

# **Noise Feasibility Study**

## **Proposed Residential Development**

### **2935 & 2955 Mississauga Road**

### **Mississauga, Ontario**

Prepared for:

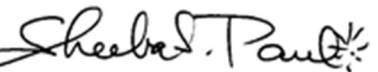
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Mississauga, ON  
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HGC Project No.: 02000422

January 10, 2024



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NOISE



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# VERSION CONTROL

Noise Feasibility Study,  
2935 & 2955 Mississauga Road,  
Mississauga, Ontario.

Ver.	Date	Version Description / Changelog	Prepared By
0	January 10, 2024	Noise Feasibility Study in support of the approvals process.	A. Rogers/ S. Paul

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# 1 Introduction and Summary

HGC Engineering was retained by 5908160 Ontario Inc. to conduct a noise feasibility study for a proposed residential development in Mississauga, Ontario. The location of the proposed development site is at 2935 & 2955 Mississauga Road. The purpose of this study is to determine the impact of environmental noise from the surrounding area in accordance with the Ministry of Environment, Conservation, and Parks (MECP) guidelines. This study has been prepared as part of the approval process by the municipality.

The primary transportation noise sources at the proposed development site were determined to be road traffic on Dundas Street West and Mississauga Road. The road traffic data used for this study was obtained from the City of Mississauga. The predicted sound levels were evaluated with respect to the guidelines of the Ministry of the Environment, Conservation and Parks (MECP) and the City.

The sound level predictions indicate that with suitable noise control measures integrated into the design of the buildings, it is feasible to achieve MECP guideline sound levels. An alternative means of ventilation to open windows will be required for the 12-storey building. Associated acoustical requirements are specified in this report. Noise warning clauses are also required to inform future occupants of the sound level excesses.



## 2 Site Description and Noise Sources

The key plan for the development is attached as Figure 1. The site is located on the southeast side corner of Dundas Street West and Mississauga Road. A site plan prepared by Caricari Lee Architects dated October 19, 2023 is provided as Figure 2. Sound level predictions are also shown in Figure 2. The proposed development includes a 12-storey condominium building and a stacked townhouse block along with underground parking.

HGC Engineering personnel visited the site during the month of December 2020 to observe the acoustical environment and note the significant noise sources. The acoustical environment surrounding the site is urban in nature. Mississauga Road and Dundas Street West are the dominant sources of traffic noise. Dundas Street West is a 4-lane road (two lanes in each direction) and Mississauga Road is a 2-lane road (one lane in each direction). There are existing residences surrounding the site. There are no significant stationary sources of noise within 500 m of this site.

## 3 Sound Level Criteria

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

**Table I: MECP Road Traffic Noise Criteria (dBA)**

Space	Daytime $L_{EQ}$ (16 hour)	Nighttime $L_{EQ}$ (8 hour)
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 nighttime 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 and terraces that are less than 4 m in depth are not considered to be outdoor living areas under MECP guidelines.

The guidelines in the MECP publication allow the daytime sound levels in an Outdoor Living Area to be exceeded by up to 5 dBA, without mitigation, if warning clauses are placed in the purchase and rental agreements to the property. Where OLA sound levels exceed 60 dBA, physical mitigation is required to reduce the OLA sound level to below 60 dBA and as close to 55 dBA as technically, economically, and administratively practical.

A central air conditioning system as an alternative means of ventilation to open windows is required for dwellings where nighttime sound levels outside bedroom or living/dining room windows exceed 60 dBA (60 dBA or greater in the Region of Peel) or daytime sound levels outside bedroom or living/dining room windows exceed 65 dBA. Forced air ventilation with ducts sized to accommodate the future installation of air conditioning is required when nighttime 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 nighttime sound level is greater than 60 dBA or the daytime sound level is greater than 65 dBA due to road traffic noise.

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

## 4 Traffic Noise Assessment

### 4.1 Road Traffic Data

Traffic data for Dundas Street West and Mississauga Road were obtained from the City of Mississauga, in the form of ultimate traffic volumes, provided in Appendix A. An ultimate volume of 7 700 vehicles per day at a posted speed limit of 50 km/h was applied for the analysis for Mississauga Road. An ultimate volume of 52 800 vehicles per day at a posted speed limit of 60 km/h was applied for the analysis for Dundas Street. A commercial vehicle percentage of 2% split into 1.1% medium trucks and 0.9% heavy trucks was applied for Mississauga Road. A commercial vehicle percentage of 4% split into 2.2% medium trucks and 1.8% heavy trucks was applied for



Dundas Street. A day/night split of 90% / 10 % was used for both roadways. Table II summarizes the traffic volume data used in this study.

**Table II: Ultimate Road Traffic Data**

Street	Time	Cars	Medium Trucks	Heavy Trucks	Total
<b>Dundas Street</b>	Daytime	45 619	1 046	855	<b>47 520</b>
	Nighttime	5 069	116	95	<b>5 280</b>
	<b>Total</b>	<b>50 688</b>	<b>1 162</b>	<b>950</b>	<b>52 800</b>
<b>Mississauga Road</b>	Daytime	6 791	76	62	<b>6 929</b>
	Nighttime	755	9	7	<b>771</b>
	<b>Total</b>	<b>7 546</b>	<b>85</b>	<b>69</b>	<b>7 700</b>

## 4.2 Road Traffic Prediction

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

Predictions of the traffic sound levels were chosen around the proposed development to obtain an appropriate representation of future sound levels at various façades. Sound levels were predicted at the plane of the top storey bedroom and/or living/dining room windows during daytime and nighttime hours to investigate ventilation and façade construction requirements. Sound levels were also predicted in OLA’s to investigate the need for noise barriers. Figure 2 shows the site plan with prediction locations. The results of these predictions are summarized in Table III.

