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Noise Feasibility Study
Proposed Residential Development
Thorny Brae Place
Mississauga, Ontario

Prepared for:

2462357 Ontario Inc.
c/o Pace Developments
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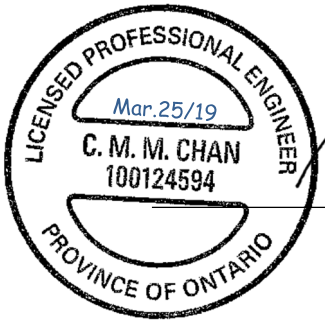
Richmond hill, ON L4B 1B9

Prepared by:



Mandy Chan, PEng

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HGC Project No. 01601111

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1 INTRODUCTION & SUMMARY

HGC Engineering was retained by 2462357 Ontario Inc. (Pace Development) to conduct a noise feasibility study for a proposed residential development to be located at Thorny Brae Place, in Mississauga, Ontario. The proposed development will consist of one single detached dwelling and seven blocks of 3-storey townhouses and associated roadways. The study is required by the Municipality as part of the planning and approvals process, specifically for Official Plan Amendment, Rezoning and Subdivision Application.

The original noise study was completed on November 15, 2017 and has been updated to reflect the latest concept plan.

The primary sources of noise impacting the site were determined to be road traffic on Eglinton Avenue West and Mississauga Road. Relevant road traffic data was obtained from the City of Mississauga and was used to predict future traffic sound levels at the locations of the proposed residential dwelling facades and in the outdoor living areas. The predicted sound levels were compared to the guidelines of the Ministry of Environment (MECP) and the Municipality to develop noise control recommendations.

The sound level predictions indicate that the future road traffic sound levels will exceed MECP guidelines at all dwellings with exposure to the roadways. Central air conditioning systems and upgraded building construction will be required for the proposed dwellings adjacent to Eglinton Avenue. Forced air ventilation systems with ducts sized to accommodate the future installation of central air conditioning by the occupant will be required for the remaining dwelling units. Associated acoustical requirements are specified in this report. Warning clauses are recommended to inform future residents of the road traffic noise impacts and to address sound level excesses. When detailed floor plans and elevations are available for the dwellings adjacent to Eglinton Avenue, the building façade requirements shall be refined.

2 SITE DESCRIPTION & NOISE SOURCES

The proposed residential development is located on the south side of Eglinton Avenue West and east of Mississauga Road, specifically at 1745, 1765 and 1775 Thorny Brae Place in the City of Mississauga, Ontario. Figure 1 shows an aerial photo illustrating the location of the subject site. A concept plan prepared by RN design issued for 'ZBA Submission' dated March 20, 2019 is shown in Figure 2. The proposed development will consist of one single detached dwelling and seven blocks of 3-storey townhouses and associated roadway.

A site visit was made by HGC Engineering personnel in July 2016 and February 2019 to make observations of the acoustic environment, and to identify the significant noise sources in the vicinity. The acoustical environment surrounding the site is urban in nature. There are existing residences on the site which are to be removed. Road traffic on Eglinton Avenue and Mississauga Road were confirmed to be the primary sources of sound impacting the site. The existing grade at the east end of the site is below the grade of Eglinton Avenue. The remaining site is generally flat. The site is located outside the Toronto Pearson International Airport NEF 25 contour and as such assessment of air traffic noise is not included.

A church (Croatian Martyrs) is located to the south of the site. Mechanical equipment associated with the church was observed. Most of the mechanical equipment is located on the southern end of the church at grade level, away from the development. Based on the distance and shielding by the church building itself, mechanical equipment associated with the church is not expected to have a significant noise impact on the development. A warning clause is recommended in Section 5.4 to inform the future residents of the presence of the church and that sounds from the mechanical equipment associated with the church may be audible at times. There were no other significant sources of stationary noise noted within 500 m of the subject site.

3 NOISE LEVEL CRITERIA

3.1 Road Traffic Noise

Guidelines for acceptable levels of road traffic noise impacting residential developments are given in the MECP publication NPC-300, "Environmental Noise Guideline Stationary and Transportation Sources – Approval and Planning", release date October 21, 2013 and are listed in Table 1 below. The values in Table 1 are energy equivalent (average) sound levels [L_{EQ}] in units of A-weighted decibels [dBA].

Table 1: MECP Road Traffic Noise Criteria [dBA]

Space	Daytime L_{EQ} (16 hour) Road	Night-time L_{EQ}(8 hour) Road
Outdoor Living Areas	55 dBA	--
Inside Living/Dining Rooms	45 dBA	45 dBA
Inside Bedrooms	45 dBA	40 dBA

Daytime refers to the period between 07:00 and 23:00, while night-time refers to the period between 23:00 and 07:00. The term "Outdoor Living Area" (OLA) is used in reference to an outdoor patio, a backyard, a terrace or other area where passive recreation is expected to occur. Balconies that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The MECP guidelines allow the daytime sound levels in OLA to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and sales agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is recommended to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible, subject to the approval of the City.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where night-time sound levels outside bedroom or living/dining room windows exceed 60 dBA or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced-air ventilation systems with ducts sized to accommodate the future installation of air conditioning by the occupant is required when night-time sound levels at bedroom or living/dining room windows are in the range of 51 to 60 dBA or when daytime sound levels at bedroom or

living/dining room windows are in the range of 56 to 65 dBA.

Building components such as walls, windows and doors must be designed to achieve indoor sound level criteria when the plane of window night-time sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

Warning clauses to notify future residents of possible noise excesses are also required when night-time sound levels exceed 50 dBA at the plane of the bedroom or living/dining room window and daytime sound levels exceed 55 dBA in the outdoor living area and at the plane of the bedroom or living/dining room window due to road traffic.

4 TRAFFIC NOISE ASSESSMENT

4.1 Road Traffic Data

Road traffic information was obtained from the City of Mississauga, in the form of ultimate Average Annual Daily Traffic (AADT) values, and is provided in Appendix A. An ultimate AADT of 15 000 vehicles per day, along with a speed limit of 50 km/h, was applied to Mississauga Road. A commercial vehicle percentage of 4% was used in the analysis and was further split into 2.2% and 1.8% for medium and heavy trucks, respectively.

An ultimate AADT of 53 000 vehicles per day, along with a speed limit of 60 km/h, was applied to Eglinton Avenue West. A commercial vehicle percentage of 10% was used in the analysis and was further split into 5.5% and 4.5% for medium and heavy trucks, respectively. Table 2 summarizes the traffic volume data used in this study.

Table 2: Ultimate Road Traffic Data

Road Name		Cars	Medium Trucks	Heavy Trucks	Total
Mississauga Road	Daytime	13 095	223	182	13 500
	Night-time	1 455	25	20	1 500
	Total	**14 550**	**248**	**202**	**15 000**
Eglinton Avenue West	Daytime	27 786	1 550	1 064	30 400
	Night-time	8 774	490	336	9 600
	Total	**36 560**	**2 040**	**1 400**	**53 000**

4.2 Road Traffic Noise Predictions

To assess the levels of road traffic noise which will impact the site in the future, predictions were made using STAMSON version 5.04, a computer algorithm developed by the MECP. Sample STAMSON output is included in Appendix B.

Prediction locations were chosen around the residential site to obtain a good representation of the future sound levels at the dwellings with exposure to the roadways, as shown on Figure 2. The results of these predictions are summarized in Table 3. Future daytime sound levels were predicted at 1.5 m above ground level in the outdoor living area to determine whether noise barriers will be necessary. The single dwelling unit is provided with an interior courtyard which is well shielded from the roadways. Sound levels were also predicted at the plane of the top storey bedroom and/or living/dining room windows during daytime and night-time hours to investigate ventilation requirements.

The distance setback of the buildings indicated on the concept plan were used in the analysis, along with an aerial photo to determine the distance to the major roadways. In accordance with MECP guidelines, Eglinton Avenue was divided into two segments (eastbound and westbound). The acoustic requirements may be subject to modifications if the site plan is changed significantly.

