONCRETE SIDEWALK FIRE ROUTE RESTAURANT AREA PROPERTY LINE SETBACK LINE NEW CURB NEW DEPRESSED CURB -DC BURIED HYDRO LINES ENTRANCE LAMP STANDARD BOLLARD Ов \triangle S °SP EXISTING WATER STAND POST ELEVATION MARKER СВ CATCH BASIN FINISH FLOOR ELEVATION Ġ STANDARD PARKING SPACE (2.6 × 5.2 M.) REDUCED WIDTH PARKING SPACE (TYPE A (3.4 X 5.2 M) & TYPE B (2.4 X 5.2) NEW BIKE RACK PAINTED LINES PARKING SPACES TOTAL: 214 FLOOR AREA GROSS FLOOR 3,936 m² AREA: BUILDING 4,240 m² AREA: SITE AREA TOTAL: 17,172 m²

SCALE 1:600 2024-02-01

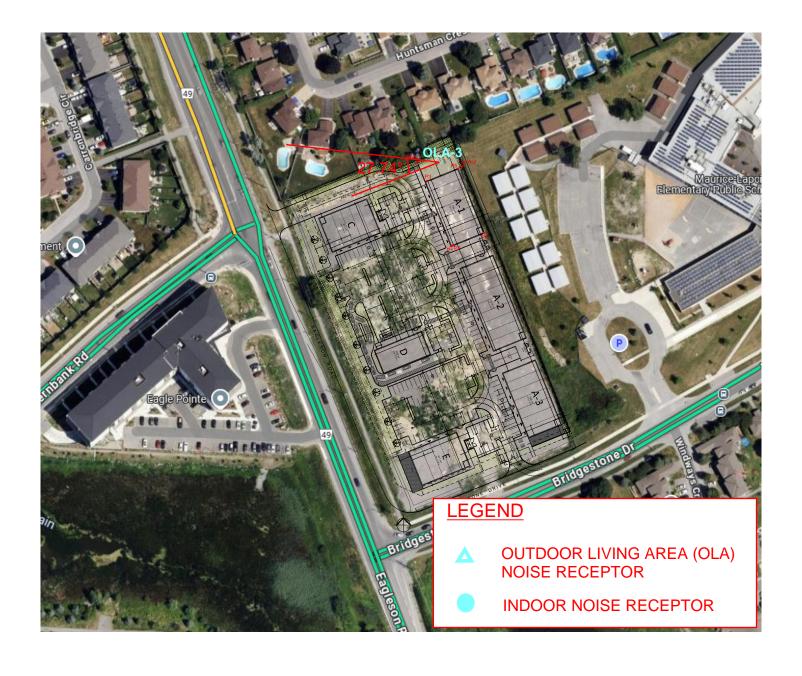




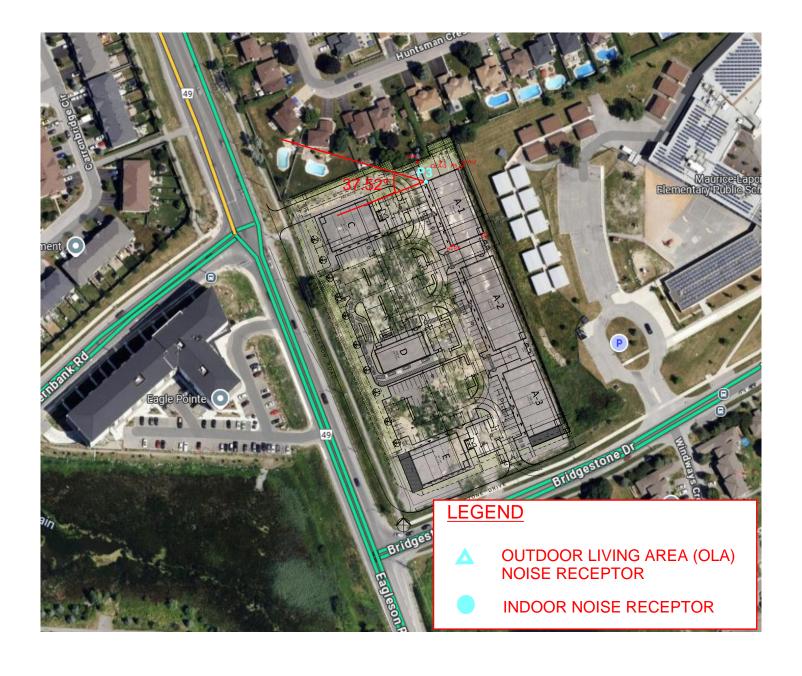
Peripheral Noise Angles - Receptor OLA-1



Peripheral Noise Angles - Receptor OLA-2



Peripheral Noise Angles - Receptor OLA-3



Peripheral Noise Angles - Receptor P3



Peripheral Noise Angles - Receptor P4



Peripheral Noise Angles - Receptor P5

Appendix C – CadnaA Output

o Appendix C-1 – Unattenuated On-Site Stationary Noise Sources

January 16, 2025

