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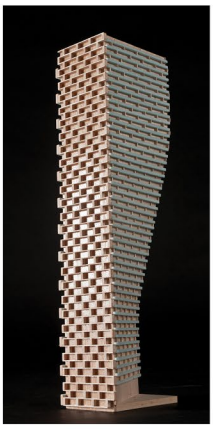
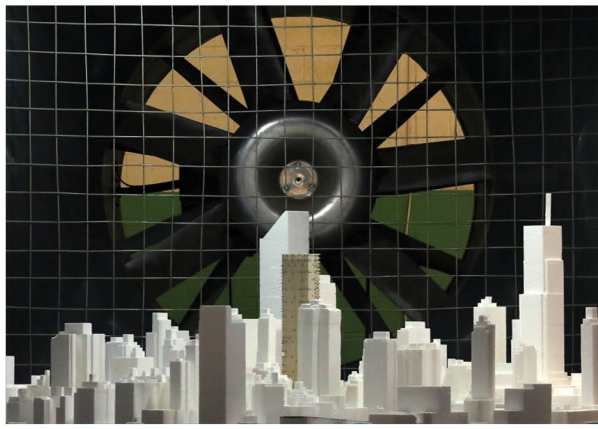
DETAILED TRAFFIC NOISE STUDY

265 Carling Avenue
Ottawa, Ontario

REPORT: GW23-293-Detailed Traffic Noise Study





January 23rd, 2024

PREPARED FOR

Katasa Groupe + Developpement
69 rue Jean-Proulx, unit 301
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PREPARED BY

Adam Bonello, BASc., Junior Environmental Scientist
Joshua Foster, P.Eng., Lead Engineer

EXECUTIVE SUMMARY

This report describes a detailed traffic noise study performed for the proposed mixed-use development, located at 265 Carling Avenue in Ottawa, Ontario. The proposed development comprises of a single, rectilinear, building spanning 8 floors. The major contributors of traffic noise are Carling Avenue, Bronson Avenue, and Highway 417.

The assessment is based on theoretical noise calculation methods conforming to the City of Ottawa[1] and Ministry of the Environment, Conservation and Parks (MECP) NPC-300[2] guidelines, concept masterplan provided by RLA Architecture in January 2024, with future roadway traffic volumes corresponding with the City of Ottawa's Official Plan (OP) roadway classifications and the Ministry of Transportation Ontario (MTO).

The results of the current analysis indicate that noise levels will range between 70 and 73 dBA during the daytime period (07:00-23:00) and between 64 and 67 dBA during the nighttime period (23:00-07:00). The highest noise level (73 dBA) occurs along the south façades of the building, which are nearest and most exposed to Carling Avenue. Building components with a higher Sound Transmission Class (STC) rating will be required where exterior noise levels exceed 65 dBA, as indicated in Figure 3 and Table 4.

Results of the calculations also indicate that the building will require forced air heating systems with central air conditioning, or similar mechanical system, which will allow occupants to keep windows closed and maintain a comfortable living/working environment. The following Type D Warning Clause[3] will be required on all Lease, Purchase and Sale Agreements, as summarized in Section 6.

Regarding stationary noise impacts from the development on the surroundings, these can be minimized by judicious placement mechanical equipment such as its placement on a roof or in a mechanical penthouse, or the incorporation of silencers and noise screens as necessary. Due to the size and nature of the development, the HVAC equipment is expected to be located in the mechanical penthouses. The building will be designed to comply with the ENCG Sound Level Limits and City of Ottawa Noise By-Law No. 2017-255.

[1] City of Ottawa Environmental Noise Control Guidelines, January 2016
[2] Ministry of the Environment, Conservation and Parks (MECP), Environmental Noise Guideline – Publication NPC-300, August 2013
[3] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 8

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by Katasa Groupe + Developpement to undertake a detailed traffic noise study for the proposed mixed-use development, located at 265 Carling Avenue in Ottawa, Ontario. This report summarizes the methodology, results, and recommendations related to a detailed traffic noise study.

The present scope of work involves assessing exterior noise levels at the study site generated by the surrounding transportation sources. The assessment was performed based on theoretical noise calculation methods conforming to the City of Ottawa[4] and Ministry of the Environment, Conservation and Parks (MECP) NPC-300[5] guidelines, site plan drawings received from RLA Architecture in January 2024, with future roadway traffic volumes corresponding with the City of Ottawa's Official Plan (OP) roadway classifications.

2. TERMS OF REFERENCE

The proposed development comprises of a single, rectilinear, building spanning 8 floors. The first level of the building acts as a parking garage, and the second level holds commercial space. The remaining floors are residential.

The major contributors of traffic noise are Carling Avenue, Bronson Avenue, and Highway 417. The study site is surrounded by low rise housing, and mid-rise buildings and parkland. Figure 1 illustrates a complete site plan with surrounding context.

Other sources of traffic noise such as Booth Street were deemed insignificant due to the large offset distances between them and the site. Additionally, nearby local roads such as Glebe Avenue and Cambridge Street South were deemed insignificant, due to their low traffic volumes.

Regarding stationary noise impacts from the development on the surroundings, these can be minimized by judicious placement mechanical equipment such as its placement on a roof or in a mechanical penthouse, or the incorporation of silencers and noise screens as necessary. Due to the size and nature

[4] City of Ottawa Environmental Noise Control Guidelines, January 2016
[5] Ministry of the Environment, Conservation and Parks (MECP), Environmental Noise Guideline – Publication NPC-300, August 2013

of the development, the HVAC equipment is expected to be located in the mechanical penthouses and comply with the ENCG Sound Level Limits and City of Ottawa Noise By-Law No. 2017-255.

3. OBJECTIVES

The main goals of this work are to (i) calculate the future noise levels on the study site produced by local transportation, (ii) ensure that interior noise levels do not exceed the allowable limits specified by the City of Ottawa's Environmental Noise Control Guidelines as outlined in Section 4 of this report.

4. METHODOLOGY

4.1 Background

Noise can be defined as any obtrusive sound. It is created at a source, transmitted through a medium, such as air, and intercepted by a receiver. Noise may be characterized in terms of the power of the source or the sound pressure at a specific distance. While the power of a source is characteristic of that particular source, the sound pressure depends on the location of the receiver and the path that the noise takes to reach the receiver. Measurement of noise is based on the decibel unit, dBA, which is a logarithmic ratio referenced to a standard noise level (2×10^{-5} Pascals). The 'A' suffix refers to a weighting scale, which better represents how the noise is perceived by the human ear. With this scale, a doubling of power results in a 3 dBA increase in measured noise levels and is just perceptible to most people. An increase of 10 dBA is often perceived to be twice as loud.