Predictions of the traffic sound levels for [A], [B] and [C] were made at the top of the tower (1.5 m above the 12<sup>th</sup> storey). Sound levels for [D] and [E] were made at the top of the podium (1.5 m above the 6<sup>th</sup> storey) and sound levels for [F] were taken at a height of 7.6 m above grade. Table III summarizes the predicted sound levels at each of the sound level prediction locations.

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

Building	Prediction Location	Location	Daytime L <sub>EQ-16 hr</sub>	Nighttime L <sub>EQ-8 hr</sub>
12-Storey, Tower	A	South Façade	62	55
	B	West Façade	64	58
	C	North Façade	62	56
12-Storey, Podium	D	North Façade	61	54
	E	South Façade	57	50
Townhomes	F	North Facade	<55	<50
12-Storey	G	At Grade OLA	<55	--
	H	7 <sup>th</sup> Floor OLA	<55	--
	I	8 <sup>th</sup> Floor OLA	<55	--
Townhomes	J	North Rooftop OLA	<55	--
	K	South Rooftop OLA	<55	--
	L	At Grade OLA	<55	--

## 5 Discussion and Recommendations

The sound level predictions indicate that the future traffic sound levels will exceed MECP guidelines at some facades of the proposed 12-storey building. The following discussion outlines the recommendations for acoustic barrier requirements, ventilation requirements, upgraded building façade construction, and warning clauses to achieve the noise criteria stated in Table I.

### 5.1 Outdoor Living Areas

The dwelling units in the proposed development may have balconies that are less than 4 m in depth. These areas are not considered to be outdoor amenity areas under MECP guidelines, and therefore are exempt from traffic noise assessment.

There are outdoor amenity areas for the 12-storey residential building on the 7<sup>th</sup> floor, the 8<sup>th</sup> floor, and at grade, and for the townhomes at grade and on the north and south sides as rooftop decks. The predicted sound level in these areas is less than 55 dBA. Further mitigation is not required.

### 5.2 Indoor Living Areas and Ventilation Requirements

As per the results summarized in Table III, the predicted future sound levels at the façades of the proposed 12-storey residential building will be between 56 and 65 dBA during the daytime hours



and/or between 51 and 60 dBA during the nighttime hours. To address these excesses, the MECP guidelines recommend that the 12-storey building be equipped with an alternative means of ventilation to open windows. Associated warning clauses are also recommended. The installation of central air conditioning will meet and exceed this requirement.

Window or through-the-wall air conditioning units are not recommended because of the noise they produce and because the units penetrate through the exterior wall which degrades the overall sound insulating properties of the envelope. Acceptable units are those housed in their own insulated closet with an access door for maintenance. 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. Associated warning clauses are also recommended.

The stacked townhouse block has no specific ventilation requirements since sound levels due to traffic noise are less than the MECP criteria.

### **5.3 Building Façade Constructions**

The predicted sound levels at all facades of the buildings will not exceed 65 dBA daytime and 60 dBA nighttime, thus will not require detailed building envelope design to conform to noise criteria. Any exterior wall and double-glazed window construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the interior spaces.

### **5.4 Warning Clauses**

The MECP guidelines recommend that warning clauses be included in the property and tenancy agreements for all units with anticipated road traffic sound level. Examples are provided below.

Suggested wording for future dwellings with sound level excesses.

Type A:

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



Suitable wording for future dwellings where central air conditioning systems have been included is given below.

Type D:

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 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.)

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

## 6 Impact of the Development on Itself

Section 5.8.1.1 of the Ontario Building Code (OBC), released on January 1, 2020, specifies the minimum required sound insulation characteristics for demising partitions, in terms of Sound Transmission Class (STC) or Apparent Sound Transmission Class (ASTC) values. In order to maintain adequate acoustical privacy between separate suites in a multi-tenant building, inter-suite walls must meet or exceed STC-50 or ASTC-47. Suite separation from a refuse chute or elevator shaft must meet or exceed STC-55. In addition, it is recommended that the floor/ceiling constructions separating suites from any amenity or commercial spaces also meet or exceed STC-55. Tables 1 and 2 in Section SB-3 of the Supplementary Guideline to the OBC provide a comprehensive list of constructions that will meet the above requirements.

Tarion's Builder Bulletin B19R requires the internal design of condominium projects to integrate suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC and limit the potential intrusions of mechanical and electrical services of the building on its residents. If B19R certification is needed, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising construction and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself is maintained within acceptable levels.



## 7 Impact of the Development on the Environment

Sound levels from noise sources such as rooftop air-conditioners, cooling towers, exhaust fans, etc. should not exceed the minimum one-hour  $L_{EQ}$  ambient (background) sound level from road traffic, at any potentially impacted residential point of reception. Based on the levels observed during our site visit, the typical minimum ambient sound levels in the area are expected to be at or above the minimum exclusionary limits of 50 dBA or more during the day and 45 dBA or more at night. Thus, any electro-mechanical equipment associated with this development (e.g., emergency generator testing, fresh-air handling equipment, etc.) should be designed such that they do not result in noise impact beyond these ranges. At the time of this study, the design of the proposed 12-storey residential building was in its initial stages, and the mechanical systems had not yet been developed.

