STRIK BALDINELLI MONIZ

PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL

ENVIRONMENTAL NOISE ASSESSMENT REPORT

383 CLARKE ROAD

LONDON, ONTARIO

PROPOSED RESIDENTIAL BUILDING

DBNM INVESTMENT AND MANAGEMENT LTD.

JULY 2024

SBM-24-1489

LONDON LOCATION

1599 Adelaide Street N Unit 301
London, ON, N5X 4E8
P: 519.471.6667

KITCHENER LOCATION

132 Queen St. S. Unit 4
Kitchener, ON, N2G 1V9
P: 519.725.8093

www.sbmltd.ca

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DBNM Investment and Management Ltd.
21968 Adelaide Street North
Arva, Ontario N0M 1C0

July 24, 2024
SBM-24-1489

Re: Environmental Noise Assessment Report
383 Clarke Road
London, Ontario

1 INTRODUCTION

This Noise Assessment Report (Report) has been prepared by Strik, Baldinelli, Moniz Ltd (SBM) to address requirements of the Record of Pre-Application Consultation dated November 22, 2023 for the proposed residential development at 383 Clarke Road in the City of London.

This site is located on the west side of Clarke Road, approximately 130 m south of Dundas Street. The 0.1 ha subject site is bordered by the Clarke Road Right-of-Way (ROW) to the east with residential properties to the north and west, and an office conversion property to the south, as shown in Figure 1 – Location Plan. It is our understanding that the proposed development is to include a 2.5 storey multiplex building with 10 residential units.

This Report will serve the following purposes:

- To summarize the applicable noise criteria and guidelines from the Ministry of the Environment, Conservation, and Parks (MECP) for residential developments;
- To determine future noise levels and how they will affect the future residents using the MECP (formerly Ontario Ministry of the Environment) noise model, ORNAMENT, by utilizing the STAMSON V5.03 computer software;
- Recommend noise control measures (if applicable) to satisfy the planning requirements of the City and "Chapter 16 – Noise Attenuation Measures" of the City's "Design Specifications and Requirements Manual" (DS&RM);
- Recommend noise control measures (if applicable) to meet the MECP requirements prescribed in the publication *Environmental Noise Guideline NPC-300* (Ministry of the Environment, August 2013) concurrently with the aforementioned City requirements;
- Outline general methodology for providing acceptable noise levels for the proposed development.

2 NOISE STUDY CRITERIA

The MECP has compiled guidelines for noise levels (NPC-300) which are used for land use planning and noise estimation. These guidelines, with respect to transportation noise sources, have been further classified with respect to indoor and outdoor locations and day and night time conditions.

2.1 DAYTIME OUTDOOR SOUND LEVEL LIMIT

Table 1: Sound Level Limit for Outdoor Living Areas Road and Rail

Time Period	L_{eq} (16hrs) (dBA)
16-hour (0700 – 2300)	55

As per NPC-300, this One-Hour Equivalent Sound Level (L_{eq}) limit applies to the entire daytime period. The Outdoor Living Area (OLA) should be assessed at a rear yard, patio/terrace, or amenity area. When the L_{eq} at the OLA is equal to 55 dBA or less, no noise control measurement are required per NPC-300 "C3.2.2 Daytime Outdoor Sound Level Limit." If the L_{eq} at the OLA is greater than 55 dBA and less than or equal to 60 dBA, the purchasers or tenants should be provided a warning clause so that they may be made aware to the potential noise level issues. If the L_{eq} at the OLA is greater than 60 dBA, a warning clause is required and physical control measures must be implemented. It is noted that balconies and elevated terraces that are less than 4 metres in depth are not considered an OLA.

2.2 DAY AND NIGHT TIME INDOOR SOUND LEVEL LIMIT

Table 2: Indoor Sound Level Limits Road and Rail

Type of Space	Time Period	L_{eq} (dBA) Road	Leq (dBA) Rail
Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Day Time 16-hours (0700 – 2300)	45	40
Living/dining, den areas of residences, hospitals, nursing homes, etc. (except schools or daycare centres)	Night Time 8-hours (2300 – 0700)	45	40
Sleeping quarters	Day Time 16-hours (0700 – 2300)	45	40
Sleeping quarters	Night Time 8-hours (2300 – 0700)	40	35

The L_{eq} for maximum indoor road noise level is measured at the plane of the window (POW) of a living room or bedroom. These noise values are the maximum levels and are applied to the indoor spaces with windows and doors closed. Examples of noise mitigation for excessive indoor living areas include noise barriers, building envelope measures (i.e. windows, exterior walls, doors, insulation, drywall, etc.) with sound isolation performance upgrades and/or central air conditioning, site planning, and architectural design. When the indoor sound level is equal to 45 dBA or less between the hours of 0700 to 2300, no noise control measures are required. When the indoor sound level is equal to 40 dBA or less between the hours of 2300 to 0700, no noise control measures are required. If the noise levels are exceeded up to a

maximum of 10 dBA, the residence must be designed with the allowance for a central air conditioning system. This is traditionally done by installing heating ducts sized to properly convey a central air conditioning system. A warning clause must also be provided to inform prospective purchasers and tenants of potential road noise levels. When maximum noise levels exceed allowable values in excess of 10 dBA, central air conditioning system installation is mandatory as are noise isolation building components and a warning clause to future purchasers and tenants.

3 CALCULATIONS AND ANALYSIS

Following the MECP noise model, ORNAMENT, which is the basis for calculating anticipated noise levels, STAMSON noise software (v5.03) was used. The software can be used to model noise levels from roadways and railways. The program accepts input values related to noise sources, traffic volumes, and noise barriers.