4.2 Roadway Traffic Noise

4.2.1 Criteria for Roadway Traffic Noise

For vehicle traffic, the equivalent sound energy level, L_{eq}, provides a measure of the time varying noise levels, which is well correlated with the annoyance of sound. It is defined as the continuous sound level, which has the same energy as a time varying noise level over a period of time. For roadways, the L_{eq} is commonly calculated on the basis of a 16-hour (L_{eq16}) daytime (07:00-23:00)/8-hour (L_{eq8}) nighttime (23:00-07:00) split to assess its impact on residential buildings. The NPC-300 guidelines specify that the recommended indoor noise limit range (that is relevant to this study) is 45 and 40 dBA for residence living rooms and sleeping quarters, respectively, as listed in Table 1. However, to account for deficiencies in building construction and to control peak noise, these levels should be targeted toward 42 and 37 dBA.

TABLE 1: INDOOR SOUND LEVEL CRITERIA (ROAD) [6]

Type of Space	Time Period	L_{eq} (dBA)
General offices, reception areas, retail stores, etc.	07:00 – 23:00	50
Living/dining/den areas of residences, hospitals, schools, nursing/retirement homes, day-care centers, theatres, places of worship, libraries, individual or semi-private offices, conference rooms, etc.	07:00 – 23:00	45
Sleeping quarters of hotels/motels	23:00 - 07:00	45
Sleeping quarters of residences, hospitals, nursing/retirement homes, etc.	23:00 – 07:00	40

Predicted noise levels at the plane of window (POW) dictate the action required to achieve the recommended sound levels. An open window is considered to provide a 10 dBA reduction in noise while a standard closed window is capable of providing a minimum 20 dBA noise reduction[7]. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the need for having windows and doors closed, which normally triggers the need for central air

[6] Adapted from Table C-2, Part C, Section 3.2.3 of NPC-300
[7] Burberry, P.B. (2014). Mitchell's Environment and Services. Routledge, Page 125

conditioning (or similar systems). Where noise levels exceed 65 dBA daytime and 60 dBA nighttime building components will require higher levels of sound attenuation[8].

4.2.2 Roadway Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway's classification at the mature state of development. Therefore, traffic volumes for Carling and Bronson are based on the roadway classifications outlined in the City of Ottawa's Official Plan (OP) and Transportation Master Plan[9]. Average Annual Daily Traffic (AADT) volumes are then based on data in Table B1 of the ENCG for each roadway classification. Meanwhile, traffic volumes for Highway 417 were obtained from the MTO[10] (see Appendix A) and projected with 2% annual growth to 2034. Table 2 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 2: ROADWAY TRAFFIC DATA

Segment	Roadway Class	Speed Limit (km/h)	Ultimate AADT	Day/Night Split	Truck Volume Percentages	
					Medium Truck	Heavy Truck
Carling Avenue	4-Lane urban arterial (divided)	60	**35,000**	90/10	**7**	**5**
Bronson	4-Lane urban arterial (undivided)	50	**30,000**	90/10	**7**	**5**
Highway 417	Provincial Freeway	100	**189,079**	85/15	**4**	**2**

4.2.3 Theoretical Traffic Noise Predictions

Noise predictions were performed with the aid of the MECP computerized noise assessment program, STAMSON 5.04, for road analysis. Appendix B includes the STAMSON 5.04 input and output data.

Roadway traffic noise calculations were performed by treating each roadway segment as a separate line source of noise, and by using proposed and existing building locations as noise barriers. In addition to the

[8] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.1.3
[9] City of Ottawa Transportation Master Plan, November 2013
[10] Ministry of Transportation Ontario, Provincial Highway Traffic Volumes, 2019

traffic volumes summarized in Table 2, theoretical noise predictions were based on the following parameters:

- Vehicle parameters such as truck traffic volume percentages, posted speed limit, and day/night split are summarized in Table 2.
- Default ground surfaces were taken to be reflective due to the presence of hard (paved) ground.
- Topography was assumed to be a flat/gentle slope surrounding the study building.
- Noise receptors were strategically placed at 6 locations around the study area (see Figure 2).
- For select sources where appropriate, receptors considered the proposed and existing building as a barrier partially or fully obstructing exposure to the source.
- Receptor distances and exposure angles are illustrated in Figures A1-A3.

4.3 Indoor Noise Calculations

The difference between outdoor and indoor noise levels is the noise attenuation provided by the building envelope. According to common industry practice, complete walls and individual wall elements are rated according to the Sound Transmission Class (STC). The STC ratings of common residential walls built in conformance with the Ontario Building Code (2012) typically exceed STC 35, depending on exterior cladding, thickness, and interior finish details. For example, concrete and masonry walls can achieve STC 50 or more. Curtainwall systems typically provide around STC 35, depending on the glazing elements. Standard good quality double-glazed non-operable windows can have STC ratings ranging from 25 to 40 depending on the window manufacturer, pane thickness and inter-pane spacing. As previously mentioned, the windows are the known weak point in a partition.

According to the ENCG, when daytime noise levels (from road and rail sources) at the plane of the window exceed 65 dBA, calculations must be performed to evaluate the sound transmission quality of the building components to ensure acceptable indoor noise levels. The calculation procedure[11] considers:

- Window type and total area as a percentage of total room floor area
- Exterior wall type and total area as a percentage of the total room floor area

[11] Building Practice Note: Controlling Sound Transmission into Buildings by J.D. Quirt, National Research Council of Canada, September 1985

- Acoustic absorption characteristics of the room
- Outdoor noise source type and approach geometry
- Indoor sound level criteria, which varies according to the intended use of a space.

Based on published research[12], exterior walls possess specific sound attenuation characteristics that are used as a basis for calculating the required STC ratings of windows in the same partition. Due to the limited information available at the time of the study, which was prepared for site plan approval, final detailed floor layouts and building elevations were unavailable and therefore detailed STC calculations could not be performed at this time. As a guideline, the anticipated STC requirements for windows have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels + safety factor).

5. RESULTS

5.1 Roadway Traffic Noise Levels

The results of the current analysis indicate that noise levels will range between 70 and 73 dBA during the daytime period (07:00-23:00) and between 64 and 67 dBA during the nighttime period (23:00-07:00). The highest noise level (73 dBA) occurs along the south façades of the building, which are nearest and most exposed to Carling Avenue.

[12] CMHC, Road & Rail Noise: Effects on Housing

TABLE 3: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC SOURCES

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON Roadway Noise Level (dBA)	
			Day	Night
1	24.2	POW – L8: South Façade 1	73	66
2	24.2	POW – L8: South Façade 2	73	67
3	24.2	POW – L8: South Façade 3	73	66
4	24.2	POW – L8: East Façade	71	65
5	24.2	POW – L8: North Façade	70	65
6	24.2	POW – L8: West Façade	70	64

5.2 Noise Control Measures

The noise levels predicted due to roadway traffic exceed the criteria listed in Section 4.2 for building components for the development. As discussed in Section 4.2, the anticipated STC requirements for windows have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels). As per NPC-300 requirements, detailed STC calculations will be required to be completed prior to building permit application for each unit type. The STC requirements for the windows are summarized below for various units within the development (see Figure 3). Where specific updated building components are not identified, bedroom/living room/retail windows are to satisfy Ontario Building Code (OBC 2012) requirements.