The details of the mechanical equipment will be reviewed at the SPA stage when that information is available. It appears from the renderings that the majority of rooftop mechanical equipment will be housed in a mechanical penthouse on the roof of the proposed 12-storey building. Any rooftop equipment not housed in the penthouse will be assessed and sufficiently shielded from neighbouring residences, as needed.

It is also HGC Engineering's experience with numerous developments, that typical HVAC equipment and parking garage exhaust fans can meet the applicable MECP noise criteria at neighbouring residential uses, either with low noise emission fans or relocation of the fans or through mitigation in the form of duct silencers or acoustic lining. Prior to building permit, an acoustical consultant should review the mechanical drawings and details of potential exhaust vents/fans, when available, to help ensure that the noise impact of the development on the environment, and of the development on itself, are maintained within acceptable levels. This is typically completed at the detailed noise study stage.



## 8 Summary of Recommendations

The following list and Table IV summarize the recommendations made in this report.

1. An alternative means of ventilation to open windows is required for the 12-storey building. Central air conditioning will meet this requirement. The location, installation and sound ratings of the air conditioning devices should comply with NPC-300. There are no specific ventilation requirements for the townhomes.
2. Any building construction meeting the minimum requirements of the Ontario Building Code (OBC) will provide adequate sound insulation for the proposed dwellings in the development.
3. The use of warning clauses in the property and tenancy agreements is recommended to inform future residents of traffic noise issues.
4. Tarion Builders Bulletin B19R requires that the internal design of condominium projects integrates suitable acoustic features to insulate the suites from noise from each other and amenities in accordance with the OBC, and limit the potential intrusions of mechanical and electrical services of the building on its residents. If B19R certification is to be sought, an acoustical consultant is required to review the mechanical and electrical drawings and details of demising constructions and mechanical/electrical equipment, when available, to help ensure that the noise impact of the development on itself are maintained within acceptable levels.

The reader is referred to the previous sections of the report where these recommendations are discussed in more detail. The following table summarizes the noise control recommendations and noise warning clauses for the dwellings in the proposed development.



**Table III: Summary of Noise Control Requirements and Noise Warning Clauses**

Building	Acoustic Barrier	Ventilation Requirements <sup>1</sup>	Type of Warning Clause	Building Constructions
12-storey building	--	Alternative Ventilation	A, D <sup>2</sup>	OBC
Stacked townhouse block	--	--	--	OBC

Notes:

-- no specific requirement

OBC – Ontario Building Code

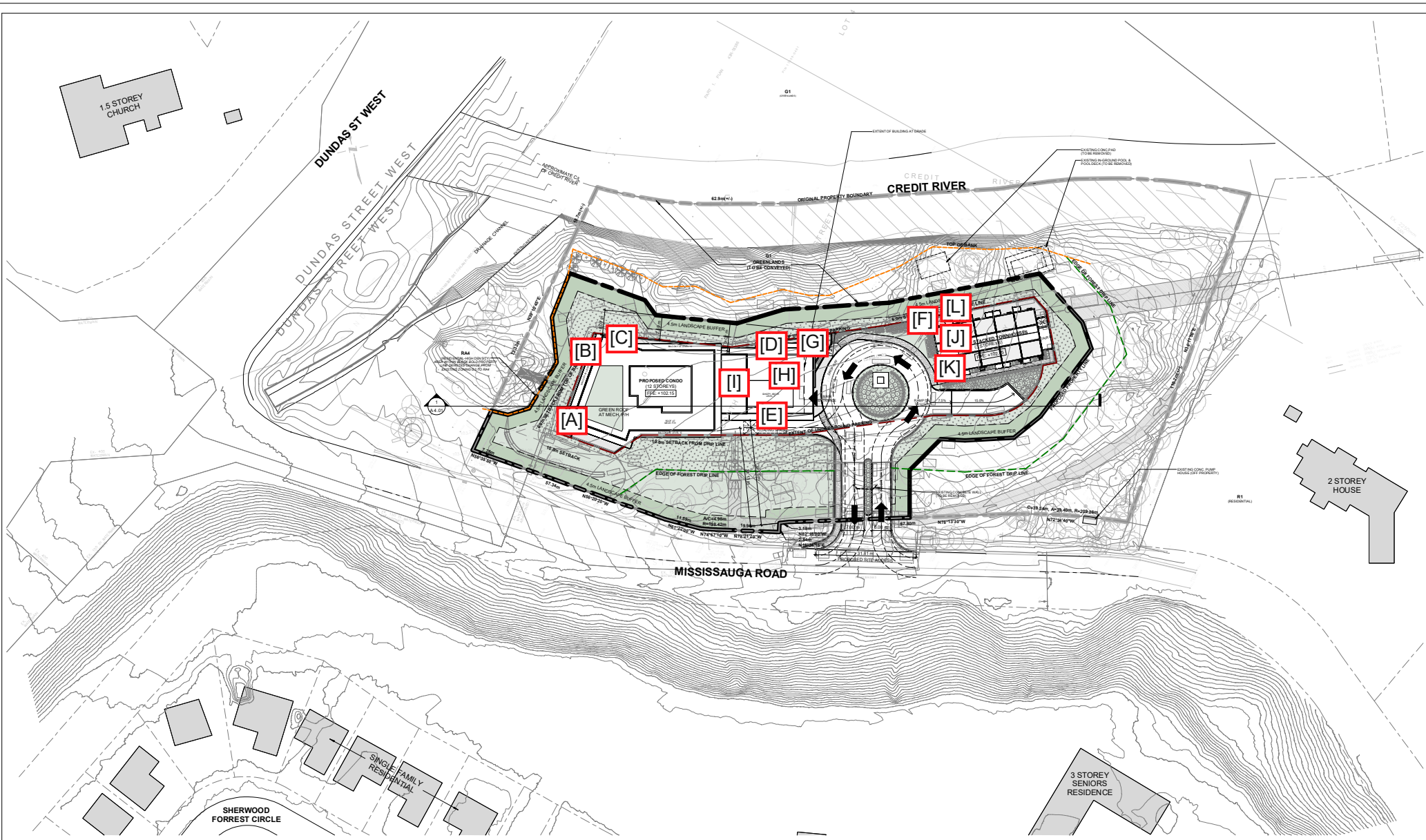
<sup>1</sup> The location, installation and sound rating of the air conditioning condensers must be compliant with MECP Guideline NPC-300, as applicable.