3.1 NOISE SOURCES

The noise sources considered for this site were:

- Clarke Road (Arterial Road / Civic Boulevard)
- Dundas Street (Arterial Road / Civic Boulevard)

Other ROW's were not considered due to the limitations of ORNAMENT. Per the October, 1989 ORNAMENT report, "The prediction accuracy also decreases in cases of highly irregular topography and the method does not apply to traffic volume less than 40 vehicles per hour and to speeds less than 50km/h." Referencing Table 2: Adjustment to the Reference Hourly Sound Level for Traffic Volume of the "ORNAMENT Technical Document" illustrates the reason. When vehicles per hour are 40 or less, there is no substantial increase in reference sound levels. As the nearby local roads are assumed to average less than 40 vehicles per hour, they were not included in the analysis.

Railways were not considered as the nearest rail corridor is approximately 450 m away with the area between fully developed. The London International Airport was not considered as it is in excess of 3 km from the site and the site is outside of the airport's Noise Exposure Forecast zone.

3.2 ROAD TRAFFIC

Base road traffic information was provided for Clarke Road and Dundas Street by the City's Transportation Planning & Design Department, as per the email correspondence provided in Appendix A.

3.2.1 CLARKE ROAD

The existing Annual Average Daily Traffic (AADT) volume for Clarke Road is 24,000 vehicles per day. To forecast the future traffic conditions (10-year forecast) for the purpose of this study, a growth rate of 1.5% per year has been applied to the existing AADT. This equates to a 2034 traffic forecast of 27,900 vehicles per day on Clarke Road.

Truck traffic of 3% (assumed 1.5% medium trucks and 1.5% heavy trucks) was used in the analysis along with a 96/4 day/night split. Clarke Road traffic information is summarized below in Table 3.

Table 3: Clarke Road - Road and Traffic Information (10-year Forecast)

Time Period	No. of Cars	No. of Medium Trucks	No. of Heavy Trucks	Posted Speed Limit (km/hr)
0700 – 2300	25,980	402	402	50
2300 – 0700	1,083	17	17	

Noise calculations are attached in Appendix C

3.2.2 DUNDAS STREET

The existing AADT for Dundas Street is 24,000 vehicles per day. A growth rate of 1.5% per year was applied to determine the 10-year forecast, which equates to 27,900 vehicles per day on Dundas Street.

Truck traffic of 3% (assumed 1.5% medium trucks and 1.5% heavy trucks) was used in the analysis along with a 96/4 day/night split. Dundas Street traffic information is summarized below in Table 4.

Table 4: Dundas Street - Road and Traffic Information (10-year Forecast)

Time Period	No. of Cars	No. of Medium Trucks	No. of Heavy Trucks	Posted Speed Limit (km/hr)
0700 – 2300	25,980	402	402	60
2300 – 0700	1,083	17	17	

Noise calculations are attached in Appendix C

3.3 PROJECTED NOISE LEVELS

Using STAMSON (v5.03) computer software, noise levels were predicted for day and night time conditions based on the MECP's noise model, ORNAMENT. The following assumptions were made for all calculations:

- Day time conditions comprise the time period 0700 to 2300;
- Night time conditions comprise the time period of 2300 to 0700;
- An average road gradient of 1% for Clarke Road and 1% for Dundas Street;
- The proposed building will contain two lower-level units (north and south), four main floor units (one in each quadrant) and four upper level units (one in each quadrant);
- **Receiver locations as per the attached Noise Study Plan (see Figure 2);**
- Indoor day time and night time receiver locations assumed to be at building face and at elevations of 0.0m (for lower level units), 3.0m (for main floor units), and 6.0m (for upper level units) above ground level;
- No outdoor amenity area (OLA) is proposed;
- A standard wall construction provides a noise level attenuation of 10 dBA (i.e. if the outside POW calculated value was 65 dBA, the indoor value would be 55 dBA).

POW, indoor building, and OLA noise levels were calculated (see Appendix C for STAMSON reports) and have been summarized in Table 5 below.

Table 5: Noise Level Summary

Receiver Location	Outdoor Living Area (OLA)	Day Time Indoor Noise Level Limit (dBA)	Day Time Outdoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment	Night Time Indoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment
PoR-01 (0.0m HT)	N/A	45	55	63.6	53.5	8.6	**WC 'C' (provisions for AC)**	40	52.9	42.9	2.9	Day L_{eq} Dictates
PoR-01 (3.0m HT)	N/A	45	55	63.8	53.8	8.8	**WC 'C' (provisions for AC)**	40	53.0	53.0	3.0	Day L_{eq} Dictates
PoR-01 (6.0m HT)	N/A	45	55	64.1	54.1	9.1	**WC 'C' (provisions for AC)**	40	53.3	43.3	3.3	Day L_{eq} Dictates
PoR-02 (0.0m HT)	N/A	45	55	63.7	53.7	8.7	**WC 'C' (provisions for AC)**	40	52.9	42.9	2.9	Day L_{eq} Dictates
PoR-02 (3.0m HT)	N/A	45	55	63.8	63.8	8.8	**WC 'C' (provisions for AC)**	40	53.0	43.0	3.0	Day L_{eq} Dictates
PoR-02 (6.0m HT)	N/A	45	55	64.3	54.3	9.3	**WC 'C' (provisions for AC)**	40	53.5	43.5	3.5	Day L_{eq} Dictates
PoR-03 (3.0m HT)	N/A	45	55	55.5	45.5	0.5	**WC 'C' (provisions for AC)**	40	44.7	34.7	0	Day L_{eq} Dictates
PoR-03 (6.0m HT)	N/A	45	55	58.6	48.6	3.6	**WC 'C' (provisions for AC)**	40	48.3	38.3	0	Day L_{eq} Dictates
PoR-04 (3.0m HT)	N/A	45	55	54.3	44.3	0	**None**	40	43.6	33.6	0	Day L_{eq} Dictates
PoR-04 (6.0m HT)	N/A	45	55	54.8	44.8	0	**None**	40	44.1	34.1	0	Day L_{eq} Dictates