TABLE 4: NOISE CONTROL REQUIREMENTS

Façade	Floor Number	Window STC (Bedroom/Living Room)	Exterior Wall STC	Warning Clauses	A/C
North, East, South, West	1-8	35/30	45	D	Yes

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 70 and 73 dBA during the daytime period (07:00-23:00) and between 64 and 67 dBA during the nighttime period (23:00-07:00). The highest noise level (73 dBA) occurs along the south façades of the building, which are nearest and most exposed to Carling Avenue. Building components with a higher Sound Transmission Class (STC) rating will be required where exterior noise levels exceed 65 dBA, as indicated in Figure 3 and Table 4.

Results of the calculations also indicate that the building will require forced air heating systems with central air conditioning, or similar mechanical system, which will allow occupants to keep windows closed and maintain a comfortable living/working environment. The following Type D Warning Clause[13] will be required on all Lease, Purchase and Sale Agreements, as summarized 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."*

Regarding stationary noise impacts from the development on the surroundings, these can be minimized by judicious placement mechanical equipment such as its placement on a roof or in a mechanical penthouse, or the incorporation of silencers and noise screens as necessary. Due to the size and nature of the development, the HVAC equipment is expected to be located in the mechanical penthouses. The building will be designed to comply with the ENCG Sound Level Limits and City of Ottawa Noise By-Law No. 2017-255.

[13] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 8

This concludes our assessment and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

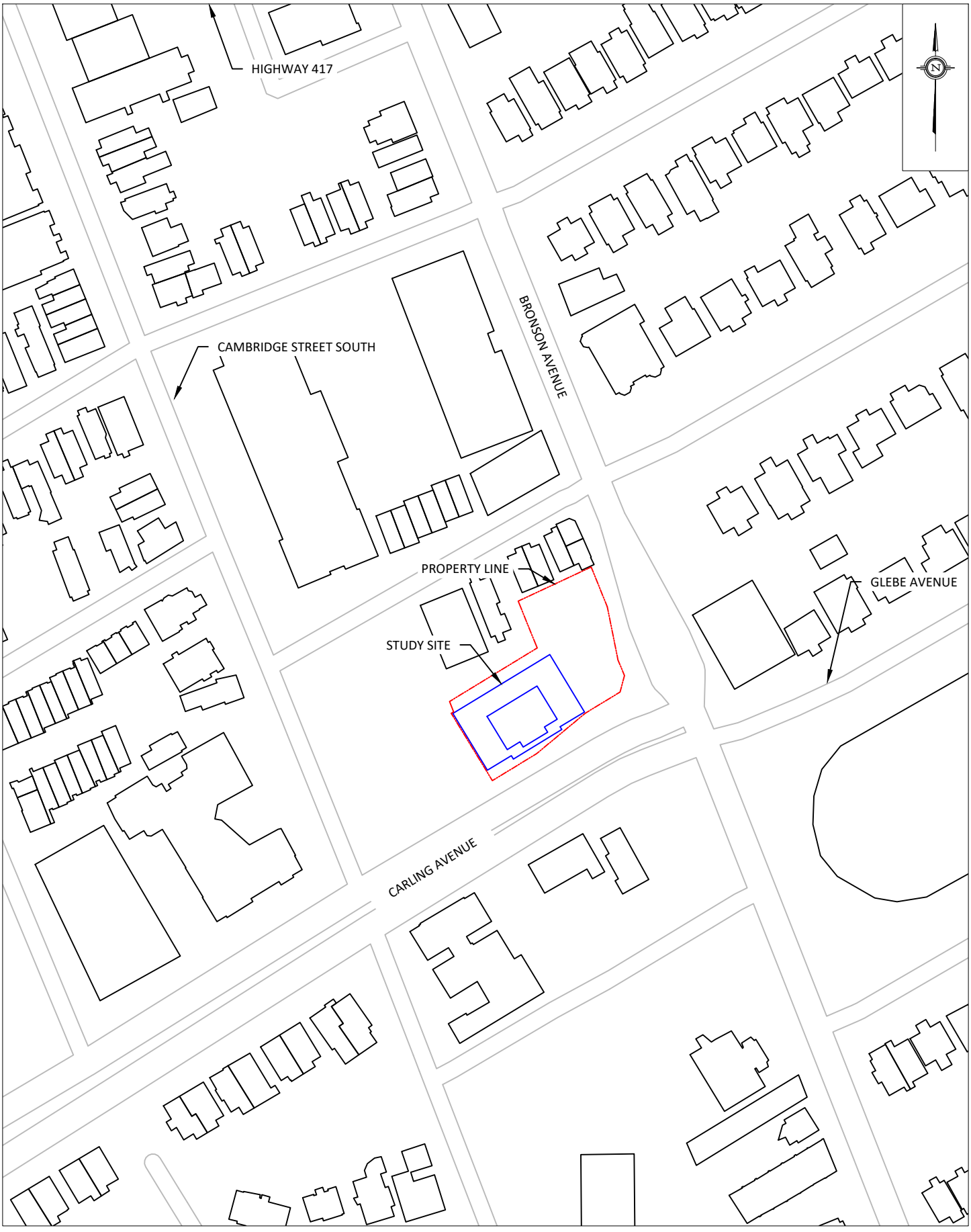
Sincerely,

Gradient Wind Engineering Inc.

Adam Bonello, BASc.
Junior Environmental Scientist

Joshua Foster, P.Eng.
Lead Engineer

Gradient Wind File #23-243-Environmental Noise



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PROJECT	265 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE ASSESSMENT
SCALE	1:1500 (APPROX.)
DRAWING NO.	GW23-293-1
DATE	JANUARY 15, 2024
DRAWN BY	A.B.

