

# Environmental Noise Assessment

## Joshua Creek Lands – Phase 3

**Proposed Residential Development**  
Dundas Street East and Ninth Line  
Town of Oakville

July 22, 2021  
Project: 112-242-200

Prepared for

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## Version History

Version #	Date	Comments
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# Environmental Noise Assessment

## Joshua Creek Lands – Phase 3

### Proposed Residential Development Dundas Street East and Ninth Line Town of Oakville

#### **EXECUTIVE SUMMARY**

Valcoustics Canada Ltd. (VCL) was retained to prepare an Environmental Noise Assessment report addressing the potential noise impact from the existing environment onto the proposed residential development. The development consists of 710 single detached dwellings, 38 street townhouse blocks, 20 rear lane townhouse blocks, 2 live/work townhouse blocks and 16 residential reserve blocks. The development will also have village square, park, school, open space, natural heritage system and servicing blocks.

The significant transportation noise source in the vicinity is road traffic on the internal collector roadways (Streets “A”, “B”, “D”, “L” and the roadway adjacent to the south property line, referred to in this report as Street “ZZ”). There are no stationary noise sources in the vicinity with the potential to significantly impact the proposed development.

The sound levels on site have been determined and compared with the applicable Ministry of the Environment, Conservation and Parks (MECP) noise guideline limits to determine the need for noise mitigation.

To meet the applicable transportation noise source guideline limits:

- Dwellings along Streets “A”, “B”, “D”, “L” and “ZZ” require the provision for adding air conditioning.
- At all dwellings, exterior wall and window construction meeting the minimum non-acoustical requirements of the Ontario Building Code (OBC) will be sufficient to meet the indoor noise criteria.

#### **1.0 INTRODUCTION**

VCL has been retained to prepare an Environmental Noise Assessment for the proposed residential development in support of the Draft Plan of Subdivision application submission to the Town of Oakville. The potential sound levels and noise mitigation measures needed for the proposed dwellings to comply with the MECP noise guidelines are outlined herein.

## 1.1 SITE LOCATION AND SURROUNDING AREA

The subject site is located to the northwest of the intersection of Dundas Street East and Ninth Line in the Town of Oakville. The site is bounded by future residential development on all sides.

A Key Plan is included as Figure 1.

The analysis is based on the Draft Plan of Subdivision, prepared by Korsiak Urban Planning, dated June 16, 2021. The Draft Plan of Subdivision is included as Figure 2.

## 1.2 THE PROPOSED DEVELOPMENT

The proposed development consists of 710 single detached dwellings, 38 street townhouse blocks, 20 rear lane townhouse blocks, 2 live/work townhouse blocks and 16 residential reserve blocks.

The rear lane and live/work townhouses will be three storeys. All other dwellings will be two storeys.

The detached dwellings and the street townhouses will be provided with grade-level rear yard outdoor amenity space. The rear lane and live/work townhouses will be provided with small balconies or terraces.

## 2.0 NOISE SOURCES

### 2.1 TRANSPORTATION SOURCES

The main noise source with the potential for impact on the proposed development will be road traffic on the internal collector roadways (Streets “A”, “B”, “D”, “L”). In addition to those noted the plan, the roadway adjacent to the south property line has also been included and will be referred to in this report as “Street ZZ”. Burnhamthorpe Road and Dundas Street East are approximately 350 m to the north and 550 m to the south, respectively, of the proposed dwellings. Due to the distance separation, these roads are not expected to have a significant impact at the subject site. Traffic volumes on the other surrounding roadways are anticipated to be minor and significant noise impact is not expected.

Road traffic volumes applicable to the year 2025 for Streets “A” (John McKay Boulevard) and “L” were obtained from the Dunoak and Bressa Draft Plans, Proposed Residential Developments, Traffic Impact Study (TIS), prepared by GHD Inc., dated April 2019. (Streets “A” and “L” were referred as “Prince Michael Drive” and “Street A”, respectively, in the TIS.) Peak AM and PM volumes were converted to 24-hour volumes using a factor of 10. To be conservative, the higher volume (based on the PM peak) was used in the analysis. A growth rate of 2%, compounded annually, was used to obtain the year 2031 traffic volumes. A day/night split of 90%/10% was used as is typical for well-travelled roadways. Medium/heavy truck percentages were assumed to be 3%/2%, respectively.

No traffic volumes were shown for the other internal roadways in the development. Since Street “A” (John McKay Boulevard) has the same ROW (22 m) as Streets “B”, “D”, and “ZZ”, the traffic volumes and compositions from Street “A” were applied to Streets “B”, “D”, and “ZZ”.

The data is summarized in Table 1 and shown in Appendix A.