Table 3: Predicted Road Traffic Sound Levels [dBA], Without Mitigation

Prediction Location	Block No.	Description	Daytime - in OLA $L_{EQ(16)}$	Daytime - at Façade $L_{EQ(16)}$	Night-time - at Façade $L_{EQ(8)}$
[A]	Single	Single Detached Unit	<55 (Interior Court Yard)	71	65
[B]	Block 2 Unit 12	Dual Frontage Block	--	72	65
[C]	Block 5 Unit 24	Dual Frontage Block	--	71	64
[D]	Block 6 Unit 27	Second Block of Units from Eglinton Ave	55	58	52
[E]	Block 7 Unit 37	Second Block of Units from Eglinton Ave	55	59	53

5 TRAFFIC NOISE RECOMMENDATIONS

The predictions indicate that the future traffic sound levels will exceed MECP guidelines at all the proposed dwelling units in the development. The following discussion outlines recommendations for ventilation requirements, upgraded building façade constructions, and warning clauses to achieve the noise criteria stated in Table 1.

5.1 Outdoor Living Areas & Acoustic Barriers

Single Detached Unit

The single detached unit is provided with an interior courtyard, away from Eglinton Avenue and Mississauga Road. The predicted daytime sound level in the interior courtyard of the single detached house will be less than 55 dBA which meets MECP's limit. Further physical mitigation will not be required.

Townhouse Blocks 1 to 5

These townhouse blocks are dual frontage units. These units may be provided with balconies on the south side of the building that are less that 4m in depth. These balconies are not considered to be outdoor living areas under MECP guideline and therefore, physical mitigation is not required.

Townhouse Blocks 6 & 7

The predicted daytime sound level in the rear yards of Townhouse Blocks 6 and 7 will be 55 dBA or less, physical mitigation will not be required.

5.2 Indoor Living Areas & Ventilation Requirements

Central Air Conditioning

The predicted daytime sound levels of the dwellings adjacent to Eglinton Avenue (single detached unit and Townhouse Blocks 1 to 5) will be greater than 65 dBA. To address these excesses, the MECP guidelines recommend that all units adjacent to Eglinton Avenue be equipped with central air conditioning to allow windows to remain closed.

Provision of Air Conditioning

The predicted nighttime sound levels of the dwellings with some exposure to the roadways (Blocks 6 to 7) will be between 50 dBA and 60 dBA. To address these excesses, the MECP guidelines recommend that all units be equipped with forced air ventilation systems with ducts sized to accommodate the future installation of air conditioning by the occupant.

Figure 3 shows the ventilation requirements for the development. Window or through-the-wall air conditioning units are not recommended for any commercial or residential units because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall noise insulating properties of the envelope. The location, installation and sound ratings of the outdoor air conditioning devices should minimize noise impacts and comply with criteria of MECP publication NPC-300, as applicable. The guidelines also recommend warning clauses for all dwellings with ventilation requirements.

5.3 Building Façade Constructions

Future road traffic sound levels at dwellings adjacent to Eglinton Avenue will exceed 65 dBA during the daytime hours and 60 dBA at night. MECP guidelines recommend that the walls, doors and windows be designed so that the indoor sound levels comply with MECP noise criteria.

In order to develop specific requirements for dwelling façade design, the architectural plans (detailed floor plans and elevations) need to be reviewed. Preliminary floor plans and building elevations were reviewed. Calculations have been performed to determine the building envelope constructions likely to be required to maintain indoor sound levels within MECP guidelines. To do so, the required building components are selected based on the Acoustical Insulation Factor (AIF) value for road traffic. The calculation methods were developed by the National Research Council (NRC). They are

based on the predicted future sound levels at the building facades, and the area ratios of the facade components (walls, doors and windows) and the floor area of the adjacent room.

Single Detached Unit

The minimum necessary specification for the building envelope of the single dwelling unit is, AIF-31 for living/dining rooms and AIF-30 for the bedrooms, based on the possibility of sound entering the buildings through walls and windows. Any exterior wall construction meeting the Ontario Building Code (OBC) will be acceptable for the dwellings on lots adjacent to the major roadways. Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation. If patio doors are to be used in the dwellings, they must be included in the window area.

As an example, a well sealed thermopane unit having a Sound Transmission Class (STC) rating of 30, that is, two 3 mm panes and a 13 mm inter-pane gap would provide sufficient noise insulation for the dwellings as long as the window to floor area ratios do not exceed 20% for living/dining rooms and 25% for bedrooms for Lot 1. Due to the close proximity of Eglinton Avenue, glazing constructions with a minimum STC rating of 32 is recommended for windows to bedrooms and living/dining rooms on the north and west façades, facing Eglinton Avenue.

Townhouse Blocks 1 to 5

The minimum necessary specification for the building envelope of Blocks 1 to 5 is AIF-32 for the bedrooms and AIF-30 for the living/dining room, based on the possibility of sound entering the buildings through walls and windows. Any exterior wall construction meeting the Ontario Building Code (OBC) will be acceptable for the dwellings on lots adjacent to the major roadways. Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation. If patio doors are to be used in the dwellings, they must be included in the window area. As an example, a well sealed thermopane unit having a Sound Transmission Class (STC) rating of 31 would provide sufficient noise insulation for the dwellings as long as the window to floor area ratios do not exceed 20% for bedrooms and 32% for living/dining room for Blocks 1 to 5. Due to the close proximity of Eglinton Avenue, glazing constructions with a minimum STC rating of 32 is recommended for windows to bedrooms and living/dining rooms on the north façade, facing Eglinton Avenue.

Townhouse Blocks 6 to 7

Any exterior wall construction meeting the Ontario Building Code (OBC) will be acceptable for the all units in Blocks 6 to 7. Any insulated metal exterior door meeting OBC requirements will be sufficient to provide noise insulation. If patio doors are to be used in the dwellings, they must be included in the window area.

When detailed floor plans and building elevations are available for the single detached unit and Townhouse Blocks 1 to 5, a detailed noise study should be performed to specify wall and window requirements with sufficient acoustical insulation based on actual window to floor area ratios.

5.4 Warning Clauses

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements and offers of purchase and sale for all units with anticipated traffic sound level excesses. The following noise warning clauses are required for specific units as indicated in Table 4.

A suggested wording for future dwellings which have sound level excesses but do not require mitigation measures is given below.

Type A:

> Purchasers/tenants are advised that sound levels due to increasing road traffic may occasionally interfere with some activities of the dwelling unit occupants as the sound levels exceed the Municipality's and the Ministry of the Environment, Conservation and Parks' noise criteria.

A suitable wording for future dwellings requiring central air conditioning systems is given below.

Type B:

> This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of Environment, Conservation and Parks.

Suitable wording for future dwellings requiring forced air ventilation systems is given below.

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 will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the criteria of the Municipality and the Ministry of the Environment, Conservation and Parks. (Note: The location and installation of the outdoor air conditioning device should be done so as to minimize the noise impacts and comply with criteria of MECP publication NPC-300 as applicable.)

The suggested wording for future dwellings regarding the presence of the church.

Type D:

> Purchasers are advised that due to the proximity of the adjacent church, sound levels from the church may at times be audible.

These sample clauses are provided by the MECP as examples and can be modified by the Municipality as required.

6 SUMMARY & RECOMMENDATIONS

The following list and Table 4 summarize the recommendations made in this report. The reader is referred to the Figure 3, as well as previous sections of the report where these recommendations are applied and discussed in more detail.

1. Central air conditioning is required for the dwelling units adjacent to Eglinton Avenue. Forced air ventilation systems with ductwork sized for the future installation of central air conditioning by the occupant will be required for the remaining dwellings units with some exposure to Eglinton Avenue. The location, installation and sound rating of the outdoor condensing units must be compliant with MECP Guideline NPC-300 (NPC-216), as applicable.

2. Upgraded building and glazing constructions are required for dwellings adjacent to Eglinton Avenue. When the architectural drawings are available for the dwellings adjacent to Eglinton Avenue, an acoustical consultant should refine the recommendations for glazing and building façade constructions based on actual window to floor area ratios.