Receiver Location	Outdoor Living Area (OLA)	Day Time Indoor Noise Level Limit (dBA)	Day Time Outdoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment	Night Time Indoor Noise Level Limit (dBA)	STAMSON Outdoor Calculated Noise Level (dBA)	STAMSON Indoor Calculated Noise Level (dBA)	Exceeds Noise Level Limit By (dBA)	Comment
PoR-05 (3.0m HT)	N/A	45	55	54.2	44.2	0	**None**	40	43.4	33.4	0	Day L_{eq} Dictates
PoR-05 (6.0m HT)	N/A	45	55	54.8	44.8	0	**None**	40	44.1	34.1	0	Day L_{eq} Dictates

Table 5 Footnotes:

- Warning Clause (WC) may refer to WC Type A, Type B, Type D, or Type D as per “Noise Study Plan,” Figure 2 and the guidelines of Section C7 “Noise Control Measures” of the “Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300).” August 2013. Ontario Ministry of Environment and Climate Change.
- Central Air Conditioning System (AC) installation should be designed by a Professional Engineer and adhere to the guidelines of the Ontario Building Code (OBC) and the following publications:
    - “Environmental Noise Guidelines for Installation of Residential Air Conditioning Devices.” September 1994. Ontario Ministry of Environment and Energy. ISBN 0-7778-1616-4. PIBS 2721e01.
    - “Residential Air Conditioning Devices - Publication NPC-216.” 1993. Ontario Ministry of Environment and Energy.
- A standard wall construction provides a noise level attenuation of 10 dBA.

4 NOISE RECOMMENDATIONS

Based on the preceding analysis, the following recommendations can be put forth for this site:

- Provisions for a central air conditioning system are required for units whose indoor noise levels exceed the guidelines by 10 dBA or less. Typically, this is achieved by sizing the heating ducts sufficiently to allow for a future installation of a central air conditioning system. Prospective residents will then have the option of closing their windows and doors to block bothersome noise levels. This requirement will apply to all units along the east and north sides of the building, with the following warning clause given to prospective purchasers or tenants.

  Warning Clause Type C:

  "This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."

  Refer to "Environmental Noise Guideline - Stationary and Transportation Sources - Approval and Planning (NPC-300)," Section C8.1, Ontario Ministry of the Environment and Climate Change (MOECC), Aug. 2013 for clarification and additional measures. Refer to "Residential Air Conditioning Devices (NPC-216)," Ontario Ministry of the Environment and Energy (MOEE), 1993 for clarification and recommendation as to air conditioning system criteria, placement, installation, etc. Refer to "Model Municipal Noise Control By-law: Final Report," Ontario Ministry of the Environment (MOE), Aug. 1978 for clarification and recommendation as to air conditioning system criteria, placement, installation, etc. Central air conditioning systems are to be designed and constructed to the specifications of a registered professional engineer in accordance with the Ontario Building Code.

  If air conditioning will be provided in these units, warning clause Type D should be used instead of warning clause Type C:

  Warning Clause 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."

- We recommend that the following disclaimer be included in all agreements in regards to purchase, sale, or lease for all residential units on this site:

  "Under no circumstances shall the City or its affiliates, suppliers, partners or licensors be liable for any construction of noise reduction structures or mitigation measures for the subject site. Under no circumstances shall the City or its affiliates, suppliers, partners or licensors be held responsible for increased noise levels in the outdoor or indoor areas of the subject site dwellings due to increased traffic on adjacent roadways."

5 NOISE CONCLUSION

Proper execution of the above noise mitigation measures and/or warning clauses should produce noise levels within this development that will meet noise requirements of the City and the MECP.

6 LIMITATIONS

This Report was prepared by SBM for The Corporation of the City of London and DBNM Investment and Management Ltd. Use of this report by any third party, or any reliance upon its findings, is solely the responsibility of that party. SBM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this report. Third party use of this report, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this report are based on site conditions as they appeared during the period of the investigation. This report is not intended to be exhaustive in scope, or to imply a risk-free facility. It should be recognized that the passage of time may alter the opinions, conclusions, and recommendations provided herein.

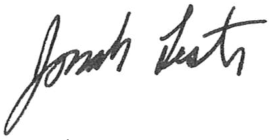
The design was limited to the documents referenced herein and on the SBM drawings provided separately. SBM accepts no responsibility for the accuracy of the information provided by others. All designs and recommendations presented in this report are based on the information available at the time of the review.

7 CLOSURE

We trust this Report meets your satisfaction. Should you have any questions or require further information, please do not hesitate to contact us.