DESCRIPTION

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT

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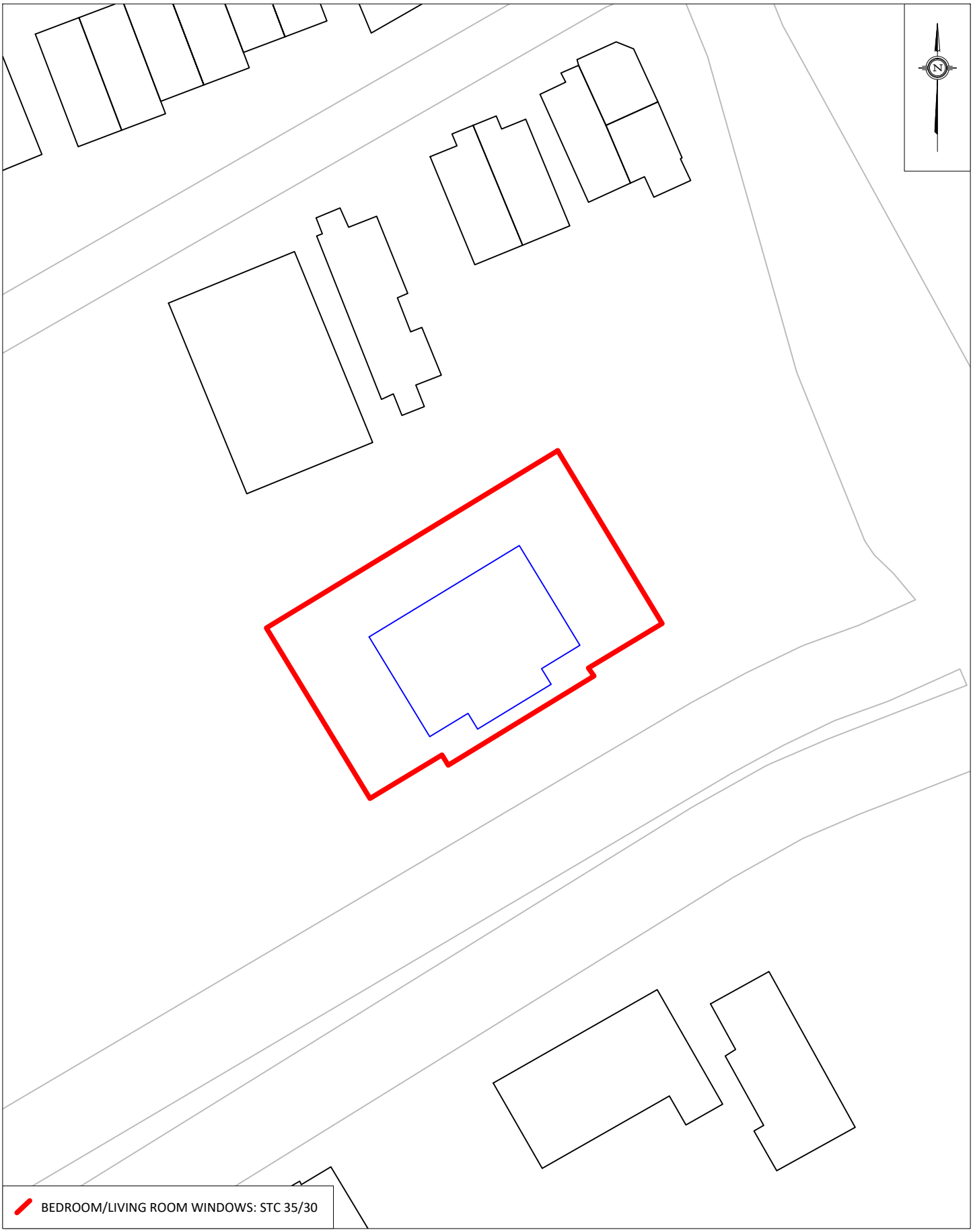
DATE	JANUARY 15, 2024	DRAWN BY	A.B.

FIGURE 2:
TRAFFIC NOISE RECEPTOR LOCATIONS



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SCALE	1:500 (APPROX.)	DRAWING NO.	GW23-293-2
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FIGURE 2:
TRAFFIC NOISE RECEPTOR LOCATIONS

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APPENDIX A

MTO HIGHWAY 417 TRAFFIC INFORMATION

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Ontario

Ministry of Transportation | Highway Standards Branch | Traffic Office

Provincial Highways

Traffic Volumes 1988-2019

King's Highways / Secondary Highways / Tertiary Roads

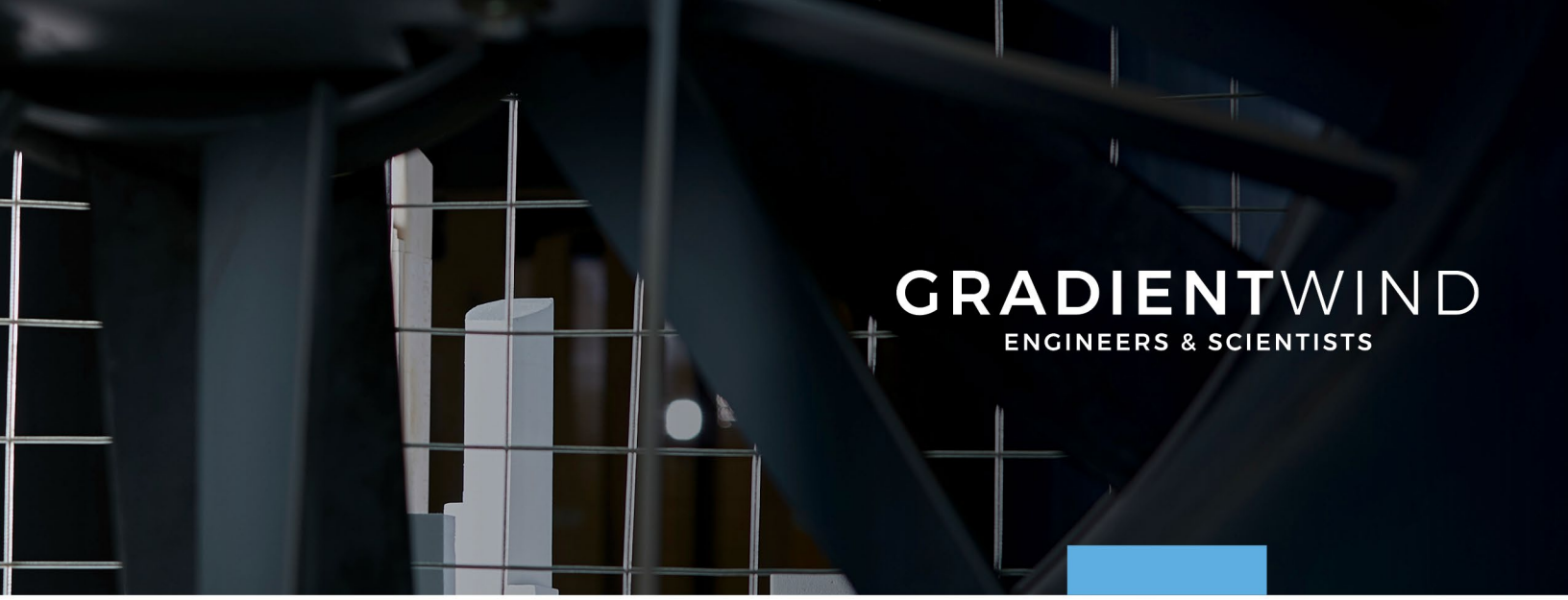
Ministry Contact:
Provincial Traffic Office (905)-704-2960

Abstract:
This annual publication contains averaged traffic volume information for each of the sections of highway under MTO jurisdiction.