3. Noise warning clauses to inform the occupants of the sound level excesses should be placed in the property and tenancy agreements and offers of purchase and sale. The affected townhouse units and appropriate warning clause are shown in Table 4.

Table 4: Summary of Noise Control Requirements and Noise Warning Clauses

Unit	Acoustic Barrier	Ventilation Requirements*	Type of Warning Clause	Required AIF for Glazing+
Single Dwelling Unit	--	Central A/C	A, B, D	LR/DR: AIF-31 BR: AIF-30
Blocks 1 to 5 (Units 1 to 26)	--	Central A/C	A, B, D	LR/DR: AIF-32 BR: AIF-30
Blocks 6 to 7 (Units 27 to 37)	--	Forced Air	A, C, D	LR/DR: OBC BR: OBC

Notes: -- no specific requirement
* The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300 as applicable.
LR/DR – Living Room/Dining Room
BR – Bedroom
+ When detailed floor plans and building elevations are available, the glazing constructions should be revised based on actual window to floor area ratios.

6.1 Implementation

To ensure that the noise control recommendations outlined above are fully implemented, it is recommended that:

1) When detailed architectural drawings are available for the single dwelling unit and Townhouse Blocks 1 to 5 (Units 1 to 26), an acoustical consultant should review the plans (floor plans and building elevations) to refine glazing requirements based on actual window to floor areas ratios.

2) Prior to the issuance of occupancy permits for this development, the Municipality's building inspector or a Professional Engineer qualified to perform acoustical engineer services in the Province of Ontario should certify that the noise control measures have been properly incorporated, installed and constructed.

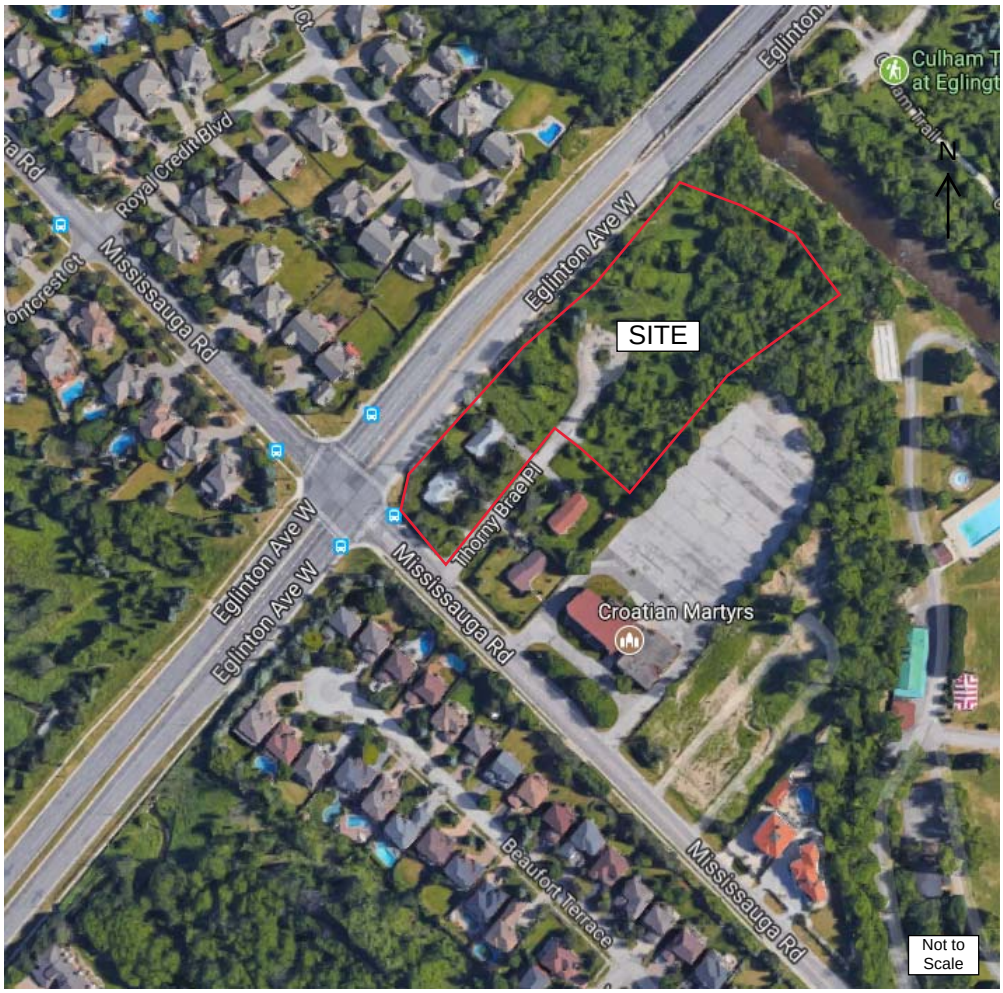
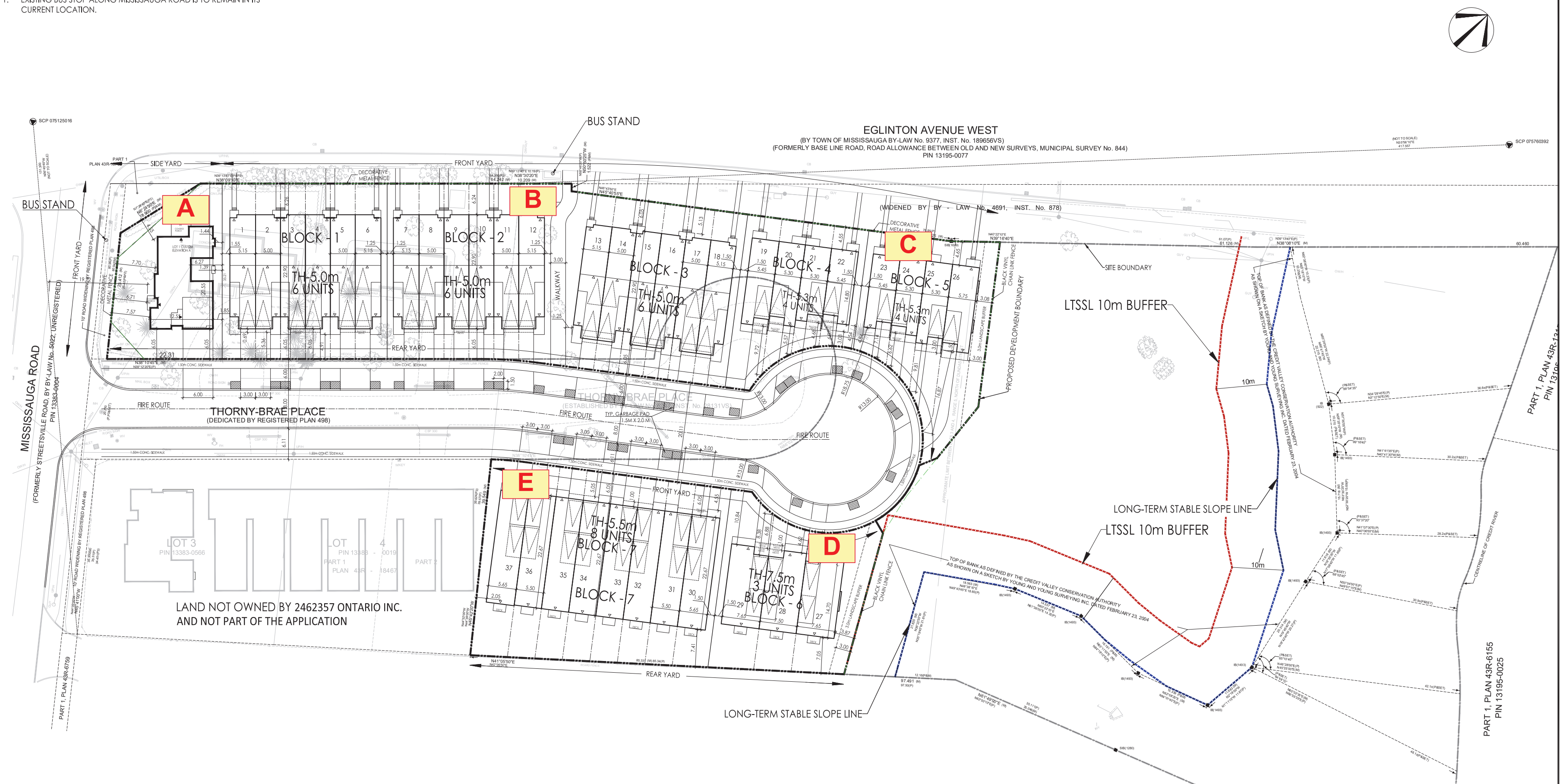