Respectfully submitted,

Strik, Baldinelli, Moniz Ltd.
Planning • Civil • Structural • Mechanical • Electrical



Jonah Lester, P.Eng.
Transportation Engineer

DRAWN BY	CHECKED BY	DRAWING No.
JBL	JBL	FIG1
DATE: 19/07/2024		
SCALE: 1:4000		
PROJECT No.: SBM–24–1489		

No.	REVISIONS	D/M/Y
1	FOR ZBA	19/07/24

CONSULTANT
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Email: sbm@sbmltd.ca

TITLE
LOCATION PLAN

PROJECT
RESIDENTIAL DEVELOPMENT
383 CLARKE ROAD
LONDON, ON.

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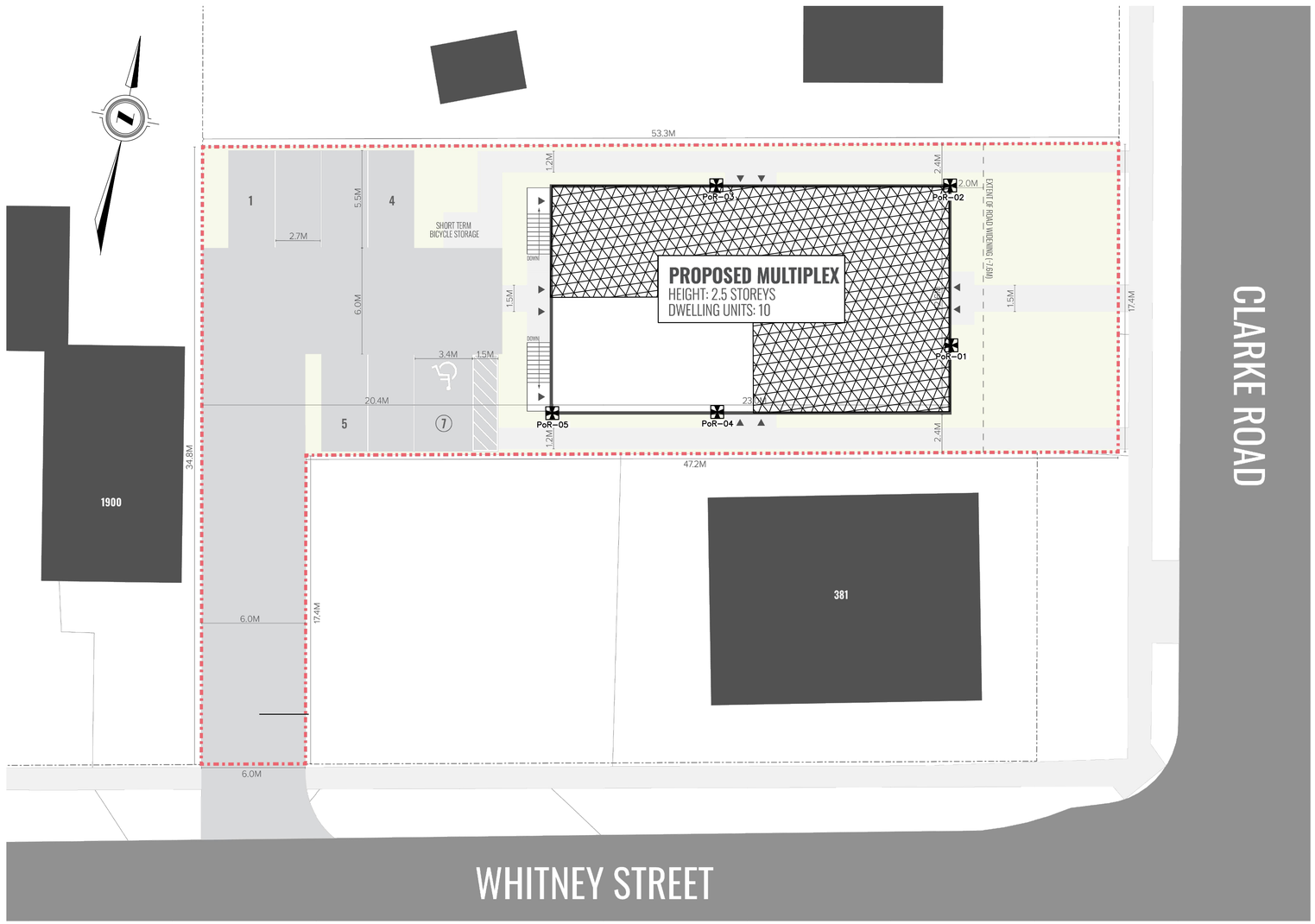
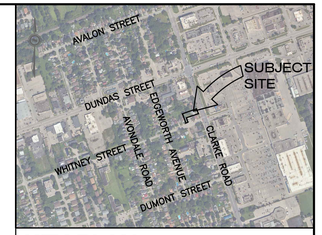


SITE PLAN SOURCE: SIV-IK PLANNING AND DESIGN INC.

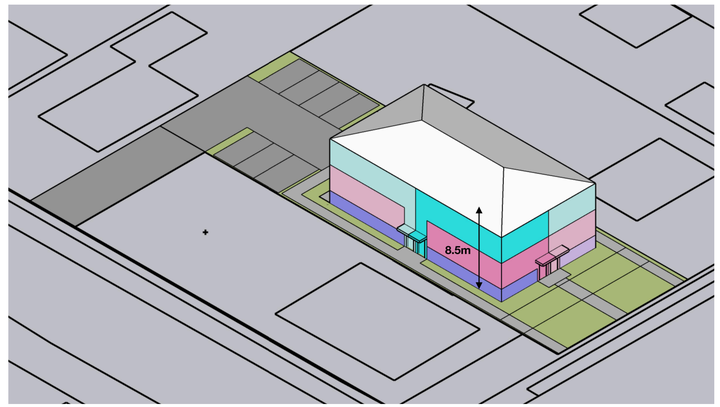
LEGEND:

- ORNAMENT (STAMSON) RECEIVER TEST LOCATION
- WARNING CLAUSE 'A' APPLICABLE
- WARNING CLAUSE 'B' APPLICABLE
- WARNING CLAUSE 'C' APPLICABLE
- WARNING CLAUSE 'D' APPLICABLE



KEY PLAN

N.T.S.