<sup>2</sup> For units where central air conditioning systems have been included.





**Figure 1: Key Plan**



CONTEXT PLAN / SITE PLAN (ROOF)  
1:500

**ÇARÇARI LEE ARCHITECTS**  
 PROJECT NAME: Mississauga Condo Development  
 111 Riverside Avenue  
 Toronto, ON M5S 1R6  
 Tel: 416 942 9432 / 416 942 9433  
 www.cararilee.com

PROJECT NAME: Mississauga Condo Development  
 DRAWING TITLE: CONTEXT PLAN / SITE PLAN (ROOF)

DATE: 2023-08-23	DESIGNED FOR: [REDACTED]	CONTRACTOR: [REDACTED]	SCALE: 1:500	DATE: OCT 2023	DRAWING NO. A 1.30
PROJECT NO: 2023	DESIGNED BY: [REDACTED]	CONTRACTOR: [REDACTED]	SCALE: 1:500	DATE: OCT 2023	DRAWING NO. A 1.30
DATE: OCT 2023	DESIGNED BY: [REDACTED]	CONTRACTOR: [REDACTED]	SCALE: 1:500	DATE: OCT 2023	DRAWING NO. A 1.30
DATE: OCT 2023	DESIGNED BY: [REDACTED]	CONTRACTOR: [REDACTED]	SCALE: 1:500	DATE: OCT 2023	DRAWING NO. A 1.30
DATE: OCT 2023	DESIGNED BY: [REDACTED]	CONTRACTOR: [REDACTED]	SCALE: 1:500	DATE: OCT 2023	DRAWING NO. A 1.30

Figure 2 - Proposed Site Plan Showing Prediction Locations

# Appendix A

Road Traffic Data



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Date: 29-Nov-23

# NOISE REPORT FOR PROPOSED DEVELOPMENT

## REQUESTED BY:

Name: Andrew Rogers

Company: HGC Engineering

## Location:

Mississauga Rd from N Sheridan Way to Dundas St W  
Dundas St W from Mississauga Rd to The Credit Woodlands

## PREPARED BY:

Nam: Naveda Dukhan

Tel#: 905-615-3200 ext.8948



ID: 607

## ON SITE TRAFFIC DATA

Specific	Street Names				
	Mississauga Rd	Dundas St W			
<b>AADT:</b>	7700	52800			
<b># of Lanes:</b>	2	4			
<b>% Trucks:</b>	3%	4%			
<b>Medium/Heavy Trucks Ratio:</b>	55/45	55/45			
<b>Day/Night Split:</b>	90/10	90/10			
<b>Posted Speed Limit:</b>	50km/hr	60km/hr			
<b>Gradient Of Road:</b>	<2%	<2%			
<b>Ultimate R.O.W.:</b>	26m	36m			

## Comments:

Ultimate Traffic Only (2041)


# Appendix B

Sample STAMSON Output



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STAMSON 5.0 NORMAL REPORT Date: 01-12-2023 15:39:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: a\_rl.te Time Period: Day/Night 16/8 hours
Description: Tower South facade of the 12-storey building.