Key Words:
Annual Average Daily Traffic volume (AADT), Summer Average Daily Traffic volume (SADT), Summer Average Weekday Traffic volume (SAWDT), Winter Average Daily Traffic volume (WADT)

Highway	Location Description	Dist (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT
417			1996	UC	132900	140600	155500	126400
417			1997	UC	137200	144100	160500	129000
417			1998	UC	141500	150000	165600	134400
417			1999	UC	138400	146700	161900	131500
417			2000	UC	140500	148900	165800	132100
417			2001	UC	142500	152600	167600	133900
417			2002	UC	144600	154100	170100	135400
417			2003	UC	143400	151500	168000	135500
417			2004	UC	145000	155300	170600	136300
417			2005	UC	149400	158100	174700	140100
417			2006	UC	151300	160000	176800	142400
417			2007	UC	153200	162500	177300	143700
417			2008	UC	155100	163800	153800	145100
417			2009	UC	157000	166400	183700	147600
417			2010	UC	158900	168000	184900	149400
417			2011	UC	160800	161300	166900	152600
417			2012	UC	162600	163600	174100	154500
417			2013	UC	164500	165000	165400	156100
417			2014	UC	166400	166900	160000	157900
417			2015	UC	168300	168800	161900	159700
417			2016	UC	170200	170700	163700	161500
417			2017	UC	172100	171000	172600	164900
417			2018	UC	174000	172600	175300	167000
417			2019	UC	175900	173300	176000	169500
417	BRONSON AV IC-121A OTTAWA	0.6	1988	UC	105600	110900	119300	99300
417			1989	UC	111300	116900	125800	105700
417			1990	UC	117900	126200	136800	112000
417			1991	UC	120000	127200	138000	116400
417			1992	UC	121100	128400	139300	116300
417			1993	UC	122000	128500	138700	114300
417			1994	UC	131900	139800	150800	122700
417			1995	UC	136700	144200	156300	127500
417			1996	UC	141500	149700	165500	134600
417			1997	UC	146200	153500	171100	137400
417			1998	UC	151000	160100	176700	143400
417			1999	UC	145700	154400	170500	138400
417			2000	UC	147400	156200	173900	138600
417			2001	UC	149100	159700	175400	140100
417			2002	UC	150800	160700	177400	141200
417			2003	UC	148100	156500	173500	139900
417			2004	UC	151000	161700	177600	141900
417			2005	UC	154700	163700	180900	145100
417			2006	UC	156300	165300	182600	147100
417			2007	UC	157800	167400	182600	148000
417			2008	UC	159400	168400	158100	149100

Highway	Location Description	Dist (KM)	Year	Pattern Type	AADT	SADT	SAWDT	WADT
417			2009	UC	160900	170600	188300	151200
417			2010	UC	162500	171800	189100	152800
417			2011	UC	164000	164500	170200	155600
417			2012	UC	165600	166600	177300	157300
417			2013	UC	167200	167700	168100	158700
417			2014	UC	168700	169200	162200	160100
417			2015	UC	170300	170800	163800	161600
417			2016	UC	171800	172400	165200	163000
417			2017	UC	173400	172300	173900	166200
417			2018	UC	174900	173500	176200	167900
417			2019	UC	176500	173900	176600	170100
417	ROCHESTER ST IC-121B OTTAWA	1.5	1988	UC	114400	120100	129300	107500
417			1989	UC	120600	126600	136300	114600
417			1990	UC	127600	136500	148000	121200
417			1991	UC	130000	137800	149500	126100
417			1992	UC	130800	138600	150400	125600
417			1993	UC	131000	138000	148900	122700
417			1994	UC	143100	151700	163600	133100
417			1995	UC	148500	156700	169800	138500
417			1996	UC	153800	162800	179900	146300
417			1997	UC	159200	167200	186300	149600
417			1998	UC	164500	174400	192500	156300
417			1999	UC	158200	167700	185100	150300
417			2000	UC	160000	169600	188800	150400
417			2001	UC	161800	173300	190300	152000
417			2002	UC	163500	174200	192300	153100
417			2003	UC	160200	169300	187700	151300
417			2004	UC	162000	173500	190600	152200
417			2005	UC	167000	176700	195300	156600
417			2006	UC	168600	178300	197000	158700
417			2007	UC	170100	180400	196900	159600
417			2008	UC	171700	181400	170300	160600
417			2009	UC	173200	183600	202600	162800
417			2010	UC	174800	184800	203400	164400
417			2011	UC	176300	176900	183000	167300
417			2012	UC	177900	179000	190400	169000
417			2013	UC	179400	180000	180400	170200
417			2014	UC	181000	181600	174100	171800
417			2015	UC	182500	183100	175500	173200
417			2016	UC	184100	184700	177000	174700
417			2017	UC	185600	184400	186200	177900
417			2018	UC	187200	185700	188600	179700
417			2019	UC	188700	185900	188800	181800
417	PARKDALE AV IC-122 OTTAWA	1.0	1988	UC	110600	116100	125000	104000
417			1989	UC	116700	122500	131900	110900



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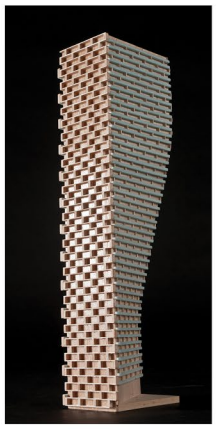