## 2.2 STATIONARY SOURCES

The stationary noise sources in the vicinity with the potential for impact at the subject site are the future elementary school within the development itself as well as the future elementary school in the adjacent phase to the south. The main noise sources associated with the schools will be the rooftop mechanical units. During the detailed design process for these buildings, it is expected that the mechanical equipment will be designed to meet the noise guideline limits outlined in NPC-300 at the neighbouring noise sensitive uses, including the residential dwellings within the development. Thus, the school blocks have not been considered further in this assessment.

## 3.0 ENVIRONMENTAL NOISE GUIDELINES

### 3.1 MECP PUBLICATION NPC-300 – TRANSPORTATION NOISE SOURCES

The applicable noise guidelines for new residential development are those in MECP Publication NPC-300, “Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning”.

The environmental noise guidelines of the MECP, as provided in Publication NPC-300, are discussed briefly below and summarized in Appendix B.

#### 3.1.1.1 Architectural Elements

In the daytime (0700 to 2300), the indoor criterion for road noise is  $L_{eq\ Day}$  (16-hour energy equivalent sound level) of 45 dBA for sensitive spaces such as living/dining rooms, dens and bedrooms. At night (2300 to 0700), the indoor criterion for road noise is  $L_{eq\ Night}$  (8-hour energy equivalent sound level) of 45 dBA for sensitive spaces such as living/dining rooms and dens and 40 dBA for bedrooms.

#### 3.1.1.2 Ventilation

In accordance with the MECP noise guideline for road traffic sources, if the daytime sound level,  $L_{eq\ Day}$ , at the exterior face of a noise sensitive window is greater than 65 dBA, means must be provided so that windows can be kept closed for noise control purposes and central air conditioning is required. For daytime sound levels between 56 dBA and 65 dBA inclusive, there need only be the provision for adding air conditioning at a later date. A warning clause advising the occupant of the potential interference with some activities is also required. At nighttime, air conditioning would be required when the sound level exceeds 60 dBA ( $L_{eq\ Night}$ ) at a noise sensitive window (provision for adding air conditioning is required when greater than 50 dBA).

#### 3.1.1.3 Outdoors

For outdoor amenity areas (“Outdoor Living Areas” - OLA’s), the guideline is 55 dBA  $L_{eq\ Day}$  (0700 to 2300 hours), with an excess not exceeding 5 dBA considered acceptable if it is technically not practicable to achieve the 55 dBA objective, providing warning clauses are registered on title. Note that for road traffic sources, a balcony is not considered an OLA, unless it is:

- the only OLA for the occupant;
- at least 4 m in depth; and
- unenclosed.

## 3.2 REGION OF HALTON

The Region of Halton Noise guidelines are listed in the Abatement Guidelines (part of the Regional Official Plan Guidelines) and the Region of Halton Noise Abatement Policy for Regional Roads (Retrofit Locations) and New Developments. The Region's criteria for OLA's is 55 dBA. The Region has a minimum sound barrier height of 2.4 m and a maximum sound barrier height of 3.5 m, where a sound barrier is needed adjacent to Regional Roads. Also, the criteria for traffic noise prediction is required to be based on the 20-year traffic forecast for the adjacent regional roads.

## 4.0 NOISE IMPACT ASSESSMENT

### 4.1 ASSESSMENT

Using the road traffic data in Table 1, the sound levels, in terms of  $L_{eq\ Day}$  and  $L_{eq\ Night}$ , were determined using STAMSON V5.04 - ORNAMENT, the computerized road traffic noise prediction model of the MECP.

The daytime and nighttime sound levels at the building facades were calculated at a height of 4.5 m above grade for the detached dwellings and street townhouses, and 7.5 m above grade for the rear lane and live/work townhouse units. These heights represent the top floor windows, the worst-case locations.

For the detached dwellings and street townhouses, the daytime OLA sound levels were calculated at a height of 1.5 m above grade, 3 m from the midpoint of the rear dwelling Facade. The rear lane and live/work townhouse units do not have grade-level amenity space. It is understood that all terraces and balconies in the development will be less than 4 m in depth and therefore would not qualify as OLA's.

Inherent screening of each building due to its orientation to the noise source was taken into account.

### 4.2 RESULTS

At the building facades, the highest predicted daytime and nighttime sound levels of 64 dBA and 57 dBA, respectively, are predicted to occur at the lots at the intersection of Streets "A" and "D" (e.g. Lot 84) and the blocks at the intersection of Streets "B" and "L" (e.g. Block 766).

The highest unmitigated daytime OLA sound level of 60 dBA is predicted to occur at the rear yards of lots siding onto the 22 m ROW collectors (Streets "A", "B", "D" and "ZZ").

The predicted sound levels are summarized in Table 2. Sample calculations are included in Appendix C.