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

Car traffic volume : 6791/755 veh/TimePeriod
Medium truck volume : 76/9 veh/TimePeriod
Heavy truck volume : 62/7 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Mississauga (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 : 34.00 / 34.00 m
Receiver height : 39.40 / 39.40 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 45619/5069 veh/TimePeriod
Medium truck volume : 1046/116 veh/TimePeriod
Heavy truck volume : 855/95 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Dundas (day/night)

Angle1 Angle2 : 20.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 112.00 / 112.00 m
Receiver height : 39.40 / 39.40 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Mississauga (day)

Source height = 0.97 m

ROAD (0.00 + 57.56 + 0.00) = 57.56 dBA
Table with columns: Angle1, Angle2, Alpha, RefLeq, P.Adj, D.Adj, F.Adj, W.Adj, H.Adj, B.Adj, SubLeq

Segment Leq : 57.56 dBA

Results segment # 2: Dundas (day)

Source height = 1.16 m

ROAD (0.00 + 59.95 + 0.00) = 59.95 dBA
Table with columns: Angle1, Angle2, Alpha, RefLeq, P.Adj, D.Adj, F.Adj, W.Adj, H.Adj, B.Adj, SubLeq

Segment Leq : 59.95 dBA

Total Leq All Segments: 61.93 dBA

Results segment # 1: Mississauga (night)

-----

Source height = 0.98 m

ROAD (0.00 + 51.08 + 0.00) = 51.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.64	0.00	-3.55	0.00	0.00	0.00	0.00	51.08

Segment Leq : 51.08 dBA

Results segment # 2: Dundas (night)

-----

Source height = 1.16 m

ROAD (0.00 + 53.42 + 0.00) = 53.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
20	90	0.00	66.25	0.00	-8.73	-4.10	0.00	0.00	0.00	53.42

Segment Leq : 53.42 dBA

Total Leq All Segments: 55.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.93  
(NIGHT): 55.42

STAMSON 5.0                    NORMAL REPORT                    Date: 01-12-2023 15:40:36  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b\_rl.te                    Time Period: Day/Night 16/8 hours  
 Description: **Tower west facade of the 12-storey building.**

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

-----  
 Car traffic volume : 6791/755    veh/TimePeriod  
 Medium truck volume : 76/9    veh/TimePeriod  
 Heavy truck volume : 62/7    veh/TimePeriod  
 Posted speed limit : 50 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Mississauga (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 : 63.00 / 63.00 m  
 Receiver height : 39.40 / 39.40 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

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

-----  
 Car traffic volume : 45619/5069    veh/TimePeriod  
 Medium truck volume : 1046/116    veh/TimePeriod  
 Heavy truck volume : 855/95    veh/TimePeriod  
 Posted speed limit : 60 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Dundas (day/night)

-----  
 Angle1 Angle2 : -70.00 deg 90.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0 / 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 100.00 / 100.00 m  
 Receiver height : 39.40 / 39.40 m  
 Topography : 1 (Flat/gentle slope; no barrier)  
 Reference angle : 0.00

Results segment # 1: Mississauga (day)

-----  
 Source height = 0.97 m

ROAD (0.00 + 51.87 + 0.00) = 51.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	61.12	0.00	-6.23	-3.01	0.00	0.00	0.00	51.87

Segment Leq : 51.87 dBA

Results segment # 2: Dundas (day)

-----  
 Source height = 1.16 m

ROAD (0.00 + 64.03 + 0.00) = 64.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.00	72.78	0.00	-8.24	-0.51	0.00	0.00	0.00	64.03

Segment Leq : 64.03 dBA

Total Leq All Segments: 64.29 dBA

Results segment # 1: Mississauga (night)

-----

Source height = 0.98 m

ROAD (0.00 + 45.40 + 0.00) = 45.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	54.64	0.00	-6.23	-3.01	0.00	0.00	0.00	45.40

Segment Leq : 45.40 dBA

Results segment # 2: Dundas (night)

-----

Source height = 1.16 m

ROAD (0.00 + 57.50 + 0.00) = 57.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-70	90	0.00	66.25	0.00	-8.24	-0.51	0.00	0.00	0.00	57.50

Segment Leq : 57.50 dBA

Total Leq All Segments: 57.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.29  
(NIGHT): 57.76

STAMSON 5.0 NORMAL REPORT Date: 01-12-2023 15:43:40  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: c\_rl.te Time Period: Day/Night 16/8 hours  
Description: **Tower north facade of the 12-storey building.**

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

-----  
Car traffic volume : 45619/5069 veh/TimePeriod  
Medium truck volume : 1046/116 veh/TimePeriod  
Heavy truck volume : 855/95 veh/TimePeriod  
Posted speed limit : 60 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dundas (day/night)

-----  
Angle1 Angle2 : -90.00 deg 20.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0 / 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 100.00 / 100.00 m  
Receiver height : 39.40 / 39.40 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Dundas (day)

-----  
Source height = 1.16 m

ROAD (0.00 + 62.40 + 0.00) = 62.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	20	0.00	72.78	0.00	-8.24	-2.14	0.00	0.00	0.00	62.40

Segment Leq : 62.40 dBA

Total Leq All Segments: 62.40 dBA

Results segment # 1: Dundas (night)

-----  
Source height = 1.16 m

ROAD (0.00 + 55.87 + 0.00) = 55.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	20	0.00	66.25	0.00	-8.24	-2.14	0.00	0.00	0.00	55.87

Segment Leq : 55.87 dBA

Total Leq All Segments: 55.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.40  
(NIGHT): 55.87

STAMSON 5.0 NORMAL REPORT Date: 01-12-2023 15:44:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: d\_rl.te Time Period: Day/Night 16/8 hours
Description: Podium north facade of the 12-storey building.