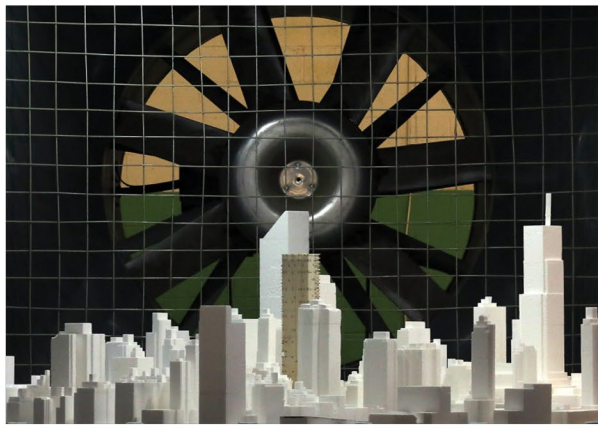

APPENDIX B

STAMSON 5.04 – INPUT AND OUTPUT DATA

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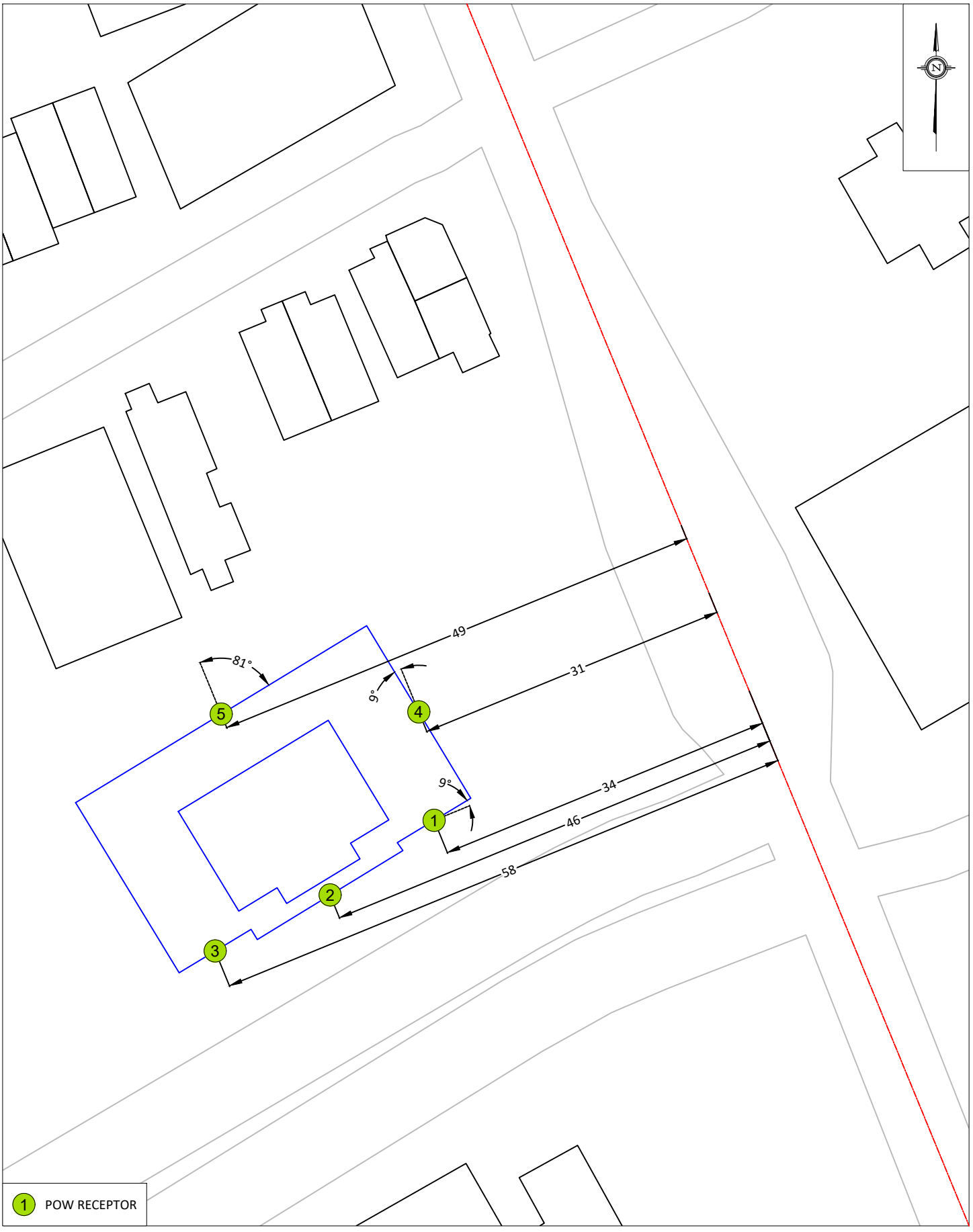
PROJECT	265 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE ASSESSMENT
SCALE	1:500 (APPROX.)
DRAWING NO.	GW23-293-B1
DATE	JANUARY 15, 2024
DRAWN BY	A.B.

DESCRIPTION

FIGURE B1:
RECEPTOR DISTANCES AND EXPOSURE ANGLES



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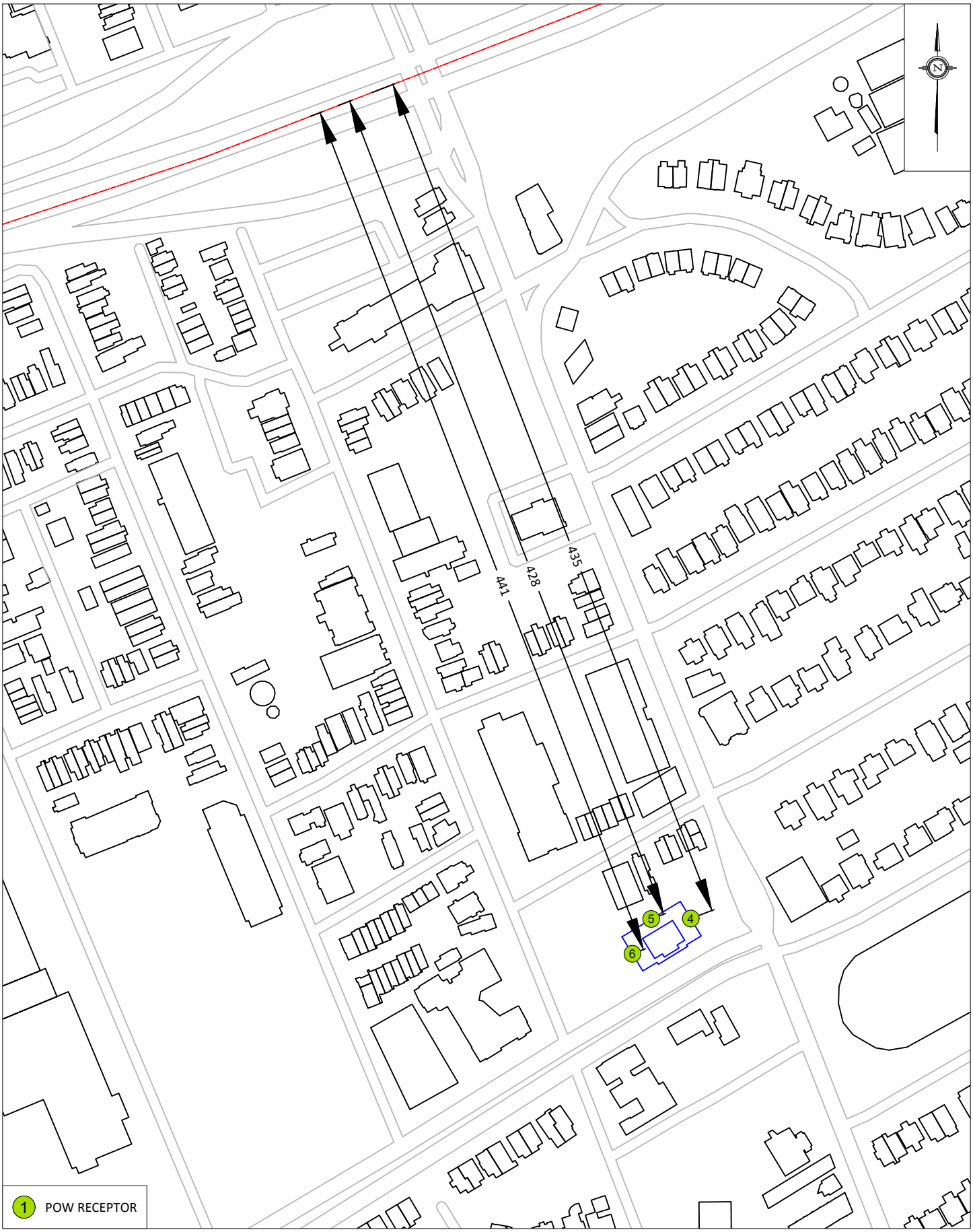
PROJECT	265 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE ASSESSMENT		DESCRIPTION
SCALE	1:500 (APPROX.)	DRAWING NO.	GW23-293-B2
DATE	JANUARY 15, 2024	DRAWN BY	A.B.