CONCEPT DESIGN SOURCE: SIV-IK PLANNING AND DESIGN INC.

POINT OF ASSESSMENT NOTES:

1. NOISE SENSITIVE LAND USES MAY HAVE ONE OR MORE POINTS OF RECEPTION. THE FOLLOWING IS A POINT OF RECPTION:
   1.1. LOCATION IN THE CENTRE OF ANY WINDOW ON A NOISE SENSITIVE SPACE OF A DWELLING OR A BUILDING USED FOR NOISE SENSITIVE INSTITUTIONAL PURPOSE OR A NOISE SENSITIVE COMMERCIAL PURPOSE; THE LOCATION SHOULD BE A MINIMUM OF 1.5 METRES ABOVE GROUND FOR A FIRST STOREY WINDOW, A MINIMUM OF 4.5 METRES ABOVE GROUND FOR A SECOND STOREY WINDOW, A MINIMUM OF 7.5 METRES ABOVE GROUND FOR A THIRD STOREY WINDOW, AND THE HEIGHT OF THE VERTICAL MIDPOINT OF THE NEAREST AND MOST EXPOSED STOREY FOR A HIGH-RISE MULTI-UNIT BUILDING.

2. FOR THE PURPOSE OF NOISE IMPACT ASSESSMENT IN AN OUTDOOR LIVING AREA, THE RECEIVER LOCATION IS ASSUMED TO BE AT THE CENTER OF THE OUTDOOR AMENITY AREA OR ROOFTOP TERRACE.

3. BUILDING FACE POINTS OF ASSESSMENT UTILIZED AS DAYTIME AND NIGHT TIME RECEIVERS FOR INDOOR CALCULATIONS.

PLEASE REFER TO "ENVIRONMENTAL NOISE GUIDELINE – STATIONARY AND TRANSPORTATION SOURCES – APPROVAL AND PLANNING (NPC-300)," MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MOECC), AUG. 2013

WARNING CLAUSES:

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."

B. "PURCHASERS/TENANTS ARE ADVISED THAT DESPITE THE INCLUSION OF NOISE CONTROL FEATURES IN THE DEVELOPMENT AND WITHIN THE BUILDING UNITS, SOUND LEVELS DUE TO INCREASING ROAD TRAFFIC MAY ON OCCASIONS INTERFERE WITH SOME ACTIVITIES OF THE DWELLING OCCUPANTS AS THE SOUND LEVELS EXCEED THE SOUND LEVEL LIMITS OF THE MUNICIPALITY AND THE MINISTRY OF THE ENVIRONMENT."

C. "THIS DWELLING UNIT HAS BEEN DESIGNED WITH THE PROVISION FOR ADDING CENTRAL AIR CONDITIONING AT THE OCCUPANT'S DISCRETION. INSTALLATION OF CENTRAL AIR CONDITIONING BY THE OCCUPANT IN LOW AND MEDIUM DENSITY DEVELOPMENTS WILL ALLOW WINDOWS AND EXTERIOR DOORS TO REMAIN CLOSED, THEREBY ENSURING THAT THE INDOOR SOUND LEVELS ARE WITHIN THE SOUND LEVEL LIMITS OF THE MUNICIPALITY AND THE MINISTRY OF THE ENVIRONMENT."

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."

REFER TO "ENVIRONMENTAL NOISE GUIDELINE – STATIONARY AND TRANSPORTATION SOURCES – APPROVAL AND PLANNING (NPC-300)," SECTION C8.1, ONTARIO MINISTRY OF THE ENVIRONMENT AND CLIMATE CHANGE (MOECC), AUG. 2013 FOR CLARIFICATION AND ADDITIONAL MEASURES.

REFER TO "RESIDENTIAL AIR CONDITIONING DEVICES (NPC-216)," ONTARIO MINISTRY OF THE ENVIRONMENT AND ENERGY (MOEE), 1993 FOR CLARIFICATION AND RECOMMENDATION AS TO AIR CONDITIONING SYSTEM CRITERIA, PLACEMENT, INSTALLATION, ETC.

REFER TO "MODEL MUNICIPAL NOISE CONTROL BY-LAW: FINAL REPORT," ONTARIO MINISTRY OF THE ENVIRONMENT (MOE), AUG. 1978 FOR CLARIFICATION AND RECOMMENDATION AS TO AIR CONDITIONING SYSTEM CRITERIA, PLACEMENT, INSTALLATION, ETC.

CENTRAL AIR CONDITIONING SYSTEMS ARE TO BE DESIGNED AND CONSTRUCTED TO THE SPECIFICATIONS OF A REGISTERED PROFESSIONAL ENGINEER IN ACCORDANCE WITH THE ONTARIO BUILDING CODE.