## 5.0 NOISE ABATEMENT REQUIREMENTS

The noise control measures can generally be classified into two categories which are interrelated, but which can be treated separately for the most part:

- a) Architectural elements to achieve acceptable indoor noise guidelines for transportation sources; and
- b) Design features to protect the OLAs.



Noise abatement requirements are summarized in Table 3.

## **5.1 INDOORS**

### **5.1.1 Architectural Requirements**

The indoor noise level guidelines can be achieved by using appropriate construction for exterior walls, windows and doors. Based on the predicted sound levels, exterior wall and window construction meeting the minimum non-acoustical standards of the Ontario Building Code will be sufficient to meet the indoor noise criteria.

### **5.1.2 Ventilation Requirements**

Dwellings along Streets “A”, “B”, “D”, “L”, and “ZZ” require the provision for adding air conditioning. This typically takes the form of a ducted, forced air heating system, suitably sized to accommodate central air conditioning.

There are no ventilation requirements for noise control purposes at the other dwellings.

## **5.2 OUTDOORS**

The unmitigated daytime OLA sound levels at the grade-level outdoor amenity areas all dwellings are predicted to be within the 60 dBA maximum permitted under the MECP guidelines. Thus, sound barriers are not considered mandatory.

It is understood that all balconies and terraces in the development will be less than 4 m in depth and are therefore not considered OLA's under the MECP guidelines. Thus, sound barriers are not required for noise control purposes.

## **5.3 WARNING CLAUSES**

Warning clauses are a tool to inform prospective owners/occupants of potential annoyance due to existing noise sources. Where the guideline sound level limits are exceeded, appropriate warning clauses should be registered on title or included in the development agreement that is registered on title. The warning clauses should also be included in agreements of Offers of Purchase and Sale and lease/rental agreements to make future occupants aware of the potential noise situation.

The warning clauses are shown in Table 3 and the notes to Table 3.

## **6.0 CONCLUSIONS**

With the noise mitigation measures recommended herein, the resultant sound levels both indoors and outdoors will be within the acceptable limits established by the MECP.

## **7.0 REFERENCES**

1. PC STAMSON 5.04, “Computer Program for Road Traffic Noise Assessment”, Ontario Ministry of the Environment and Climate Change.

2. Building Practice Note No. 56: “Controlling Sound Transmission into Buildings”, by J. D. Quirt, Division of Building Research, National Council of Canada, September 1985.
3. “Environmental Noise Guideline, Stationary and Transportation Sources - Approval and Planning”, Ontario Ministry of the Environment, Publication NPC-300, October 2013.
4. “Road and Rail Noise: Effects on Housing”, Canada Mortgage and Housing Corporation, Publication NHA 5156, 81/10.
5. “Dunoak and Bressa Draft Plans, Proposed Residential Development, Traffic Impact Study”, GHD Inc., April 2019.

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**TABLE 1 ROAD TRAFFIC DATA**

Roadway	Year	AADT <sup>(1)</sup>	% Trucks		Day / Night Split (%)	Speed Limit (km/h)
			Medium	Heavy		
Street "A" <sup>(2)</sup> John McKay Boulevard	2025 (2031)	7 590 (8 548)	3	2	90/10	50
Street "B" <sup>(3)</sup>	2025 (2031)	7 590 (8 548)	3	2	90/10	50
Street "D" <sup>(3)</sup>	2025 (2031)	7 590 (8 548)	3	2	90/10	50
Street "L" <sup>(2)</sup>	2025 (2031)	4 220 (4 752)	3	2	90/10	50
Street "ZZ"	2025 (2031)	7 590 (8 548)	3	2	90/10	50

Notes:

- (1) AADT – Annual Average Daily Traffic.
- (2) Traffic volumes for Streets "A" and "L" were taken from the Traffic Impact Study, dated April 2019, prepared by GHD Inc. The year 2025 traffic volumes were projected to the year 2031 at a growth rate of 2%, compounded annually. Truck percentages and day/night split were assumed.
- (3) Streets "B", "D" and "ZZ" were assumed to have the same volumes and traffic compositions as Street "A".