Figure 1: Aerial Photo

NOTES:

1. EXISTING BUS STOP ALONG MISSISSAUGA ROAD IS TO REMAIN IN ITS CURRENT LOCATION.



Proposed Statistics

No.	Lot #	Lot 1 *	Block 1**						Block 2**						Block 3**					
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	Lot Area (m2)	607.43	235.93	176.05	176.05	176.04	176.03	225.30	225.29	176.00	175.99	176.00	176.73	241.25	267.24	175.00	175.00	175.00	175.00	232.75
2	Lot Frontage (m)	27.95	6.70	5.00	5.00	5.00	5.00	6.40	6.40	5.00	5.00	5.00	5.00	6.46	9.15	5.00	5.00	5.00	5.00	6.65
3	Front Yard (m)	7.57	6.26	6.26	6.26	6.26	6.26	6.26	6.24	6.24	6.24	6.24	6.24	6.24	6.05	6.05	6.05	6.05	6.05	6.05
4	Side Yard (m)	Int: 1.44 Ext: 4.55	Int: 1.55	NA	NA	NA	NA	Int: 1.25	Int: 1.25	NA	NA	NA	NA	Int: 1.25	Int: 1.25	NA	NA	NA	NA	Int: 1.5
5	Rear Yard (m)	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05
6	Height (m & Stroey)	11m & 2 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey
7	Landscape Area (m2)	332.60	95.78	39.65	39.64	39.63	39.62	85.15	85.14	39.59	39.52	39.65	39.65	99.75	127.10	38.59	38.59	38.59	38.59	89.43
8	Landscape Area (% of lot area)	55%	41%	23%	23%	23%	23%	38%	38%	22%	22%	23%	22%	41%	48%	22%	22%	22%	22%	38%
9	Floor Area (incl. garage) (m2)	202.68	112.95	109.96	109.96	109.96	109.96	112.95	112.95	109.96	109.96	109.96	109.96	112.95	112.95	109.96	109.96	109.96	109.96	112.95
10	GFA (not incl. garage) (m2)	365.88	279.61	271.40	271.40	271.40	271.40	279.61	279.61	271.40	271.40	271.40	271.40	279.61	279.61	271.40	271.40	271.40	271.40	279.61
11	GFA (times the lot area)	0.60	1.19	1.54	1.54	1.54	1.54	1.24	1.24	1.54	1.54	1.54	1.54	1.16	1.05	1.55	1.55	1.55	1.55	1.20
12	Parking Spaces	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
13	Driveway Width (m)	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

No.	Lot #	Block 4**				Block 5				Block 6			Block 7							
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
1	Lot Area (m2)	239.58	152.65	134.58	166.89	173.35	150.27	185.71	362.43	368.46	222.20	315.62	259.71	202.57	204.99	207.42	209.84	212.27	214.70	312.42
2	Lot Frontage (m)	6.95	5.30	5.30	6.95	6.95	5.30	5.30	8.83	13.32	7.50	9.16	7.15	5.50	5.50	5.50	5.50	5.50	5.50	8.21
3	Front Yard (m)	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.65	4.55	4.62	6.88	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05
4	Side Yard (m)	Int: 1.5	NA	NA	Int: 1.5	Int: 1.5	NA	NA	int: 3.08	int: 3.87	NA	Int: 1.5	Int: 1.5	NA	NA	NA	NA	NA	NA	int: 2.05
5	Rear Yard (m)	9.72	5.57	4.68	4.54	4.84	6.62	9.81	16.87	7.05	7.67	8.26	7.41	7.89	8.33	8.77	9.21	9.65	10.10	10.39
6	Height (m & Stroey)	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey
7	Landscape Area (m2)	102.08	31.10	31.38	64.86	66.89	39.66	42.95	200.79	218.79	71.00	157.35	109.50	55.98	58.41	60.83	63.26	65.69	68.11	161.77
8	Landscape Area (% of lot area)	43%	20%	23%	39%	39%	26%	23%	55%	59%	32%	50%	42%	28%	28%	29%	30%	31%	32%	52%
9	Floor Area (incl. garage) (m2)	89.73	83.15	76.00	76.10	76.10	76.00	83.15	89.73	123.97	121.51	123.97	128.09	124.68	124.68	124.68	124.68	124.68	124.68	128.09
10	GFA (not incl. garage) (m2)	258.50	238.75	217.33	217.63	217.63	217.33	238.75	258.50	330.36	322.75	330.35	335.45	335.45	335.45	335.45	335.45	335.45	335.45	335.45
11	GFA (times the lot area)	1.08	1.56	1.61	1.30	1.26	1.45	1.29	0.71	0.90	1.45	1.05	1.29	1.66	1.64	1.62	1.60	1.58	1.56	1.07
12	Parking Spaces	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
13	Driveway Width (m)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

* For the single lot (1), the front yard is considered the lot line abutting Mississauga Road, the exterior side yard is considered the lot line abutting Eglinton Avenue W.,

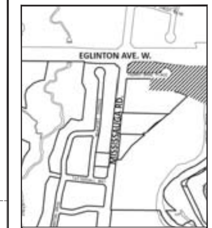
For the purpose of determining front lot line and exterior side lot line abutting a street, a daylight triangle is deemed not to exist provided that the minimum distance

** For the dual frontage towns, front yard is considered the lot line abutting Eglinton Avenue W., and the rear yard is considered the lot line abutting Thorny Brae Place

Figure 2: Concept Plan Showing Prediction Locations

File:D:\acadm projects\16041\Site Planning\Architectural (RN)\Site Plan\16041-SP100.DWG Plotted: Mar 20, 2019 By:RaviP

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO RN ARCHITECTS INC.



KEY MAP N.T.S.

1745, 1765 & 1775 THRONEY BAY PLACE			
1	Total Site Area	21,026 m2	2.10 Ha
2	Greenlands	12366.1 m2	1.23 Ha
3	Net Developable Area	8659.90 m2	0.87 Ha
4	Proposed Develoment Area	8614.60 m2	0.86 Ha

PLAN OF SURVEY OF
PART OF LOT 1 AND
ALL OF LOT 2
REGISTERED PLAN 498 AND
PART OF LOTS 3 AND 4, RANGE 5
NORTH OF DUNDAS STREET,
(GEOGRAPHIC TOWNSHIP OF TORONTO)
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

ISSUED OR REVISION COMMENTS

NO.	DESCRIPTION	DATE	DWN	CHK
1	SITE PLAN REVISION	MAY 25 2017	MA	MA
2	SITE PLAN REVISION	NOV 29 2017	MA	MA
3	SITE PLAN ISSUES FOR SUBMISSION	DEC 04 2017	MA	MA
4	REVISED DEVELOPMENT BOUNDARY	FEB 08 2019	RP	MA
5	ISSUED FOR ZBA	MAR 20 2019	RP	MA

Imagine • Inspire • Create
RN DESIGN LTD.
8395 JANE STREET, SUITE 203
VAUGHAN, ONTARIO. L4K 5Y2
T:905-738-3177 | F: 905-738-5449

I, NELSON CUNHA DECLARE THAT I HAVE REVIEWED AND TAKEN DESIGN RESPONSIBILITY FOR THE DESIGN WORK ON BEHALF OF RN DESIGN LTD. UNDER DIVISION C, PART 3 SUBSECTION 3.2.4 OF THE BUILDING CODE. I AM QUALIFIED AND THE FIRM IS REGISTERED IN THE APPROPRIATE CLASSES / CATEGORIES.