FIGURE B2:
RECEPTOR DISTANCES AND EXPOSURE ANGLES



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PROJECT	265 CARLING AVENUE, OTTAWA ROADWAY TRAFFIC NOISE ASSESSMENT		DESCRIPTION
SCALE	1:2500 (APPROX.)	DRAWING NO.	GW23-293-B3
DATE	JANUARY 15, 2024	DRAWN BY	A.B.

FIGURE B3:
RECEPTOR DISTANCES AND EXPOSURE ANGLES

```
STAMSON 5.0          NORMAL REPORT          Date: 11-01-2024 16:22:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r1.te                  Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Carling (day/night)
----------------------------------------
Car traffic volume  : 27720/3080  veh/TimePeriod  *
Medium truck volume :  2205/245   veh/TimePeriod  *
Heavy truck volume  :  1575/175   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):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Carling (day/night)
----------------------------------------
Angle1   Angle2           : -53.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  17.00 / 17.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Bronson (day/night)
----------------------------------------
Car traffic volume  : 23760/2640  veh/TimePeriod  *
Medium truck volume :  1890/210   veh/TimePeriod  *
Heavy truck volume  :  1350/150   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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Bronson (day/night)
-----------------------------------------
Angle1   Angle2           :  -9.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  34.00 / 34.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 72.04 + 0.00) = 72.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53     90   0.00  73.58   0.00  -0.54  -1.00   0.00   0.00   0.00  72.04
-------------------------------------------------------------------------------

Segment Leq : 72.04 dBA

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

Source height = 1.50 m

ROAD (0.00 + 65.24 + 0.00) = 65.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     90   0.00  71.39   0.00  -3.55  -2.60   0.00   0.00   0.00  65.24
-------------------------------------------------------------------------------

Segment Leq : 65.24 dBA

Total Leq All Segments: 72.86 dBA

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

Source height = 1.50 m

ROAD (0.00 + 65.51 + 0.00) = 65.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53     90   0.00  67.05   0.00  -0.54  -1.00   0.00   0.00   0.00  65.51
-------------------------------------------------------------------------------

Segment Leq : 65.51 dBA

Results segment # 2: Bronson (night)
```

```
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.71 + 0.00) = 58.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     90   0.00  64.86   0.00  -3.55  -2.60   0.00   0.00   0.00  58.71
-------------------------------------------------------------------------------

Segment Leq : 58.71 dBA

Total Leq All Segments: 66.33 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.86
                           (NIGHT): 66.33
```

```
STAMSON 5.0        NORMAL REPORT        Date: 11-01-2024 16:22:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r2.te                 Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Carling (day/night)
----------------------------------------
Car traffic volume  : 27720/3080  veh/TimePeriod  *
Medium truck volume :  2205/245   veh/TimePeriod  *
Heavy truck volume  :  1575/175   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):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Carling (day/night)
----------------------------------------
Angle1   Angle2           : -64.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  16.00 / 16.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Bronson (day/night)
----------------------------------------
Car traffic volume  : 23760/2640  veh/TimePeriod  *
Medium truck volume :  1890/210   veh/TimePeriod  *
Heavy truck volume  :  1350/150   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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Bronson (day/night)
-----------------------------------------
Angle1   Angle2           :  -9.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  46.00 / 46.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 72.62 + 0.00) = 72.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -64     90   0.00  73.58   0.00  -0.28  -0.68   0.00   0.00   0.00  72.62
-------------------------------------------------------------------------------

Segment Leq : 72.62 dBA

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

Source height = 1.50 m

ROAD (0.00 + 63.93 + 0.00) = 63.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     90   0.00  71.39   0.00  -4.87  -2.60   0.00   0.00   0.00  63.93
-------------------------------------------------------------------------------

Segment Leq : 63.93 dBA

Total Leq All Segments: 73.17 dBA

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

Source height = 1.50 m

ROAD (0.00 + 66.09 + 0.00) = 66.09 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -64     90   0.00  67.05   0.00  -0.28  -0.68   0.00   0.00   0.00  66.09
-------------------------------------------------------------------------------

Segment Leq : 66.09 dBA

Results segment # 2: Bronson (night)
```

```
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 57.40 + 0.00) = 57.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     90   0.00  64.86   0.00  -4.87  -2.60   0.00   0.00   0.00  57.40
-------------------------------------------------------------------------------

Segment Leq : 57.40 dBA

Total Leq All Segments: 66.64 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.17
                           (NIGHT): 66.64
```

```
STAMSON 5.0          NORMAL REPORT          Date: 11-01-2024 16:23:57
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r3.te                  Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Carling (day/night)
----------------------------------------
Car traffic volume  : 27720/3080  veh/TimePeriod  *
Medium truck volume :  2205/245   veh/TimePeriod  *
Heavy truck volume  :  1575/175   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):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Carling (day/night)
----------------------------------------
Angle1   Angle2           : -69.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  17.00 / 17.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Bronson (day/night)
----------------------------------------
Car traffic volume  : 23760/2640  veh/TimePeriod  *
Medium truck volume :  1890/210   veh/TimePeriod  *
Heavy truck volume  :  1350/150   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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Bronson (day/night)
-----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  58.00 / 58.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 72.50 + 0.00) = 72.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -69     90   0.00  73.58   0.00  -0.54  -0.54   0.00   0.00   0.00  72.50
-------------------------------------------------------------------------------

Segment Leq : 72.50 dBA

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

Source height = 1.50 m

ROAD (0.00 + 62.51 + 0.00) = 62.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  71.39   0.00  -5.87  -3.01   0.00   0.00   0.00  62.51
-------------------------------------------------------------------------------

Segment Leq : 62.51 dBA

Total Leq All Segments: 72.91 dBA

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

Source height = 1.50 m

ROAD (0.00 + 65.97 + 0.00) = 65.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -69     90   0.00  67.05   0.00  -0.54  -0.54   0.00   0.00   0.00  65.97
-------------------------------------------------------------------------------

Segment Leq : 65.97 dBA

Results segment # 2: Bronson (night)
```

```
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.98 + 0.00) = 55.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  64.86   0.00  -5.87  -3.01   0.00   0.00   0.00  55.98
-------------------------------------------------------------------------------

Segment Leq : 55.98 dBA

Total Leq All Segments: 66.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.91
                           (NIGHT): 66.38
```