**TABLE 2 PREDICTED OUTDOOR SOUND LEVELS**

Location <sup>(1)</sup>	Source	Distance (m) <sup>(3)</sup>	L <sub>eq</sub> Day (dBA)	L <sub>eq</sub> Night (dBA)
Lot 6 (North Facade)	Street "D"	25	55	49
Lot 6 (OLA)	Street "D"	29	55	-
Lot 7 (East Facade)	Street "D"	13	63	56
Lot 7 (OLA)	Street "D"	17	60	-
Lot 84 (South Facade)	Street "A"	14	62	56
	Street "D"	17	58	51
	<b>TOTAL</b>	-	<b>64</b>	<b>57</b>
Lot 84 (OLA)	Street "A"	19	59	-
Lot 276 (Northeast Facade)	Street "A"	13	63	56
Lot 276 (OLA)	Street "A"	17	60	-
Lot 315 (Southwest Facade)	Street "A"	17	61	54
	Street "L"	12	57	50
	<b>TOTAL</b>	-	<b>62</b>	<b>56</b>
Lot 315 (OLA)	Street "L"	16	57	-
Block 752 (Northwest Facade)	Street "L"	12	61	54
Block 766 (Southwest Facade)	Street "B"	14	62	56
	Street "L"	14	57	50
	<b>TOTAL</b>	-	<b>64</b>	<b>57</b>

**Notes:**

- (1) See Figure 2. At the detached dwellings, Facade sound levels at the detached dwellings were calculated at a height of 4.5 m above grade, representing the top storey plane of window. Daytime OLA sound levels were calculated at a height of 1.5 m above grade. At the townhouse blocks, Facade sound levels were calculated at a height of 7.5 m above grade, representing the top storey plane of windows.
- (2) Distance indicated is taken from the centreline of the noise source to the point of reception.

**TABLE 3 NOISE ABATEMENT REQUIREMENTS**

Location	Air Conditioning <sup>(1)</sup>	Exterior Wall <sup>(2)</sup>	Exterior Window <sup>(2,3)</sup>	Acoustic Fence <sup>(4)</sup>	Warning Clauses <sup>(5)</sup>
Lots 7, 10 to 13, 40, 81 to 92, 105, 111 to 116, 164 to 201, 246 to 250, 276, 295 to 331, 391 to 395, 423 to 427, 436 to 438, 457, 540 to 551 and 632 to 639  Blocks 711 to 719, 723 to 727, 731 to 734, 738 to 752, 757, 760 to 763, 766 to 770, 784, 790, 791 and 793	Provision for adding	No special acoustical requirements		None	A + B + C
All other dwellings	No special acoustical requirements				-

**Notes:**

- (1) Provision for adding air conditioning typically takes the form of a ducted ventilation system sized to accommodate the addition of central air conditioning by the occupant.
- (2) STC – Sound Transmission Class Rating (Reference ASTM E-413).
- (3) A sliding glass walkout door should be considered as a window and be included in the percentage of glazing.
- (4) Sound barriers must be of solid construction with no gaps or cracks and must meet a minimum surface density of 20kg/m<sup>2</sup>. Earthen berms, solid fences or combinations of berms/fences are acceptable.
- (5) Standard example warning clauses to be registered on title and be included in Offers of Purchase and Sale and Leases on designated units:
  - A. "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 traffic may on occasions interfere with some activities of the dwelling occupants as the sound level exceed the Municipality's and the Ministry of the Environment's noise criteria."
  - B. "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."
  - C. "Purchasers/tenants are advised that balconies and/or raised decks have not been designed to meet the sound level limits of the Ministry of the Environment, Conservation and Parks, Region of Halton or Town of Oakville. Sound levels due to road traffic may interfere with some activities."
- (6) Conventional roof construction meeting Ontario Building Code requirements is satisfactory in all cases.
- (7) All exterior doors shall be fully weather-stripped.