AS CONSTRUCTED SERVICES	COMPLETION		No.	REVISIONS	D/M/Y	BY
		DESIGN JBL	1	ISSUED FOR ZBA	19/07/24	JBL
		DRAWN JBL				
		CHECKED JBL				
		APPROVED JBL				
		DATE 19/07/2024				
		CAD 24-1489				

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Email: sbm@sbmltd.ca

ENGINEER'S STAMP

ENGINEER'S STAMP

CLIENT
DBNM INVESTMENT AND MANAGEMENT LTD.
21968 ADELAIDE STREET NORTH
ARVA, ON
NOM 1C0

SCALE
SCALE - 1:250
2.5 0 5.0m

TITLE
NOISE STUDY PLAN
RESIDENTIAL DEVELOPMENT
383 CLARKE ROAD
LONDON, ON.

PROJECT No.
SBM-24-1489

SHEET No.
FIG2

PLAN FILE No.
—

Appendix A – Traffic Data

Jonah Lester

From: Harpal, Dhaval <dharpal@london.ca>
Sent: Monday, July 15, 2024 10:43 AM
To: Jonah Lester
Cc: Ndlovu, Bukhosi
Subject: RE: Traffic Data Request for Noise Study - Clarke Road and Dundas Street SBM-24-1489

Hi Jonah,

Please find requested information below. It should be noted that AADTs are existing but it is recommended to use 1.5% CAGR to forecast future AADTs.

Clarke Road
AADT – 24,000 vehicles
Speed – 50km/h (60km/h north of Dundas St)
Truck Traffic – 3% (including heavy and medium)
Day/night splits – 96/4%

Dundas Street
AADT – 24,000 vehicles
Speed – 50km/h (60km/h east of Clarke Rd)
Truck Traffic – 3% (including heavy and medium)
Day/night splits – 96/4%

Please be advised that I have moved to a different position under Traffic Engineering team. Bukhosi Ndlovu (copied) is filling my previous role so feel free to send him these type of request moving forward.

Thank you,

Dhaval Harpal
Traffic Signal and Street Light Technologist
Traffic Engineering
City of London

300 Dufferin Ave., London ON N6A 4LP
P: 519.661.CITY(2489) x 4017
dharpal@london.ca | www.london.ca

From: Jonah Lester <jlester@sbmltd.ca>
Sent: Monday, July 15, 2024 10:19 AM
To: Harpal, Dhaval <dharpal@london.ca>
Subject: [EXTERNAL] RE: Traffic Data Request for Noise Study - Clarke Road and Dundas Street SBM-24-1489

Hi Dhaval,

Appendix B – Noise Calculations

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:46:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r01_000.te Time Period: Day/Night 16/8 hours
Description: PoR-01 0.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 21.70 / 21.70 m
Receiver height : 0.00 / 0.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 143.00 / 143.00 m
Receiver height           :   0.00 / 0.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 63.50 + 0.00) = 63.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  67.62   0.00  -2.66  -1.46   0.00   0.00   0.00  63.50
-------------------------------------------------------------------------------

Segment Leq : 63.50 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 48.65 + 0.00) = 48.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.66  69.37   0.00 -16.26  -4.47   0.00   0.00   0.00  48.65
-------------------------------------------------------------------------------

Segment Leq : 48.65 dBA

Total Leq All Segments: 63.64 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 52.75 + 0.00) = 52.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	56.87	0.00	-2.66	-1.46	0.00	0.00	0.00	52.75

Segment Leq : 52.75 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 37.89 + 0.00) = 37.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.66	58.61	0.00	-16.26	-4.47	0.00	0.00	0.00	37.89

Segment Leq : 37.89 dBA

Total Leq All Segments: 52.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.64
(NIGHT): 52.89

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:46:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r01_030.te Time Period: Day/Night 16/8 hours
Description: PoR-01 3.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 21.70 / 21.70 m
Receiver height : 3.00 / 3.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 143.00 / 143.00 m
Receiver height           :   3.00 / 3.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 63.61 + 0.00) = 63.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.63  67.62   0.00  -2.61  -1.40   0.00   0.00   0.00  63.61
-------------------------------------------------------------------------------

Segment Leq : 63.61 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 49.03 + 0.00) = 49.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.63  69.37   0.00 -15.93  -4.41   0.00   0.00   0.00  49.03
-------------------------------------------------------------------------------

Segment Leq : 49.03 dBA

Total Leq All Segments: 63.76 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 52.86 + 0.00) = 52.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	56.87	0.00	-2.61	-1.40	0.00	0.00	0.00	52.86

Segment Leq : 52.86 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 38.27 + 0.00) = 38.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.63	58.61	0.00	-15.93	-4.41	0.00	0.00	0.00	38.27

Segment Leq : 38.27 dBA

Total Leq All Segments: 53.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.76
(NIGHT): 53.01

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:48:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r01_060.te Time Period: Day/Night 16/8 hours
Description: PoR-01 6.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 21.70 / 21.70 m
Receiver height : 6.00 / 6.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 143.00 / 143.00 m
Receiver height           :   6.00 / 6.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 63.91 + 0.00) = 63.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.54  67.62   0.00  -2.46  -1.24   0.00   0.00   0.00  63.91
-------------------------------------------------------------------------------

Segment Leq : 63.91 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 50.07 + 0.00) = 50.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.54  69.37   0.00 -15.05  -4.25   0.00   0.00   0.00  50.07
-------------------------------------------------------------------------------

Segment Leq : 50.07 dBA

Total Leq All Segments: 64.09 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 53.16 + 0.00) = 53.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.54	56.87	0.00	-2.46	-1.24	0.00	0.00	0.00	53.16

Segment Leq : 53.16 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 39.31 + 0.00) = 39.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.54	58.61	0.00	-15.05	-4.25	0.00	0.00	0.00	39.31