QUALIFIED DESIGNER BCIN: 21032
FIRM BCIN: 26995
DATE: MAR 20 2019

SIGNATURE:

CLIENT
2462357 Ontario inc.
Pace Developments

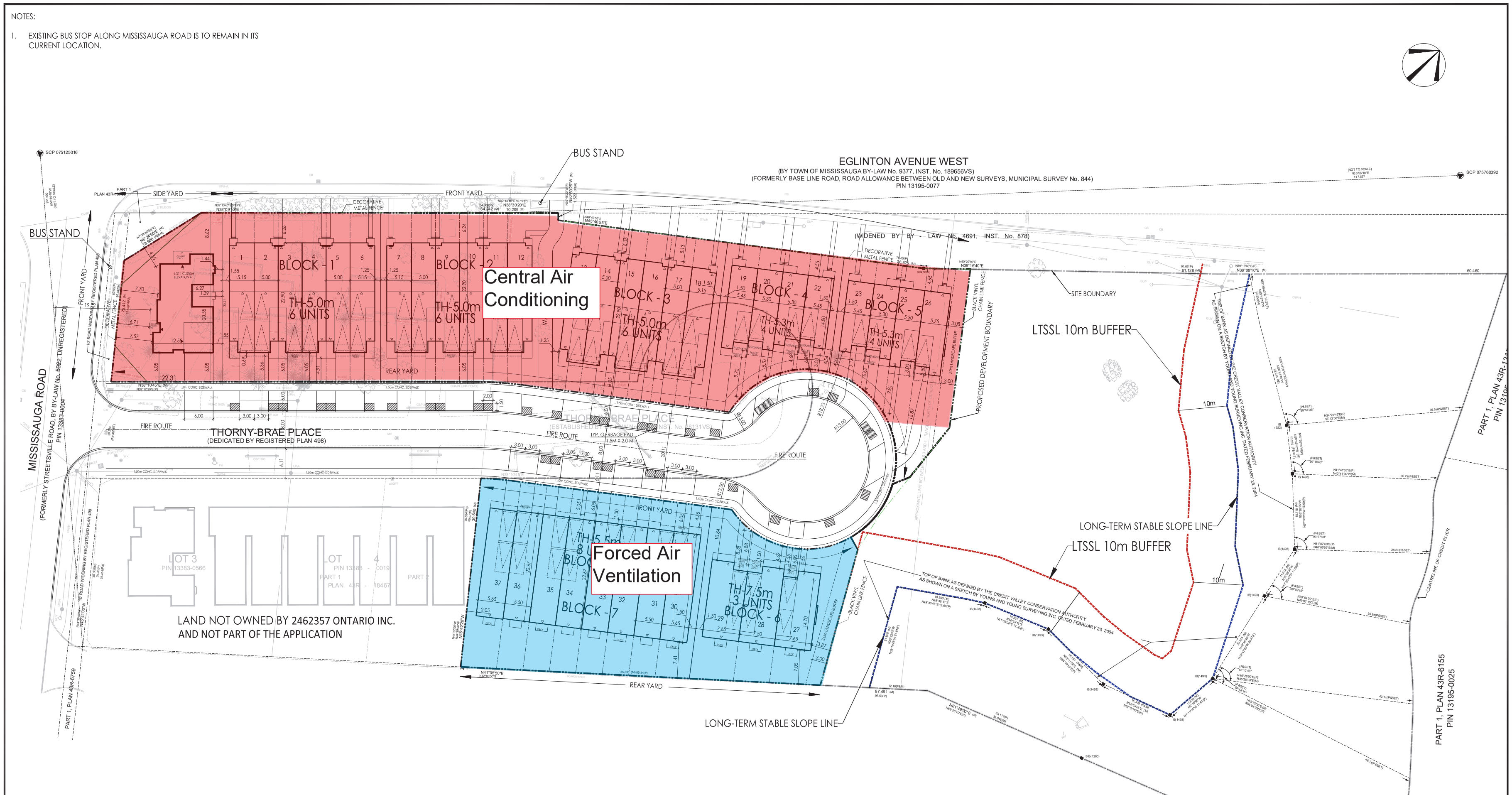
PROJECT/LOCATION
1745, 1765 and 1775 Thorny Brae Place, Mississauga ON

DRAWING
CONCEPT PLAN

DATE	SCALE
OCT-31-2018	1:400
DRAWN BY: RP	CHECKED BY: SMH
PROJECT NUMBER: 16041	DRAWING NUMBER: SP100

NOTES:

1. EXISTING BUS STOP ALONG MISSISSAUGA ROAD IS TO REMAIN IN ITS CURRENT LOCATION.



Proposed Statistics

No.	Lot #	Lot 1 *	Block 1** 1	2	3	4	5	6	Block 2** 7	8	9	10	11	12	Block 3** 13	14	15	16	17	18
1	Lot Area (m2)	607.43	235.93	176.05	176.05	176.04	176.03	225.30	225.29	176.00	175.99	176.00	176.73	241.25	267.24	175.00	175.00	175.00	175.00	232.75
2	Lot Frontage (m)	27.95	6.70	5.00	5.00	5.00	5.00	6.40	6.40	5.00	5.00	5.00	5.00	6.46	9.15	5.00	5.00	5.00	5.00	6.65
3	Front Yard (m)	7.57	6.26	6.26	6.26	6.26	6.26	6.26	6.24	6.24	6.24	6.24	6.24	6.24	6.05	6.05	6.05	6.05	6.05	6.05
4	Side Yard (m)	Int: 1.44 Ext: 4.55	Int: 1.55	NA	NA	NA	NA	Int: 1.25	Int: 1.25	NA	NA	NA	NA	Int: 1.25	Int: 1.25	NA	NA	NA	NA	Int: 1.5
5	Rear Yard (m)	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05
6	Height (m & Stroey)	11m & 2 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey
7	Landscape Area (m2)	332.60	95.78	39.65	39.64	39.63	39.62	85.15	85.14	39.59	39.52	39.65	39.65	99.75	127.10	38.59	38.59	38.59	38.59	89.43
8	Landscape Area (% of lot area)	55%	41%	23%	23%	23%	23%	38%	38%	22%	22%	23%	22%	41%	48%	22%	22%	22%	22%	38%
9	Floor Area (Incl. garage) (m2)	202.68	112.95	109.96	109.96	109.96	109.96	112.95	112.95	109.96	109.96	109.96	109.96	112.95	112.95	109.96	109.96	109.96	109.96	112.95
10	GFA (not incl. garage) (m2)	365.88	279.61	271.40	271.40	271.40	271.40	279.61	279.61	271.40	271.40	271.40	271.40	279.61	279.61	271.40	271.40	271.40	271.40	279.61
11	GFA (times the lot area)	0.60	1.19	1.54	1.54	1.54	1.54	1.24	1.24	1.54	1.54	1.54	1.54	1.16	1.05	1.55	1.55	1.55	1.55	1.20
12	Parking Spaces	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
13	Driveway Width (m)	6	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