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

Car traffic volume : 45619/5069 veh/TimePeriod
Medium truck volume : 1046/116 veh/TimePeriod
Heavy truck volume : 855/95 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dundas (day/night)

Angle1 Angle2 : -90.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 135.00 / 135.00 m
Receiver height : 20.20 / 20.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Dundas (day)

Source height = 1.16 m

ROAD (0.00 + 60.56 + 0.00) = 60.56 dBA
Table with columns: Angle1, Angle2, Alpha, RefLeq, P.Adj, D.Adj, F.Adj, W.Adj, H.Adj, B.Adj, SubLeq

Segment Leq : 60.56 dBA

Total Leq All Segments: 60.56 dBA

Results segment # 1: Dundas (night)

Source height = 1.16 m

ROAD (0.00 + 54.03 + 0.00) = 54.03 dBA
Table with columns: Angle1, Angle2, Alpha, RefLeq, P.Adj, D.Adj, F.Adj, W.Adj, H.Adj, B.Adj, SubLeq

Segment Leq : 54.03 dBA

Total Leq All Segments: 54.03 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.56
(NIGHT): 54.03



STAMSON 5.0                      NORMAL REPORT                      Date: 01-12-2023 15:45:11  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: e\_rl.te                      Time Period: Day/Night 16/8 hours  
 Description: **Podium south facade of the 12-storey building.**

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

```
-----
Car traffic volume : 6791/755    veh/TimePeriod
Medium truck volume : 76/9        veh/TimePeriod
Heavy truck volume : 62/7        veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient        : 2 %
Road pavement        : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: Mississauga (day/night)

```
-----
Angle1 Angle2            : -90.00 deg    70.00 deg
Wood depth                : 0            (No woods.)
No of house rows         : 0 / 0
Surface                    : 1            (Absorptive ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height            : 20.20 / 20.20 m
Topography                : 1            (Flat/gentle slope; no barrier)
Reference angle            : 0.00
```

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

```
-----
Car traffic volume : 45619/5069   veh/TimePeriod
Medium truck volume : 1046/116    veh/TimePeriod
Heavy truck volume : 855/95        veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient        : 2 %
Road pavement        : 1 (Typical asphalt or concrete)
```

Data for Segment # 2: Dundas (day/night)

```
-----
Angle1 Angle2            : 40.00 deg    70.00 deg
Wood depth                : 0            (No woods.)
No of house rows         : 0 / 0
Surface                    : 1            (Absorptive ground surface)
Receiver source distance : 200.00 / 200.00 m
Receiver height            : 20.20 / 20.20 m
Topography                : 1            (Flat/gentle slope; no barrier)
Reference angle            : 0.00
```

Results segment # 1: Mississauga (day)

Source height = 0.97 m

ROAD (0.00 + 54.53 + 0.00) = 54.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	70	0.11	61.12	0.00	-5.83	-0.76	0.00	0.00	0.00	54.53

Segment Leq : 54.53 dBA

Results segment # 2: Dundas (day)

Source height = 1.16 m

ROAD (0.00 + 52.24 + 0.00) = 52.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	70	0.11	72.78	0.00	-12.48	-8.06	0.00	0.00	0.00	52.24

Segment Leq : 52.24 dBA

Total Leq All Segments: 56.54 dBA

Results segment # 1: Mississauga (night)

-----

Source height = 0.98 m

ROAD (0.00 + 48.05 + 0.00) = 48.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	70	0.11	54.64	0.00	-5.83	-0.76	0.00	0.00	0.00	48.05

Segment Leq : 48.05 dBA

Results segment # 2: Dundas (night)

-----

Source height = 1.16 m

ROAD (0.00 + 45.71 + 0.00) = 45.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
40	70	0.11	66.25	0.00	-12.48	-8.06	0.00	0.00	0.00	45.71

Segment Leq : 45.71 dBA

Total Leq All Segments: 50.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.54  
(NIGHT): 50.05

STAMSON 5.0 NORMAL REPORT Date: 01-12-2023 15:46:05  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: f\_r1.te Time Period: Day/Night 16/8 hours  
Description: **North facade of the townhomes.**

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

-----  
Car traffic volume : 6791/755 veh/TimePeriod  
Medium truck volume : 76/9 veh/TimePeriod  
Heavy truck volume : 62/7 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Mississauga (day/night)

-----  
Angle1 Angle2 : -80.00 deg 50.00 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 : 7.60 / 7.60 m  
Topography : 1 (Flat/gentle slope; no barrier)  
Reference angle : 0.00

Results segment # 1: Mississauga (day)

-----  
Source height = 0.97 m

ROAD (0.00 + 43.35 + 0.00) = 43.35 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-80 50 0.49 61.12 0.00 -15.74 -2.03 0.00 0.00 0.00 43.35  
-----

Segment Leq : 43.35 dBA

Total Leq All Segments: 43.35 dBA

Results segment # 1: Mississauga (night)

-----  
Source height = 0.98 m

ROAD (0.00 + 36.87 + 0.00) = 36.87 dBA  
Angle1 Angle2 Alpha RefLeq P.Adj D.Adj F.Adj W.Adj H.Adj B.Adj SubLeq  
-----  
-80 50 0.49 54.64 0.00 -15.74 -2.03 0.00 0.00 0.00 36.87  
-----

Segment Leq : 36.87 dBA

Total Leq All Segments: 36.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 43.35  
(NIGHT): 36.87

STAMSON 5.0                    NORMAL REPORT                    Date: 01-12-2023 15:47:54  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: gf\_ola.te                    Time Period: 16 hours  
 Description: **At grade OLA of 12-storey building.**

Road data, segment # 1: Dundas