No.	Revision/Issue	Date

  
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**Title**  
Key Plan

**Project Name**  
Joshua Creek Lands - Phase 3,  
Oakville

**Project No.**  
112-242-200

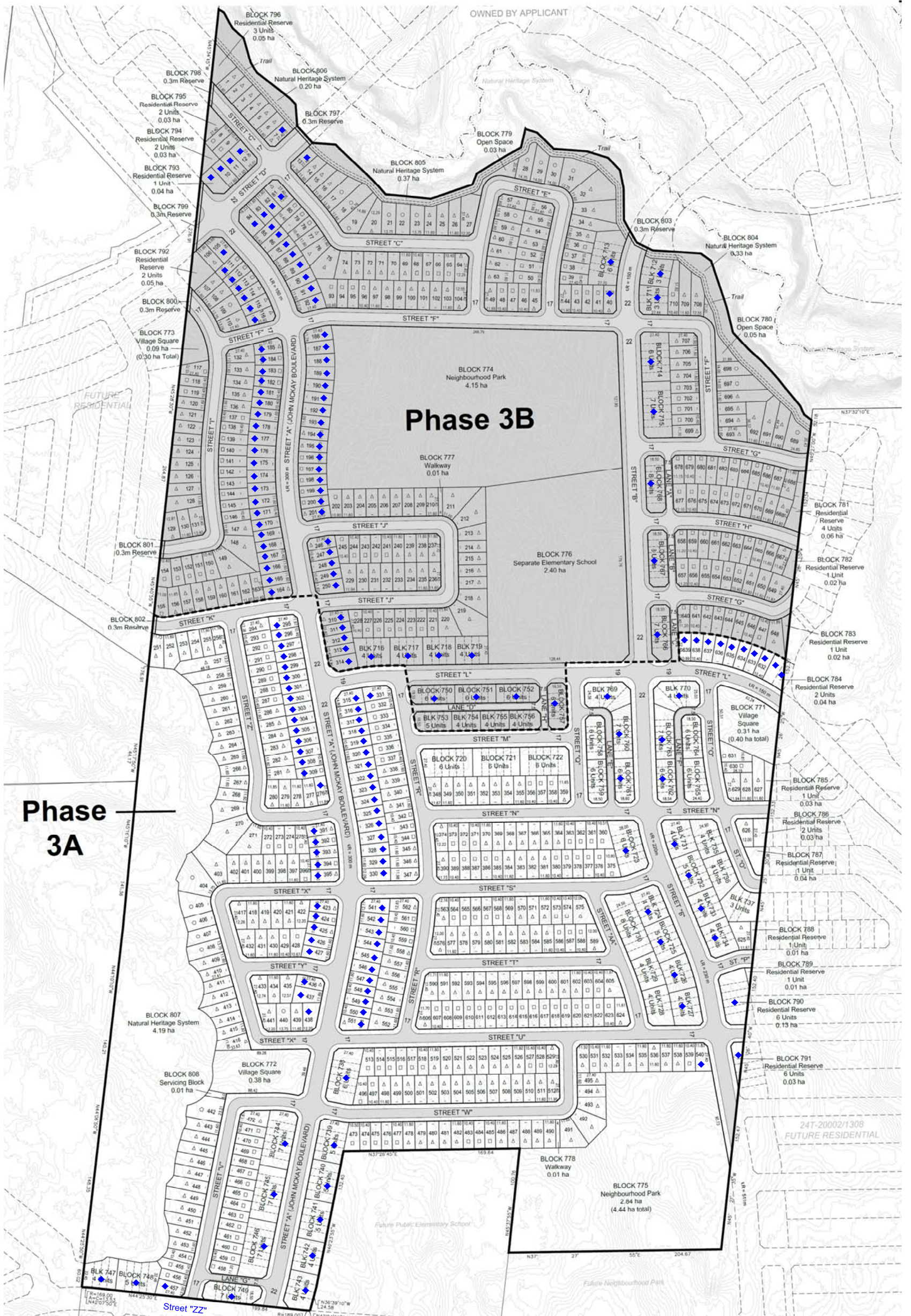
**Scale**  
N.T.S.

**Date**  
July 17, 2021

**Figure**  
**1**

LEGEND

◆ Provision for Adding Air Conditioning



BASE DRAWING BY KORSIK URBAN PLANNING

				Title	Project No.	Date
				Draft Plan of Subdivision	112-242-200	July 17, 2021
No.	Revision/Issue	Date	30 Wertheim Court, Unit 25 Richmond Hill, Ontario Canada L4B 1B9 Tel: 905-764-5223 Fax: 905-764-6813 solutions@valcoustics.com	Project Name	Scale	Figure
				Joshua Creek Lands - Phase 3, Oakville	N.T.S.	2