Segment Leq : 39.31 dBA

Total Leq All Segments: 53.34 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.09
(NIGHT): 53.34

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:48:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r02_000.te Time Period: Day/Night 16/8 hours
Description: PoR-02 0.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 21.70 / 21.70 m
Receiver height : 0.00 / 0.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     50 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 134.00 / 134.00 m
Receiver height           :   0.00 / 0.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 63.50 + 0.00) = 63.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  67.62   0.00  -2.66  -1.46   0.00   0.00   0.00  63.50
-------------------------------------------------------------------------------

Segment Leq : 63.50 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  69.37   0.00 -15.79  -1.46   0.00  -2.59   0.00  49.54
-------------------------------------------------------------------------------

Segment Leq : 49.54 dBA

Total Leq All Segments: 63.67 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 52.75 + 0.00) = 52.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	56.87	0.00	-2.66	-1.46	0.00	0.00	0.00	52.75

Segment Leq : 52.75 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 38.78 + 0.00) = 38.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.61	0.00	-15.79	-1.46	0.00	-2.59	0.00	38.78

Segment Leq : 38.78 dBA

Total Leq All Segments: 52.92 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.67
(NIGHT): 52.92

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:49:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r02_030.te Time Period: Day/Night 16/8 hours
Description: PoR-02 3.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 21.70 / 21.70 m
Receiver height : 3.00 / 3.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     50 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 134.00 / 134.00 m
Receiver height           :   3.00 / 3.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 63.61 + 0.00) = 63.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.63  67.62   0.00  -2.61  -1.40   0.00   0.00   0.00  63.61
-------------------------------------------------------------------------------

Segment Leq : 63.61 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 49.91 + 0.00) = 49.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.63  69.37   0.00 -15.47  -1.40   0.00  -2.59   0.00  49.91
-------------------------------------------------------------------------------

Segment Leq : 49.91 dBA

Total Leq All Segments: 63.79 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 52.86 + 0.00) = 52.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	56.87	0.00	-2.61	-1.40	0.00	0.00	0.00	52.86

Segment Leq : 52.86 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 39.15 + 0.00) = 39.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	58.61	0.00	-15.47	-1.40	0.00	-2.59	0.00	39.15

Segment Leq : 39.15 dBA

Total Leq All Segments: 53.04 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.79
(NIGHT): 53.04

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:49:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r02_060.te Time Period: Day/Night 16/8 hours
Description: PoR-02 6.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 21.70 / 21.70 m
Receiver height : 6.00 / 6.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (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  : 134.00 / 134.00 m
Receiver height           :   6.00 / 6.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 63.91 + 0.00) = 63.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.54  67.62   0.00  -2.46  -1.24   0.00   0.00   0.00  63.91
-------------------------------------------------------------------------------

Segment Leq : 63.91 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 53.51 + 0.00) = 53.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.54  69.37   0.00 -14.62  -1.24   0.00   0.00   0.00  53.51
-------------------------------------------------------------------------------

Segment Leq : 53.51 dBA

Total Leq All Segments: 64.29 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 53.16 + 0.00) = 53.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.54	56.87	0.00	-2.46	-1.24	0.00	0.00	0.00	53.16

Segment Leq : 53.16 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 42.76 + 0.00) = 42.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.54	58.61	0.00	-14.61	-1.24	0.00	0.00	0.00	42.76

Segment Leq : 42.76 dBA

Total Leq All Segments: 53.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.29
(NIGHT): 53.54

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:49:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r03_030.te Time Period: Day/Night 16/8 hours
Description: PoR-03 3.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 50 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.60 / 35.60 m
Receiver height : 3.00 / 3.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     60 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 134.00 / 134.00 m
Receiver height           :   3.00 / 3.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
------------------------------------

Source height = 1.11 m

ROAD (0.00 + 54.32 + 0.00) = 54.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.63  67.62   0.00  -6.11  -4.41   0.00  -2.78   0.00  54.32
-------------------------------------------------------------------------------

Segment Leq : 54.32 dBA


Results segment # 2: Dundas St (day)
------------------------------------

Source height = 1.11 m

ROAD (0.00 + 49.12 + 0.00) = 49.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.63  69.37   0.00 -15.47  -1.40   0.00  -3.38   0.00  49.12
-------------------------------------------------------------------------------

Segment Leq : 49.12 dBA

Total Leq All Segments: 55.47 dBA


Results segment # 1: Clarke Rd (night)
```

Source height = 1.11 m

ROAD (0.00 + 43.57 + 0.00) = 43.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.63	56.87	0.00	-6.11	-4.41	0.00	-2.78	0.00	43.57

Segment Leq : 43.57 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 38.36 + 0.00) = 38.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	58.61	0.00	-15.47	-1.40	0.00	-3.38	0.00	38.36

Segment Leq : 38.36 dBA

Total Leq All Segments: 44.71 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.47
(NIGHT): 44.71

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:50:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r03_060.te Time Period: Day/Night 16/8 hours
Description: PoR-03 6.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Clarke Rd (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 : 35.60 / 35.60 m
Receiver height : 6.00 / 6.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00

```
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 134.00 / 134.00 m
Receiver height           :   6.00 / 6.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 57.60 + 0.00) = 57.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.54  67.62   0.00  -5.77  -4.25   0.00   0.00   0.00  57.60
-------------------------------------------------------------------------------

Segment Leq : 57.60 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 51.52 + 0.00) = 51.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.54  69.37   0.00 -14.62  -1.24   0.00  -1.99   0.00  51.52
-------------------------------------------------------------------------------