No.	Lot #	Block 4** 19	20	21	22	Block 5 23	24	25	26	Block 6 27	28	29	Block 7 30	31	32	33	34	35	36	37
1	Lot Area (m2)	239.58	152.65	134.58	166.89	173.35	150.27	185.71	362.43	368.46	222.20	315.62	259.71	202.57	204.99	207.42	209.84	212.27	214.70	312.42
2	Lot Frontage (m)	6.95	5.30	5.30	6.95	6.95	5.30	5.30	8.83	13.32	7.50	9.16	7.15	5.50	5.50	5.50	5.50	5.50	5.50	8.21
3	Front Yard (m)	4.55	4.55	4.55	4.55	4.55	4.55	4.55	4.65	4.55	4.62	6.88	6.05	6.05	6.05	6.05	6.05	6.05	6.05	6.05
4	Side Yard (m)	Int: 1.5	NA	NA	Int: 1.5	Int: 1.5	NA	NA	int: 3.08	int: 3.87	NA	Int: 1.5	Int: 1.5	NA	NA	NA	NA	NA	NA	int: 2.05
5	Rear Yard (m)	9.72	5.57	4.68	4.54	4.84	6.62	9.81	16.87	7.05	7.67	8.26	7.41	7.89	8.33	8.77	9.21	9.65	10.10	10.39
6	Height (m & Stroey)	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey	14m & 3 storey
7	Landscape Area (m2)	102.08	31.10	31.38	64.86	66.89	39.66	42.95	200.79	218.79	71.00	157.35	109.50	55.98	58.41	60.83	63.26	65.69	68.11	161.77
8	Landscape Area (% of lot area)	43%	20%	23%	39%	39%	26%	23%	55%	59%	32%	50%	42%	28%	28%	29%	30%	31%	32%	52%
9	Floor Area (Incl. garage) (m2)	89.73	83.15	76.00	76.10	76.10	76.00	83.15	89.73	123.97	121.51	123.97	128.09	124.68	124.68	124.68	124.68	124.68	124.68	128.09
10	GFA (not incl. garage) (m2)	258.50	238.75	217.33	217.63	217.63	217.33	238.75	258.50	330.36	322.75	330.35	335.45	335.45	335.45	335.45	335.45	335.45	335.45	335.45
11	GFA (times the lot area)	1.08	1.56	1.61	1.30	1.26	1.45	1.29	0.71	0.90	1.45	1.05	1.29	1.66	1.64	1.62	1.60	1.58	1.56	1.07
12	Parking Spaces	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3
13	Driveway Width (m)	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

* For the single lot (1), the front yard is considered the lot line abutting Mississauga Road, the exterior side yard is considered the lot line abutting Eglinton Avenue W., ...

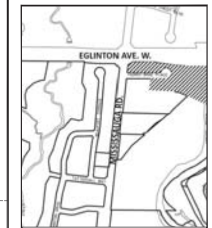
For the purpose of determining front lot line and exterior side lot line abutting a street, a daylight triangle is deemed not to exist provided that the minimum distance ...

** For the dual frontage towns, front yard is considered the lot line abutting Eglinton Avenue W., and the rear yard is considered the lot line abutting Thorny Brae Place ...

Figure 3: Concept Plan Showing Ventilation Requirements

File: D:\acadrn projects\16041\Site Planning\Architectural (RN)\Site Plan\16041-SP100.DWG Plotted: Mar 20, 2019 By:RaviP

ALL DIMENSIONS MUST BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES MUST BE REPORTED DIRECTLY TO RN ARCHITECTS INC.



KEY MAP N.T.S.

1745, 1765 & 1775 THRONEY BAY PLACE			
1	Total Site Area	21,026 m2	2.10 Ha
2	Greenlands	12366.1 m2	1.23 Ha
3	Net Developable Area	8659.90 m2	0.87 Ha
4	Proposed Develoment Area	8614.60 m2	0.86 Ha

PLAN OF SURVEY OF
PART OF LOT 1 AND
ALL OF LOT 2
REGISTERED PLAN 498 AND
PART OF LOTS 3 AND 4, RANGE 5
NORTH OF DUNDAS STREET,
(GEOGRAPHIC TOWNSHIP OF TORONTO)
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

ISSUED OR REVISION COMMENTS

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DRAWING
CONCEPT PLAN

DATE	SCALE
OCT-31-2018	1:400
DRAWN BY: RP	CHECKED BY: SMH
PROJECT NUMBER: 16041	DRAWING NUMBER: SP100

APPENDIX A

Road Traffic Information

Date:	09-Jun-16

NOISE REPORT FOR PROPOSED DEVELOPMENT

CITY OF MISSISSAUGA

REQUESTED BY:	
Name:	Mandy Chan
Company	HGC Engineering Ltd.
Fax#:	(905) 826-4044
PREPARED BY:	
Name:	Loudel Uy
Tel#:	(905) 615-3200

Location:	Eglinton Avenue West, E of Mississauga Rd. & Mississauga Road, S of Eglinton Ave. E
Look Up ID#:	356

ON SITE TRAFFIC DATA

Specific	***Street Names***				
	Miss. Rd, S of Eglinton	glinton Ave, E of Miss.R			
AADT:	15,000	53,000			
# of Lanes:	2 lanes	7 lanes			
% Trucks:	4%	10%			
Medium/Heavy Trucks Ratio:	55/45	55/45			
Day/Night Traffic Split:	90/10	90/10			
Posted Speed Limit:	50km/h	60km/h			
Gradient of Road:	<2%	<2%			
Ultimate R O W:	26m	45m			

Comments:	Ultimate Traffic Data Only.

APPENDIX B

Sample STAMSON 5.04 Output

```
STAMSON 5.0        NORMAL REPORT        Date: 22-03-2019 15:24:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a.te                 Time Period: Day/Night 16/8 hours
Description: Predicted daytime and nighttime sound levels at the upper storey
windows of the proposed single detached unit, Prediction Location [A].


Road data, segment # 1: ElginEB (day/night)
-------------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: ElginEB (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  :  20.00 / 20.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ElginWB (day/night)
-------------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: ElginWB (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  :  30.00 / 30.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: MissRd (day/night)
-----------------------------------------
Car traffic volume  : 12960/1440  veh/TimePeriod  *
Medium truck volume :   297/33    veh/TimePeriod  *
Heavy truck volume  :   243/27    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: MissRd (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  :  20.00 / 20.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 68.65 + 0.00) = 68.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.57  71.91   0.00  -1.96  -1.30   0.00   0.00   0.00  68.65
-------------------------------------------------------------------------------

Segment Leq : 68.65 dBA
```

```
Results segment # 2: ElginWB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 65.88 + 0.00) = 65.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.57  71.91   0.00  -4.73  -1.30   0.00   0.00   0.00  65.88
-------------------------------------------------------------------------------

Segment Leq : 65.88 dBA

Results segment # 3: MissRd (day)
---------------------------------

Source height = 1.16 m

ROAD (0.00 + 58.88 + 0.00) = 58.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.58  65.18   0.00  -1.97  -4.33   0.00   0.00   0.00  58.88
-------------------------------------------------------------------------------

Segment Leq : 58.88 dBA

Total Leq All Segments: 70.78 dBA

Results segment # 1: ElginEB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 62.39 + 0.00) = 62.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00  -1.85  -1.14   0.00   0.00   0.00  62.39
-------------------------------------------------------------------------------

Segment Leq : 62.39 dBA

Results segment # 2: ElginWB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 59.78 + 0.00) = 59.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00  -4.46  -1.14   0.00   0.00   0.00  59.78
-------------------------------------------------------------------------------

Segment Leq : 59.78 dBA
```

```
Results segment # 3: MissRd (night)
----------------------------------

Source height = 1.16 m

ROAD (0.00 + 52.62 + 0.00) = 52.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.49  58.65   0.00  -1.86  -4.17   0.00   0.00   0.00  52.62
-------------------------------------------------------------------------------

Segment Leq : 52.62 dBA

Total Leq All Segments: 64.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.78
                           (NIGHT): 64.57
```

```
STAMSON 5.0        NORMAL REPORT        Date: 25-03-2019 08:34:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: aola.te              Time Period: 16 hours
Description: Predicted daytime sound level in the interior court yard of the
proposed single detached unit, Prediction Location [A_OLA].

Road data, segment # 1: ElginEB
-------------------------------
Car traffic volume  : 21465 veh/TimePeriod  *
Medium truck volume :  1312 veh/TimePeriod  *
Heavy truck volume  :  1073 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: ElginEB
-----------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  28.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 45.00 deg
Barrier height            :   3.60 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 2: ElginWB
-------------------------------
Car traffic volume  : 21465 veh/TimePeriod  *
Medium truck volume :  1312 veh/TimePeriod  *
Heavy truck volume  :  1073 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: ElginWB
-----------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  38.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 45.00 deg
Barrier height            :   3.60 m
```

```
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 3: MissRd
------------------------------
Car traffic volume  : 12960 veh/TimePeriod  *
Medium truck volume :   297 veh/TimePeriod  *
Heavy truck volume  :   243 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: MissRd
----------------------------
Angle1   Angle2           : -45.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  30.00 m
Receiver height           :   1.50 m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -45.00 deg   Angle2 : 90.00 deg
Barrier height            :   3.60 m
Barrier receiver distance :   3.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
Results segment # 1: ElginEB
----------------------------

Source height = 1.46 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.46 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 52.49 + 0.00) = 52.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.45  71.91   0.00  -3.92  -2.01   0.00   0.00 -13.49  52.49
-------------------------------------------------------------------------------

Segment Leq : 52.49 dBA

Results segment # 2: ElginWB
----------------------------
```