# **APPENDIX A**

## **ROAD TRAFFIC DATA**



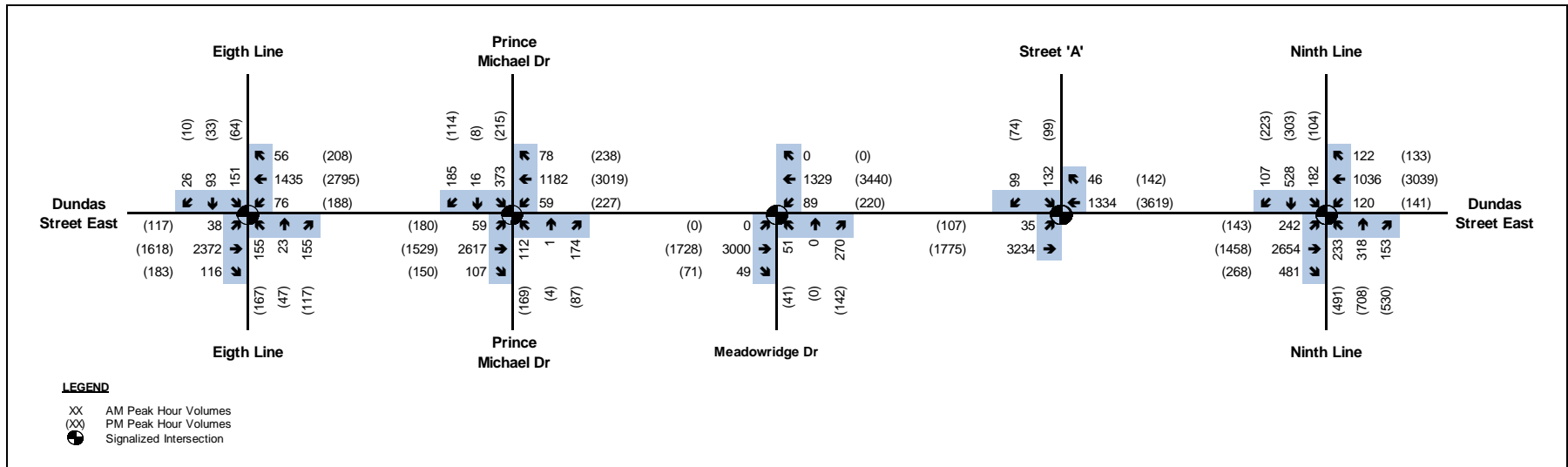


Figure 9 Future Total Traffic Volumes 2020

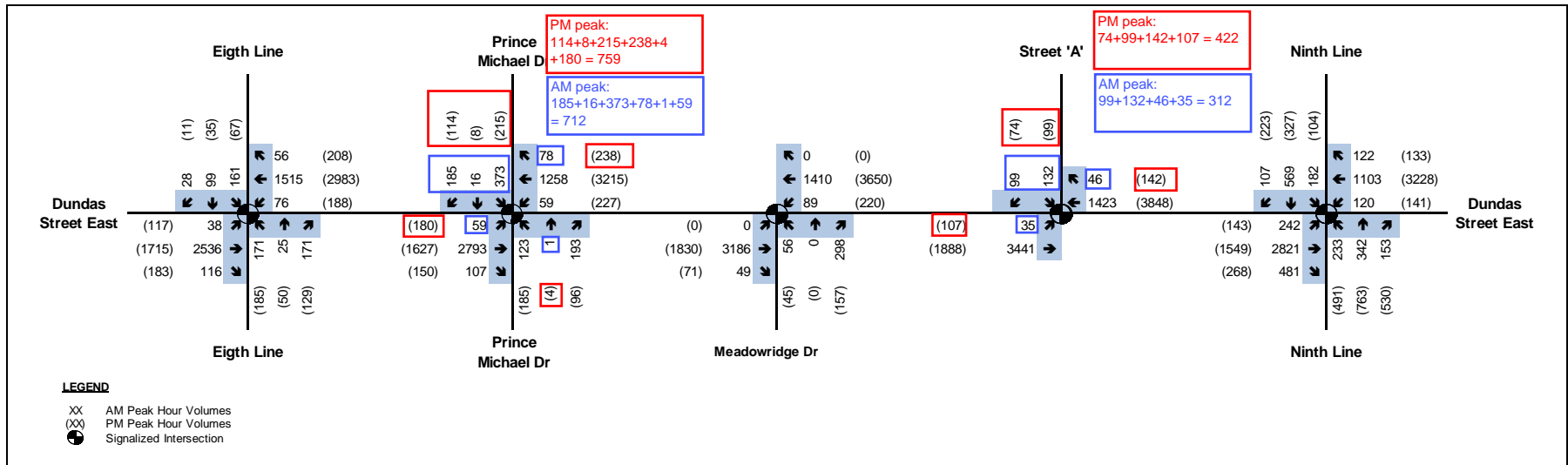


Figure 10 Future Total Traffic Volumes 2025

# **APPENDIX B**

## **ENVIRONMENTAL NOISE GUIDELINES**

**APPENDIX B**  
**ENVIRONMENTAL NOISE GUIDELINES**  
**MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)**

Reference: MECP Publication NPC-300, October 2013: “*Environmental Noise Guideline, Stationary and Transportation Sources – Approval and Planning*”.

SPACE	SOURCE	TIME PERIOD	CRITERION
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Road	23:00 to 07:00	45 dBA
	Rail	23:00 to 07:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 5
Sleeping quarters	Road	07:00 to 23:00	45 dBA
	Rail	07:00 to 23:00	40 dBA
	Aircraft	24-hour period	NEF/NEP 0
Sleeping quarters	Road	23:00 to 07:00	40 dBA
	Rail	23:00 to 07:00	35 dBA
	Aircraft	24-hour period	NEF/NEP 0
Outdoor Living Areas	Road and Rail	07:00 to 23:00	55 dBA
Outdoor Point of Reception	Aircraft	24-hour period	NEF/NEP 30 <sup>#</sup>
	Stationary Source		
	Class 1 Area	07:00 to 19:00 <sup>(1)</sup>	50 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(1)</sup>	50 <sup>+</sup> dBA
	Class 2 Area	07:00 to 19:00 <sup>(2)</sup>	50 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(2)</sup>	45 <sup>+</sup> dBA
	Class 3 Area	07:00 to 19:00 <sup>(3)</sup>	45 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(3)</sup>	40 <sup>+</sup> dBA
	Class 4 Area	07:00 to 19:00 <sup>(4)</sup>	55 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(4)</sup>	55 <sup>+</sup> dBA