```
-----
Car traffic volume : 45619 veh/TimePeriod
Medium truck volume : 1046 veh/TimePeriod
Heavy truck volume : 855 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: Dundas

```
-----
Angle1 Angle2 : -35.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 143.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: Dundas

Source height = 1.16 m

ROAD (0.00 + 53.88 + 0.00) = 53.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	90	0.66	72.78	0.00	-16.26	-2.64	0.00	0.00	0.00	53.88

Segment Leq : 53.88 dBA

Total Leq All Segments: 53.88 dBA

TOTAL Leq FROM ALL SOURCES: 53.88

STAMSON 5.0 NORMAL REPORT Date: 01-12-2023 15:48:35  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 7f\_ola.te Time Period: 16 hours  
Description: **7th floor OLA of 12-storey building.**

Road data, segment # 1: Dundas

-----  
Car traffic volume : 45619 veh/TimePeriod  
Medium truck volume : 1046 veh/TimePeriod  
Heavy truck volume : 855 veh/TimePeriod  
Posted speed limit : 60 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dundas

-----  
Angle1 Angle2 : -20.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 141.00 m  
Receiver height : 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -20.00 deg Angle2 : 90.00 deg  
Barrier height : 0.00 m  
Barrier receiver distance : 9.00 m  
Source elevation : 0.00 m  
Receiver elevation : 22.20 m  
Barrier elevation : 22.20 m  
Reference angle : 0.00

Road data, segment # 2: Mississauga

-----  
Car traffic volume : 6791 veh/TimePeriod  
Medium truck volume : 76 veh/TimePeriod  
Heavy truck volume : 62 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Mississauga

-----  
Angle1 Angle2 : -90.00 deg 50.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 64.00 m  
Receiver height : 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -90.00 deg Angle2 : 50.00 deg  
Barrier height : 0.00 m  
Barrier receiver distance : 14.00 m  
Source elevation : 0.00 m  
Receiver elevation : 22.20 m  
Barrier elevation : 22.20 m  
Reference angle : 0.00

Results segment # 1: Dundas

-----  
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 !	0.06 !	22.26

-----

ROAD (0.00 + 53.32 + 0.00) = 53.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-20	90	0.66	72.78	0.00	-16.15	-3.31	0.00	0.00	-4.99	48.33*
-20	90	0.66	72.78	0.00	-16.15	-3.31	0.00	0.00	0.00	53.32

\* Bright Zone !

Segment Leq : 53.32 dBA

Results segment # 2: Mississauga

Source height = 0.97 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.97	1.50	-3.47	18.73

ROAD (0.00 + 36.47 + 0.00) = 36.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	50	0.66	61.12	0.00	-10.46	-2.13	0.00	0.00	-12.05	36.47

Segment Leq : 36.47 dBA

Total Leq All Segments: 53.41 dBA

TOTAL Leq FROM ALL SOURCES: 53.41

STAMSON 5.0            NORMAL REPORT            Date: 01-12-2023 15:50:20  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 8f\_ola.te            Time Period: 16 hours  
Description: **8th floor OLA of 12-storey building.**

Road data, segment # 1: Dundas

-----  
Car traffic volume : 45619 veh/TimePeriod  
Medium truck volume : 1046 veh/TimePeriod  
Heavy truck volume : 855 veh/TimePeriod  
Posted speed limit : 60 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dundas

-----  
Angle1 Angle2 : 20.00 deg 90.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 134.00 m  
Receiver height : 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : 20.00 deg Angle2 : 90.00 deg  
Barrier height : 0.00 m  
Barrier receiver distance : 9.00 m  
Source elevation : 0.00 m  
Receiver elevation : 25.70 m  
Barrier elevation : 25.70 m  
Reference angle : 0.00

Road data, segment # 2: Mississauga

-----  
Car traffic volume : 6791 veh/TimePeriod  
Medium truck volume : 76 veh/TimePeriod  
Heavy truck volume : 62 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Mississauga

-----  
Angle1 Angle2 : -90.00 deg 20.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 59.00 m  
Receiver height : 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -90.00 deg Angle2 : 20.00 deg  
Barrier height : 0.00 m  
Barrier receiver distance : 9.00 m  
Source elevation : 0.00 m  
Receiver elevation : 25.70 m  
Barrier elevation : 25.70 m  
Reference angle : 0.00

Results segment # 1: Dundas

-----  
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 !	-0.25 !	25.45

-----

ROAD (0.00 + 45.84 + 0.00) = 45.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
20	90	0.66	72.78	0.00	-15.79	-6.06	0.00	0.00	-5.10	45.84

Segment Leq : 45.84 dBA

Results segment # 2: Mississauga

Source height = 0.97 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.97	1.50	-2.50	23.20

ROAD (0.00 + 37.31 + 0.00) = 37.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	20	0.66	61.12	0.00	-9.87	-3.31	0.00	0.00	-10.63	37.31

Segment Leq : 37.31 dBA

Total Leq All Segments: 46.41 dBA

TOTAL Leq FROM ALL SOURCES: 46.41