Source height = 1.46 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.46	1.50	1.50	1.50

ROAD (0.00 + 50.69 + 0.00) = 50.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.45	71.91	0.00	-5.83	-2.01	0.00	0.00	-13.37	50.69

Segment Leq : 50.69 dBA

Results segment # 3: MissRd

Source height = 1.16 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.16	1.50	1.47	1.47

ROAD (0.00 + 45.21 + 0.00) = 45.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.45	65.18	0.00	-4.38	-2.03	0.00	0.00	-13.57	45.21

Segment Leq : 45.21 dBA

Total Leq All Segments: 55.16 dBA

TOTAL Leq FROM ALL SOURCES: 55.16

```
STAMSON 5.0        NORMAL REPORT        Date: 22-03-2019 15:37:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b.te                 Time Period: Day/Night 16/8 hours
Description: Predicted daytime and nighttime sound levels at the upper storey
windows of the proposed townhouse unit (Block 2, Unit 12), Prediction Location
[B].

Road data, segment # 1: ElginEB (day/night)
-----------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: ElginEB (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  :  17.00 / 17.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ElginWB (day/night)
-----------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: ElginWB (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  :  27.00 / 27.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: MissRd (day/night)
-----------------------------------------
Car traffic volume  : 12960/1440  veh/TimePeriod  *
Medium truck volume :   297/33    veh/TimePeriod  *
Heavy truck volume  :   243/27    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: MissRd (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  :  90.00 / 90.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 69.97 + 0.00) = 69.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00  -0.81  -1.14   0.00   0.00   0.00  69.97
-------------------------------------------------------------------------------

Segment Leq : 69.97 dBA
```

```
Results segment # 2: ElginWB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 66.99 + 0.00) = 66.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00  -3.78  -1.14   0.00   0.00   0.00  66.99
-------------------------------------------------------------------------------

Segment Leq : 66.99 dBA

Results segment # 3: MissRd (day)
---------------------------------

Source height = 1.16 m

ROAD (0.00 + 49.42 + 0.00) = 49.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  65.18   0.00 -11.60  -4.17   0.00   0.00   0.00  49.42
-------------------------------------------------------------------------------

Segment Leq : 49.42 dBA

Total Leq All Segments: 71.77 dBA

Results segment # 1: ElginEB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 63.43 + 0.00) = 63.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00  -0.81  -1.14   0.00   0.00   0.00  63.43
-------------------------------------------------------------------------------

Segment Leq : 63.43 dBA

Results segment # 2: ElginWB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 60.46 + 0.00) = 60.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00  -3.78  -1.14   0.00   0.00   0.00  60.46
-------------------------------------------------------------------------------

Segment Leq : 60.46 dBA
```

```
Results segment # 3: MissRd (night)
----------------------------------

Source height = 1.16 m

ROAD (0.00 + 42.89 + 0.00) = 42.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  58.65   0.00 -11.60  -4.17   0.00   0.00   0.00  42.89
-------------------------------------------------------------------------------

Segment Leq : 42.89 dBA

Total Leq All Segments: 65.23 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.77
                           (NIGHT): 65.23
```

```
STAMSON 5.0        NORMAL REPORT        Date: 22-03-2019 15:37:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: c.te                 Time Period: Day/Night 16/8 hours
Description: Predicted daytime and nighttime sound levels at the upper storey
windows of the proposed townhouse unit (Block 5, Unit 24), Prediction Location
[C].

Road data, segment # 1: ElginEB (day/night)
-------------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: ElginEB (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  :  20.00 / 20.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ElginWB (day/night)
-------------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: ElginWB (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  :  30.00 / 30.00  m
Receiver height           :   4.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: MissRd (day/night)
------------------------------------------
Car traffic volume  : 12960/1440  veh/TimePeriod  *
Medium truck volume :   297/33    veh/TimePeriod  *
Heavy truck volume  :   243/27    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: MissRd (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  : 170.00 / 170.00 m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 68.92 + 0.00) = 68.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00  -1.85  -1.14   0.00   0.00   0.00  68.92
-------------------------------------------------------------------------------

Segment Leq : 68.92 dBA
```

```
Results segment # 2: ElginWB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 65.88 + 0.00) = 65.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.57  71.91   0.00  -4.73  -1.30   0.00   0.00   0.00  65.88
-------------------------------------------------------------------------------

Segment Leq : 65.88 dBA

Results segment # 3: MissRd (day)
---------------------------------

Source height = 1.16 m

ROAD (0.00 + 45.30 + 0.00) = 45.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  65.18   0.00 -15.71  -4.17   0.00   0.00   0.00  45.30
-------------------------------------------------------------------------------

Segment Leq : 45.30 dBA

Total Leq All Segments: 70.68 dBA

Results segment # 1: ElginEB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 62.39 + 0.00) = 62.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00  -1.85  -1.14   0.00   0.00   0.00  62.39
-------------------------------------------------------------------------------

Segment Leq : 62.39 dBA

Results segment # 2: ElginWB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 59.78 + 0.00) = 59.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00  -4.46  -1.14   0.00   0.00   0.00  59.78
-------------------------------------------------------------------------------

Segment Leq : 59.78 dBA
```

```
Results segment # 3: MissRd (night)
----------------------------------

Source height = 1.16 m

ROAD (0.00 + 38.77 + 0.00) = 38.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  58.65   0.00 -15.71  -4.17   0.00   0.00   0.00  38.77
-------------------------------------------------------------------------------

Segment Leq : 38.77 dBA

Total Leq All Segments: 64.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.68
                           (NIGHT): 64.30
```

```
STAMSON 5.0        NORMAL REPORT        Date: 22-03-2019 15:37:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: d.te                 Time Period: Day/Night 16/8 hours
Description: Predicted daytime and nighttime sound levels at the upper storey
windows of the proposed townhouse unit (Block 6, Unit 27), Prediction Location
[D].

Road data, segment # 1: ElginEB (day/night)
-------------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: ElginEB (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  80.00 / 80.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ElginWB (day/night)
-------------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
```

```
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: ElginWB (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  90.00 / 90.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: MissRd (day/night)
------------------------------------------
Car traffic volume  : 12960/1440  veh/TimePeriod  *
Medium truck volume :   297/33    veh/TimePeriod  *
Heavy truck volume  :   243/27    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: MissRd (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 155.00 / 155.00 m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 55.47 + 0.00) = 55.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00 -10.77  -1.14   0.00  -4.53   0.00  55.47
-------------------------------------------------------------------------------
```

```
Segment Leq : 55.47 dBA

Results segment # 2: ElginWB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 54.75 + 0.00) = 54.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00 -11.53  -1.14   0.00  -4.50   0.00  54.75
-------------------------------------------------------------------------------

Segment Leq : 54.75 dBA

Results segment # 3: MissRd (day)
---------------------------------

Source height = 1.16 m

ROAD (0.00 + 43.33 + 0.00) = 43.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  65.18   0.00 -15.11  -4.17   0.00  -2.57   0.00  43.33
-------------------------------------------------------------------------------

Segment Leq : 43.33 dBA

Total Leq All Segments: 58.28 dBA

Results segment # 1: ElginEB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 48.94 + 0.00) = 48.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00 -10.77  -1.14   0.00  -4.53   0.00  48.94
-------------------------------------------------------------------------------

Segment Leq : 48.94 dBA

Results segment # 2: ElginWB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 48.21 + 0.00) = 48.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00 -11.53  -1.14   0.00  -4.50   0.00  48.21
-------------------------------------------------------------------------------
```

```
Segment Leq : 48.21 dBA

Results segment # 3: MissRd (night)
-----------------------------------

Source height = 1.16 m

ROAD (0.00 + 39.37 + 0.00) = 39.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  58.65   0.00 -15.11  -4.17   0.00   0.00   0.00  39.37
-------------------------------------------------------------------------------

Segment Leq : 39.37 dBA

Total Leq All Segments: 51.85 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.28
                           (NIGHT): 51.85
```

```
STAMSON 5.0        NORMAL REPORT        Date: 25-03-2019 08:36:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: d_ola.te             Time Period: 16 hours
Description: Predicted daytime sound level in the rear yard of the proposed
townhouse unit(Block 6, Unit 27), Prediction Location [D_OLA].

Road data, segment # 1: ElginEB
-------------------------------
Car traffic volume  : 21465 veh/TimePeriod  *
Medium truck volume :  1312 veh/TimePeriod  *
Heavy truck volume  :  1073 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: ElginEB
-----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 100.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: ElginWB
-------------------------------
Car traffic volume  : 21465 veh/TimePeriod  *
Medium truck volume :  1312 veh/TimePeriod  *
Heavy truck volume  :  1073 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: ElginWB
-----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 3: MissRd
-------------------------------
Car traffic volume  : 12960 veh/TimePeriod  *
Medium truck volume :   297 veh/TimePeriod  *
Heavy truck volume  :   243 veh/TimePeriod  *
```

```
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: MissRd
----------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     60 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 155.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB
----------------------------

Source height = 1.46 m

ROAD (0.00 + 52.31 + 0.00) = 52.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  71.91   0.00 -13.68  -1.46   0.00  -4.47   0.00  52.31
-------------------------------------------------------------------------------

Segment Leq : 52.31 dBA

Results segment # 2: ElginWB
----------------------------

Source height = 1.46 m

ROAD (0.00 + 51.66 + 0.00) = 51.66 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  71.91   0.00 -14.36  -1.46   0.00  -4.43   0.00  51.66
-------------------------------------------------------------------------------

Segment Leq : 51.66 dBA

Results segment # 3: MissRd
----------------------------

Source height = 1.16 m

ROAD (0.00 + 40.54 + 0.00) = 40.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  65.18   0.00 -16.84  -4.47   0.00  -3.34   0.00  40.54
-------------------------------------------------------------------------------

Segment Leq : 40.54 dBA
```