.../cont'd

SPACE	SOURCE	TIME PERIOD	CRITERION
Plane of a Window of Noise Sensitive Spaces	Stationary Source Class 1 Area	07:00 to 19:00 <sup>(1)</sup>	50 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(1)</sup>	50 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(1)</sup>	45 <sup>+</sup> dBA
	Class 2 Area	07:00 to 19:00 <sup>(2)</sup>	50 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(2)</sup>	50 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(2)</sup>	45 <sup>+</sup> dBA
	Class 3 Area	07:00 to 19:00 <sup>(3)</sup>	45 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(3)</sup>	45 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(3)</sup>	40 <sup>+</sup> dBA
	Class 4 Area	07:00 to 19:00 <sup>(4)</sup>	60 <sup>+</sup> dBA
		19:00 to 23:00 <sup>(4)</sup>	60 <sup>+</sup> dBA
		23:00 to 07:00 <sup>(4)</sup>	55 <sup>+</sup> dBA

- # may not apply to in-fill or re-development.  
 \* or the minimum hourly background sound exposure  $L_{eq(1)}$ , due to road traffic, if higher.  
 (1) Class 1 Area: Urban.  
 (2) Class 2 Area: Urban during day; rural-like evening and night.  
 (3) Class 3 Area: Rural.  
 (4) Class 4 Area: Subject to land use planning authority's approval.

Reference: MECP Publication ISBN 0-7729-2804-5, 1987: "Environmental Noise Assessment in Land-Use Planning".

EXCESS ABOVE RECOMMENDED SOUND LEVEL LIMITS (dBA)	CHANGE IN SUBJECTIVE LOUDNESS ABOVE	MAGNITUDE OF THE NOISE PROBLEM	NOISE CONTROL MEASURES (OR ACTION TO BE TAKEN)
No excess (<55 dBA)	—	No expected noise problem	None
1 to 5 inclusive (56 to 60 dBA)	Noticeably louder	Slight noise impact	If no physical measures are taken, then prospective purchasers or tenants should be made aware by suitable warning clauses.
6 to 10 inclusive (61 - 65 dBA)	Almost twice as loud	Definite noise impact	Recommended.
11 to 15 inclusive (66 - 70 dBA)	Almost three times as loud	Serious noise impact	Strongly Recommended.
16 and over (>70 dBA)	Almost four times as loud	Very serious noise impact	Strongly Recommended (may be mandatory).

# **APPENDIX C**

## **SAMPLE CALCULATIONS**

STAMSON 5.04                    NORMAL REPORT                    Date: 22-07-2021 11:36:29  
MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: b766\_swf.te                    Time Period: Day/Night 16/8 hours

**Description: Block 766 - Southwest Facade**

Road data, segment # 1: Street B (day/night)

-----  
Car traffic volume    : 7308/812    veh/TimePeriod    \*  
Medium truck volume : 231/26     veh/TimePeriod    \*  
Heavy truck volume  : 154/17     veh/TimePeriod    \*  
Posted speed limit  : 50 km/h  
Road gradient        : 0 %  
Road pavement       : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7590  
Percentage of Annual Growth        : 2.00  
Number of Years of Growth         : 6.00  
Medium Truck % of Total Volume    : 3.00  
Heavy Truck % of Total Volume     : 2.00  
Day (16 hrs) % of Total Volume    : 90.00

Data for Segment # 1: Street B (day/night)

-----  
Angle1    Angle2                : -90.00 deg    90.00 deg  
Wood depth                        : 0            (No woods.)  
No of house rows                   : 0 / 0  
Surface                             : 1            (Absorptive ground surface)  
Receiver source distance           : 14.00 / 14.00 m  
Receiver height                    : 7.50 / 7.50 m  
Topography                         : 1            (Flat/gentle slope; no barrier)  
Reference angle                    : 0.00

Road data, segment # 2: Street L (day/night)

-----  
Car traffic volume    : 4063/451    veh/TimePeriod    \*  
Medium truck volume : 128/14     veh/TimePeriod    \*  
Heavy truck volume  : 86/10     veh/TimePeriod    \*  
Posted speed limit  : 50 km/h  
Road gradient        : 0 %  
Road pavement       : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 4220  
Percentage of Annual Growth        : 2.00  
Number of Years of Growth         : 6.00  
Medium Truck % of Total Volume    : 3.00  
Heavy Truck % of Total Volume     : 2.00  
Day (16 hrs) % of Total Volume    : 90.00