STAMSON 5.0 NORMAL REPORT Date: 11-01-2024 16:26:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4.te Time Period: Day/Night 16/8 hours
Description:

```
Road data, segment # 1: Carling (day/night)
-------------------------------------------
Car traffic volume  : 27720/3080  veh/TimePeriod  *
Medium truck volume :  2205/245   veh/TimePeriod  *
Heavy truck volume  :  1575/175   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):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Carling (day/night)
-----------------------------------------
Angle1   Angle2           : -37.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  26.00 / 26.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Bronson (day/night)
-------------------------------------------
Car traffic volume  : 23760/2640  veh/TimePeriod  *
Medium truck volume :  1890/210   veh/TimePeriod  *
Heavy truck volume  :  1350/150   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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00
```

```
Data for Segment # 2: Bronson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  31.00 / 31.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 3: Highway 417 (day/night)
-----------------------------------------------
Car traffic volume  : 151074/26660 veh/TimePeriod  *
Medium truck volume :  6429/1134  veh/TimePeriod  *
Heavy truck volume  :  3214/567   veh/TimePeriod  *
Posted speed limit  :   100 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): 189079
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  85.00

Data for Segment # 3: Highway 417 (day/night)
---------------------------------------------
Angle1   Angle2           :  -9.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 435.00 / 435.00 m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 64.32 + 0.00) = 64.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37      0   0.00  73.58   0.00  -2.39  -6.87   0.00   0.00   0.00  64.32
-------------------------------------------------------------------------------

Segment Leq : 64.32 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 68.02 + 0.00) = 68.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     81   0.00  71.39   0.00  -3.15  -0.22   0.00   0.00   0.00  68.02
-------------------------------------------------------------------------------

Segment Leq : 68.02 dBA

Results segment # 3: Highway 417 (day)
--------------------------------------

Source height = 1.19 m

ROAD (0.00 + 66.08 + 0.00) = 66.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     90   0.00  83.30   0.00 -14.62  -2.60   0.00   0.00   0.00  66.08
-------------------------------------------------------------------------------

Segment Leq : 66.08 dBA

Total Leq All Segments: 71.17 dBA

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

Source height = 1.50 m

ROAD (0.00 + 57.79 + 0.00) = 57.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -37      0   0.00  67.05   0.00  -2.39  -6.87   0.00   0.00   0.00  57.79
-------------------------------------------------------------------------------

Segment Leq : 57.79 dBA

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

Source height = 1.50 m

ROAD (0.00 + 61.49 + 0.00) = 61.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     81   0.00  64.86   0.00  -3.15  -0.22   0.00   0.00   0.00  61.49
-------------------------------------------------------------------------------

Segment Leq : 61.49 dBA
```

```
Results segment # 3: Highway 417 (night)
----------------------------------------

Source height = 1.19 m

ROAD (0.00 + 61.55 + 0.00) = 61.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -9     90   0.00  78.77   0.00 -14.62  -2.60   0.00   0.00   0.00  61.55
-------------------------------------------------------------------------------

Segment Leq : 61.55 dBA

Total Leq All Segments: 65.36 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.17
                           (NIGHT): 65.36
```

STAMSON 5.0 NORMAL REPORT Date: 11-01-2024 16:29:33
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5.te Time Period: Day/Night 16/8 hours
Description:

```
Road data, segment # 1: Bronson (day/night)
-------------------------------------------
Car traffic volume  : 23760/2640  veh/TimePeriod  *
Medium truck volume :  1890/210   veh/TimePeriod  *
Heavy truck volume  :  1350/150   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):  30000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Bronson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   -9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  49.00 / 49.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Highway 417 (day/night)
-----------------------------------------------
Car traffic volume  : 151074/26660 veh/TimePeriod  *
Medium truck volume :  6429/1134  veh/TimePeriod  *
Heavy truck volume  :  3214/567   veh/TimePeriod  *
Posted speed limit  :   100 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): 189079
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  85.00
```

```
Data for Segment # 2: Highway 417 (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   81.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 428.00 / 428.00 m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 62.79 + 0.00) = 62.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -9   0.00  71.39   0.00  -5.14  -3.47   0.00   0.00   0.00  62.79
-------------------------------------------------------------------------------

Segment Leq : 62.79 dBA

Results segment # 2: Highway 417 (day)
--------------------------------------

Source height = 1.19 m

ROAD (0.00 + 68.52 + 0.00) = 68.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     81   0.00  83.30   0.00 -14.55  -0.22   0.00   0.00   0.00  68.52
-------------------------------------------------------------------------------

Segment Leq : 68.52 dBA

Total Leq All Segments: 69.55 dBA

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

Source height = 1.50 m

ROAD (0.00 + 56.25 + 0.00) = 56.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -9   0.00  64.86   0.00  -5.14  -3.47   0.00   0.00   0.00  56.25
-------------------------------------------------------------------------------

Segment Leq : 56.25 dBA

Results segment # 2: Highway 417 (night)
```

```
----------------------------------------

Source height = 1.19 m

ROAD (0.00 + 64.00 + 0.00) = 64.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     81   0.00  78.77   0.00 -14.55  -0.22   0.00   0.00   0.00  64.00
-------------------------------------------------------------------------------

Segment Leq : 64.00 dBA

Total Leq All Segments: 64.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.55
                           (NIGHT): 64.67
```

```
STAMSON 5.0          NORMAL REPORT          Date: 11-01-2024 16:31:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6.te                    Time Period: Day/Night 16/8 hours
Description:

Road data, segment # 1: Carling (day/night)
----------------------------------------
Car traffic volume  : 27720/3080  veh/TimePeriod  *
Medium truck volume :  2205/245   veh/TimePeriod  *
Heavy truck volume  :  1575/175   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):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  90.00

Data for Segment # 1: Carling (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  27.00 / 27.00  m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Highway 417 (day/night)
----------------------------------------------
Car traffic volume  : 151074/26660 veh/TimePeriod  *
Medium truck volume :  6429/1134  veh/TimePeriod  *
Heavy truck volume  :  3214/567   veh/TimePeriod  *
Posted speed limit  :   100 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): 189079
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   4.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  85.00
```

```
Data for Segment # 2: Highway 417 (day/night)
---------------------------------------------
Angle1   Angle2           : -90.00 deg   -9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 441.00 / 441.00 m
Receiver height           :  24.20 / 24.20  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 68.02 + 0.00) = 68.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  73.58   0.00  -2.55  -3.01   0.00   0.00   0.00  68.02
-------------------------------------------------------------------------------

Segment Leq : 68.02 dBA

Results segment # 2: Highway 417 (day)
--------------------------------------

Source height = 1.19 m

ROAD (0.00 + 65.15 + 0.00) = 65.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -9   0.00  83.30   0.00 -14.68  -3.47   0.00   0.00   0.00  65.15
-------------------------------------------------------------------------------

Segment Leq : 65.15 dBA

Total Leq All Segments: 69.83 dBA

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

Source height = 1.50 m

ROAD (0.00 + 61.49 + 0.00) = 61.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.00  67.05   0.00  -2.55  -3.01   0.00   0.00   0.00  61.49
-------------------------------------------------------------------------------

Segment Leq : 61.49 dBA

Results segment # 2: Highway 417 (night)
```

```
----------------------------------------

Source height = 1.19 m

ROAD (0.00 + 60.62 + 0.00) = 60.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -9   0.00  78.77   0.00 -14.68  -3.47   0.00   0.00   0.00  60.62
-------------------------------------------------------------------------------

Segment Leq : 60.62 dBA

Total Leq All Segments: 64.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 69.83
                           (NIGHT): 64.09
```