Total Leq All Segments: 55.16 dBA

TOTAL Leq FROM ALL SOURCES: 55.16

```
STAMSON 5.0        NORMAL REPORT        Date: 22-03-2019 15:38:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: e.te                  Time Period: Day/Night 16/8 hours
Description: Predicted daytime and nighttime sound levels at the upper storey
windows of the proposed townhouse unit (Block 7, Unit 37), Prediction Location
[E].

Road data, segment # 1: ElginEB (day/night)
-----------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: ElginEB (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  72.00 / 72.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ElginWB (day/night)
-----------------------------------------
Car traffic volume  : 21465/2385  veh/TimePeriod  *
Medium truck volume :  1312/146   veh/TimePeriod  *
Heavy truck volume  :  1073/119   veh/TimePeriod  *
Posted speed limit  :    60 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):  26500
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   5.50
    Heavy Truck  % of Total Volume     :   4.50
```

```
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 2: ElginWB (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  82.00 / 82.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: MissRd (day/night)
------------------------------------------
Car traffic volume  : 12960/1440  veh/TimePeriod  *
Medium truck volume :   297/33    veh/TimePeriod  *
Heavy truck volume  :   243/27    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :  10.00
    Medium Truck % of Total Volume     :   2.20
    Heavy Truck  % of Total Volume     :   1.80
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 3: MissRd (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  97.00 / 97.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 56.12 + 0.00) = 56.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00 -10.09  -1.14   0.00  -4.56   0.00  56.12
-------------------------------------------------------------------------------
```

```
Segment Leq : 56.12 dBA

Results segment # 2: ElginWB (day)
----------------------------------

Source height = 1.46 m

ROAD (0.00 + 55.32 + 0.00) = 55.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  71.91   0.00 -10.93  -1.14   0.00  -4.53   0.00  55.32
-------------------------------------------------------------------------------

Segment Leq : 55.32 dBA

Results segment # 3: MissRd (day)
---------------------------------

Source height = 1.16 m

ROAD (0.00 + 46.30 + 0.00) = 46.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  65.18   0.00 -12.08  -4.17   0.00  -2.64   0.00  46.30
-------------------------------------------------------------------------------

Segment Leq : 46.30 dBA

Total Leq All Segments: 58.99 dBA

Results segment # 1: ElginEB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 49.59 + 0.00) = 49.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00 -10.09  -1.14   0.00  -4.56   0.00  49.59
-------------------------------------------------------------------------------

Segment Leq : 49.59 dBA

Results segment # 2: ElginWB (night)
------------------------------------

Source height = 1.46 m

ROAD (0.00 + 48.78 + 0.00) = 48.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.48  65.38   0.00 -10.93  -1.14   0.00  -4.53   0.00  48.78
-------------------------------------------------------------------------------
```

```
Segment Leq : 48.78 dBA


Results segment # 3: MissRd (night)
-----------------------------------

Source height = 1.16 m

ROAD (0.00 + 42.40 + 0.00) = 42.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  58.65   0.00 -12.08  -4.17   0.00   0.00   0.00  42.40
-------------------------------------------------------------------------------

Segment Leq : 42.40 dBA

Total Leq All Segments: 52.65 dBA
TOTAL Leq FROM ALL SOURCES (DAY): 58.99
                           (NIGHT): 52.65
```

```
STAMSON 5.0        NORMAL REPORT        Date: 25-03-2019 08:40:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: e_ola.te             Time Period: 16 hours
Description: Predicted daytime and nighttime sound levels at the upper storey
windows of the proposed townhouse unit (Block 7, Unit 37), Prediction Location
[E_OLA].

Road data, segment # 1: ElginEB
-------------------------------
Car traffic volume  : 21465 veh/TimePeriod  *
Medium truck volume :  1312 veh/TimePeriod  *
Heavy truck volume  :  1073 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 1: ElginEB
-----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  98.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: ElginWB
-------------------------------
Car traffic volume  : 21465 veh/TimePeriod  *
Medium truck volume :  1312 veh/TimePeriod  *
Heavy truck volume  :  1073 veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 2: ElginWB
-----------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     70 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 108.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: MissRd
-------------------------------
Car traffic volume  : 12960 veh/TimePeriod  *
Medium truck volume :   297 veh/TimePeriod  *
```

```
Heavy truck volume  :   243 veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

Data for Segment # 3: MissRd
----------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1
House density             :     60 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  95.00 m
Receiver height           :   1.50 m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Results segment # 1: ElginEB
----------------------------

Source height = 1.46 m

ROAD (0.00 + 52.45 + 0.00) = 52.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  71.91   0.00 -13.53  -1.46   0.00  -4.47   0.00  52.45
-------------------------------------------------------------------------------

Segment Leq : 52.45 dBA

Results segment # 2: ElginWB
----------------------------

Source height = 1.46 m

ROAD (0.00 + 51.79 + 0.00) = 51.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  71.91   0.00 -14.23  -1.46   0.00  -4.44   0.00  51.79
-------------------------------------------------------------------------------

Segment Leq : 51.79 dBA

Results segment # 3: MissRd
----------------------------

Source height = 1.16 m

ROAD (0.00 + 43.92 + 0.00) = 43.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  65.18   0.00 -13.31  -4.47   0.00  -3.48   0.00  43.92
-------------------------------------------------------------------------------
```

```
Segment Leq : 43.92 dBA

Total Leq All Segments: 55.46 dBA

TOTAL Leq FROM ALL SOURCES:       55.46
```