Segment Leq : 51.52 dBA

Total Leq All Segments: 58.56 dBA


Results segment # 1: Clarke Rd (night)
-------------------------------------
```

Source height = 1.11 m

ROAD (0.00 + 46.84 + 0.00) = 46.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.54	56.87	0.00	-5.77	-4.25	0.00	0.00	0.00	46.84

Segment Leq : 46.84 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 42.76 + 0.00) = 42.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.54	58.61	0.00	-14.61	-1.24	0.00	0.00	0.00	42.76

Segment Leq : 42.76 dBA

Total Leq All Segments: 48.27 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.56
(NIGHT): 48.27

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:50:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r04_030.te Time Period: Day/Night 16/8 hours
Description: PoR-04 3.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 50 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.60 / 35.60 m
Receiver height : 3.00 / 3.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Clarke Rd (day)

Source height = 1.11 m

ROAD (0.00 + 54.32 + 0.00) = 54.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.63	67.62	0.00	-6.11	-4.41	0.00	-2.78	0.00	54.32

Segment Leq : 54.32 dBA

Total Leq All Segments: 54.32 dBA

Results segment # 1: Clarke Rd (night)

Source height = 1.11 m

ROAD (0.00 + 43.57 + 0.00) = 43.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.63	56.87	0.00	-6.11	-4.41	0.00	-2.78	0.00	43.57

Segment Leq : 43.57 dBA

Total Leq All Segments: 43.57 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.32
(NIGHT): 43.57

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:51:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r04_060.te Time Period: Day/Night 16/8 hours
Description: PoR-04 6.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 50 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.60 / 35.60 m
Receiver height : 6.00 / 6.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Clarke Rd (day)

Source height = 1.11 m

ROAD (0.00 + 54.82 + 0.00) = 54.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.54	67.62	0.00	-5.77	-4.25	0.00	-2.78	0.00	54.82

Segment Leq : 54.82 dBA

Total Leq All Segments: 54.82 dBA

Results segment # 1: Clarke Rd (night)

Source height = 1.11 m

ROAD (0.00 + 44.06 + 0.00) = 44.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.54	56.87	0.00	-5.77	-4.25	0.00	-2.78	0.00	44.06

Segment Leq : 44.06 dBA

Total Leq All Segments: 44.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.82
(NIGHT): 44.06

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:51:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r05_030.te Time Period: Day/Night 16/8 hours
Description: PoR-05 3.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 40 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 44.20 / 44.20 m
Receiver height : 3.00 / 3.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     60 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 147.00 / 147.00 m
Receiver height           :   3.00 / 3.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 53.52 + 0.00) = 53.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.63  67.62   0.00  -7.64  -4.41   0.00  -2.05   0.00  53.52
-------------------------------------------------------------------------------

Segment Leq : 53.52 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 45.48 + 0.00) = 45.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.63  69.37   0.00 -16.13  -4.41   0.00  -3.36   0.00  45.48
-------------------------------------------------------------------------------

Segment Leq : 45.48 dBA

Total Leq All Segments: 54.15 dBA


Results segment # 1: Clarke Rd (night)
```

Source height = 1.11 m

ROAD (0.00 + 42.77 + 0.00) = 42.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.63	56.87	0.00	-7.63	-4.41	0.00	-2.05	0.00	42.77

Segment Leq : 42.77 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 34.72 + 0.00) = 34.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.63	58.61	0.00	-16.12	-4.41	0.00	-3.36	0.00	34.72

Segment Leq : 34.72 dBA

Total Leq All Segments: 43.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.15
(NIGHT): 43.40

STAMSON 5.0 NORMAL REPORT Date: 17-07-2024 13:51:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r05_060.te Time Period: Day/Night 16/8 hours
Description: PoR-05 6.0 m

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 1.50
Heavy Truck % of Total Volume : 1.50
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 40 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 44.20 / 44.20 m
Receiver height : 6.00 / 6.00 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 25980/1083 veh/TimePeriod *
Medium truck volume : 402/17 veh/TimePeriod *
Heavy truck volume : 402/17 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 27900

```
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   1.50
    Heavy Truck  % of Total Volume     :   1.50
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 2: Dundas St (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     60 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 147.00 / 147.00 m
Receiver height           :   6.00 / 6.00   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Clarke Rd (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 54.10 + 0.00) = 54.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.54  67.62   0.00  -7.21  -4.25   0.00  -2.05   0.00  54.10
-------------------------------------------------------------------------------

Segment Leq : 54.10 dBA


Results segment # 2: Dundas St (day)
-----------------------------------

Source height = 1.11 m

ROAD (0.00 + 46.53 + 0.00) = 46.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.54  69.37   0.00 -15.23  -4.25   0.00  -3.36   0.00  46.53
-------------------------------------------------------------------------------

Segment Leq : 46.53 dBA

Total Leq All Segments: 54.80 dBA


Results segment # 1: Clarke Rd (night)
```

Source height = 1.11 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
0	90	0.54	56.87	0.00	-7.21	-4.25	0.00	-2.05	0.00	43.35

Segment Leq : 43.35 dBA

Results segment # 2: Dundas St (night)

Source height = 1.11 m

ROAD (0.00 + 35.77 + 0.00) = 35.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.54	58.61	0.00	-15.23	-4.25	0.00	-3.36	0.00	35.77

Segment Leq : 35.77 dBA

Total Leq All Segments: 44.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.80
(NIGHT): 44.05