Data for Segment # 2: Street L (day/night)

-----  
Angle1 Angle2 : 0.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 14.00 / 14.00 m  
Receiver height : 7.50 / 7.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Street B (day)

-----  
Source height = 1.19 m

ROAD (0.00 + 62.43 + 0.00) = 62.43 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 90 0.49 63.14 0.00 0.45 -1.15 0.00 0.00 0.00 62.43  
-----

Segment Leq : 62.43 dBA

Results segment # 2: Street L (day)

-----  
Source height = 1.19 m

ROAD (0.00 + 56.88 + 0.00) = 56.88 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
0 90 0.49 60.60 0.00 0.45 -4.17 0.00 0.00 0.00 56.88  
-----

Segment Leq : 56.88 dBA

Total Leq All Segments: 63.50 dBA

Results segment # 1: Street B (night)

-----  
Source height = 1.19 m

ROAD (0.00 + 55.90 + 0.00) = 55.90 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 90 0.49 56.61 0.00 0.45 -1.15 0.00 0.00 0.00 55.90  
-----

Segment Leq : 55.90 dBA

Results segment # 2: Street L (night)

-----  
Source height = 1.20 m

ROAD (0.00 + 50.43 + 0.00) = 50.43 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
0 90 0.49 54.15 0.00 0.45 -4.17 0.00 0.00 0.00 50.43  
-----

Segment Leq : 50.43 dBA

Total Leq All Segments: 56.98 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.50  
(NIGHT): 56.98

STAMSON 5.04                    NORMAL REPORT                    Date: 22-07-2021 11:26:40  
MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS / NOISE ASSESSMENT

Filename: l84\_sf.te                    Time Period: Day/Night 16/8 hours

**Description: Lot 84 - South Facade**

Road data, segment # 1: Street A (day/night)

-----  
Car traffic volume : 7308/812    veh/TimePeriod    \*  
Medium truck volume : 231/26    veh/TimePeriod    \*  
Heavy truck volume : 154/17    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7590  
Percentage of Annual Growth : 2.00  
Number of Years of Growth : 6.00  
Medium Truck % of Total Volume : 3.00  
Heavy Truck % of Total Volume : 2.00  
Day (16 hrs) % of Total Volume : 90.00

Data for Segment # 1: Street A (day/night)

-----  
Angle1    Angle2                    : -90.00 deg    90.00 deg  
Wood depth : 0                    (No woods.)  
No of house rows : 0 / 0  
Surface : 1                    (Absorptive ground surface)  
Receiver source distance : 14.00 / 14.00 m  
Receiver height : 4.50 / 4.50 m  
Topography : 1                    (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Road data, segment # 2: Street D (day/night)

-----  
Car traffic volume : 7308/812    veh/TimePeriod    \*  
Medium truck volume : 231/26    veh/TimePeriod    \*  
Heavy truck volume : 154/17    veh/TimePeriod    \*  
Posted speed limit : 50 km/h  
Road gradient : 0 %  
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 7590  
Percentage of Annual Growth : 2.00  
Number of Years of Growth : 6.00  
Medium Truck % of Total Volume : 3.00  
Heavy Truck % of Total Volume : 2.00  
Day (16 hrs) % of Total Volume : 90.00



Data for Segment # 2: Street D (day/night)

-----  
Angle1 Angle2 : -90.00 deg 0.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 17.00 / 17.00 m  
Receiver height : 4.50 / 4.50 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Street A (day)

-----  
Source height = 1.19 m

ROAD (0.00 + 62.30 + 0.00) = 62.30 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 90 0.58 63.14 0.00 0.47 -1.32 0.00 0.00 0.00 62.30  
-----

Segment Leq : 62.30 dBA

Results segment # 2: Street D (day)

-----  
Source height = 1.19 m

ROAD (0.00 + 57.95 + 0.00) = 57.95 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 0 0.58 63.14 0.00 -0.86 -4.33 0.00 0.00 0.00 57.95  
-----

Segment Leq : 57.95 dBA

Total Leq All Segments: 63.66 dBA

Results segment # 1: Street A (night)

-----  
Source height = 1.19 m

ROAD (0.00 + 55.76 + 0.00) = 55.76 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 90 0.58 56.61 0.00 0.47 -1.32 0.00 0.00 0.00 55.76  
-----

Segment Leq : 55.76 dBA

Results segment # 2: Street D (night)

-----  
Source height = 1.19 m

ROAD (0.00 + 51.42 + 0.00) = 51.42 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-90 0 0.58 56.61 0.00 -0.86 -4.33 0.00 0.00 0.00 51.42  
-----

Segment Leq : 51.42 dBA

Total Leq All Segments: 57.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.66  
(NIGHT): 57.12