STAMSON 5.0            NORMAL REPORT            Date: 01-12-2023 15:51:41  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: thn\_ola.te            Time Period: 16 hours  
 Description: **North rooftop OLA of townhomes.**

Road data, segment # 1: Dundas

-----  
 Car traffic volume : 45619 veh/TimePeriod  
 Medium truck volume : 1046 veh/TimePeriod  
 Heavy truck volume : 855 veh/TimePeriod  
 Posted speed limit : 60 km/h  
 Road gradient : 2 %  
 Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dundas

-----  
 Angle1 Angle2 : -40.00 deg 90.00 deg  
 Wood depth : 0 (No woods.)  
 No of house rows : 0  
 Surface : 1 (Absorptive ground surface)  
 Receiver source distance : 173.00 m  
 Receiver height : 1.50 m  
 Topography : 2 (Flat/gentle slope; with barrier)  
 Barrier angle1 : -40.00 deg Angle2 : 90.00 deg  
 Barrier height : 0.00 m  
 Barrier receiver distance : 2.50 m  
 Source elevation : 0.00 m  
 Receiver elevation : 7.60 m  
 Barrier elevation : 7.60 m  
 Reference angle : 0.00

Results segment # 1: Dundas

-----  
 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	1.39	8.99

ROAD (0.00 + 52.70 + 0.00) = 52.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	90	0.66	72.78	0.00	-17.63	-2.46	0.00	0.00	-0.16	52.53*
-40	90	0.66	72.78	0.00	-17.63	-2.46	0.00	0.00	0.00	52.70

\* Bright Zone !

Segment Leq : 52.70 dBA

Total Leq All Segments: 52.70 dBA

TOTAL Leq FROM ALL SOURCES: 52.70

STAMSON 5.0            NORMAL REPORT            Date: 01-12-2023 15:52:08  
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: ths\_ola.te            Time Period: 16 hours  
Description: **South rooftop OLA of townhomes.**

Road data, segment # 1: Dundas

-----  
Car traffic volume : 45619 veh/TimePeriod  
Medium truck volume : 1046 veh/TimePeriod  
Heavy truck volume : 855 veh/TimePeriod  
Posted speed limit : 60 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 1: Dundas

-----  
Angle1 Angle2 : -90.00 deg -60.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 180.00 m  
Receiver height : 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -90.00 deg Angle2 : -60.00 deg  
Barrier height : 0.00 m  
Barrier receiver distance : 2.50 m  
Source elevation : 0.00 m  
Receiver elevation : 7.60 m  
Barrier elevation : 7.60 m  
Reference angle : 0.00

Road data, segment # 2: Mississauga

-----  
Car traffic volume : 6791 veh/TimePeriod  
Medium truck volume : 76 veh/TimePeriod  
Heavy truck volume : 62 veh/TimePeriod  
Posted speed limit : 50 km/h  
Road gradient : 2 %  
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 2: Mississauga

-----  
Angle1 Angle2 : -90.00 deg 70.00 deg  
Wood depth : 0 (No woods.)  
No of house rows : 0  
Surface : 1 (Absorptive ground surface)  
Receiver source distance : 67.00 m  
Receiver height : 1.50 m  
Topography : 2 (Flat/gentle slope; with barrier)  
Barrier angle1 : -90.00 deg Angle2 : 70.00 deg  
Barrier height : 0.00 m  
Barrier receiver distance : 2.50 m  
Source elevation : 0.00 m  
Receiver elevation : 7.60 m  
Barrier elevation : 7.60 m  
Reference angle : 0.00

Results segment # 1: Dundas

-----  
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 !	1.39 !	8.99

-----

ROAD (0.00 + 42.97 + 0.00) = 42.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-60	0.66	72.78	0.00	-17.91	-11.90	0.00	0.00	-0.75	42.23*
-90	-60	0.66	72.78	0.00	-17.91	-11.90	0.00	0.00	0.00	42.97

\* Bright Zone !

Segment Leq : 42.97 dBA

Results segment # 2: Mississauga

Source height = 0.97 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
0.97	1.50	1.20	8.80

ROAD (0.00 + 48.66 + 0.00) = 48.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	70	0.66	61.12	0.00	-10.79	-1.66	0.00	0.00	-0.18	48.49*
-90	70	0.66	61.12	0.00	-10.79	-1.66	0.00	0.00	0.00	48.66

\* Bright Zone !

Segment Leq : 48.66 dBA

Total Leq All Segments: 49.70 dBA

TOTAL Leq FROM ALL SOURCES: 49.70

STAMSON 5.0                    NORMAL REPORT                    Date: 01-12-2023 15:52:44  
 MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: thgf\_ola.te                    Time Period: 16 hours  
 Description: **At grade OLA of townhomes.**

Road data, segment # 1: Dundas

```
-----
Car traffic volume : 45619 veh/TimePeriod
Medium truck volume : 1046 veh/TimePeriod
Heavy truck volume : 855 veh/TimePeriod
Posted speed limit : 60 km/h
Road gradient : 2 %
Road pavement : 1 (Typical asphalt or concrete)
```

Data for Segment # 1: Dundas

```
-----
Angle1 Angle2 : -50.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 170.00 m
Receiver height : 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
```

Results segment # 1: Dundas

Source height = 1.16 m

ROAD (0.00 + 53.15 + 0.00) = 53.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	90	0.66	72.78	0.00	-17.50	-2.13	0.00	0.00	0.00	53.15

Segment Leq : 53.15 dBA

Total Leq All Segments: 53.15 dBA

TOTAL Leq FROM ALL SOURCES:                    53.15