STRIK BALDINELLI MONIZ

PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL

ENVIRONMENTAL NOISE ASSESSMENT REPORT

1635 COMMISSIONERS ROAD EAST

LONDON, ONTARIO

SUMMERSIDE BLOCK 231

TALU PROPERTIES INC.

NOVEMBER 2023

SBM-23-0639

LONDON LOCATION

1599 Adelaide Street N. Units 301 & 203
London, Ont, N5X 4E8
P: 519.471.6667

KITCHENER LOCATION

1415 Huron Rd., Unit 225
Kitchener, Ont, N2R 0L3
P: 519.725.8093

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Talu Properties Inc.
1-320 Dundas Street
London, Ontario N6B 3R8

November 27, 2023
SBM-23-0639

Re: Environmental Noise Assessment Report
1635 Commissioners Road East – Summerside Block 231
London, Ontario

1 INTRODUCTION

This Noise Assessment Report (Report) has been prepared by Strik, Baldinelli, Moniz Ltd (SBM) in response to the City of London's Record of Pre-Application Consultation comments dated March 8, 2023 requesting a noise impact assessment to address noise impacts for the proposed residential development at 1635 Commissioners Road East in the City of London.

This site is located in the southeast quadrant of the Commissioners Road East and Jackson Road intersection, extending southerly to Reardon Boulevard. The 3.0 ha subject site is located within existing future residential lands and is bordered by the Commissioners Road East Right-of-Way (ROW) to the north, the Jackson Road ROW to the west, the Reardon Boulevard ROW to the south, and the Asher Crescent ROW to the east, as shown in Figure 1 – Location Plan. It is our understanding that the proposed development is to include two six-storey apartment buildings, one five-storey apartment building, and 72 three-storey townhouse units (10 blocks).

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 in regards to noise levels (NPC-300) which are used for land use planning and noise estimation. These guidelines, in regards 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 measures 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, physical control measures must be implemented, and a warning clause may be required. It is noted that balconies and elevated decks/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)	Day 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:

- Commissioners Road East (Civic Boulevard)
- Jackson Road (Civic Boulevard)

Railways were not considered as the nearest rail corridor is in excess of 2.5 km away and has numerous developments and wooded areas between itself and the subject site. The London International Airport was not considered as it is in excess of 7 km away.

Road traffic information was provided for Commissioners Road East and Jackson Road by the City's Transportation Planning & Design Department, as per the email correspondence provided in Appendix A.

3.1.1 COMMISSIONERS ROAD EAST

The Annual Average Daily Traffic (AADT) volume for Commissioners Road East is currently 13,000 vehicles per day. To forecast the future traffic condition (10-year forecast) for the purpose of this study, a growth rate of 2.0% per year has been applied to the existing AADT. This equates to a 2033 traffic forecast of 15,900 vehicles per day on Commissioners Road East. Truck traffic percentages of 2% medium trucks and 2% heavy trucks were used in the analysis along with a 96%/4% day/night split. Commissioners Road East traffic information is summarized below in Table 4.

Table 3: Commissioners Road East - 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	14,653	305	305	70
2300 – 0700	611	13	13	

3.1.2 JACKSON ROAD

The Annual Average Daily Traffic (AADT) volume for Jackson Road Is currently 3,000 vehicles per day. To forecast the future traffic condition (10-year forecast) for the purpose of this study, a growth rate of 2.5% per year has been applied to the existing AADT. This equates to a 2033 traffic forecast of 3,900 vehicles per day on Jackson Road. Truck traffic percentages of 1.5% medium trucks and 1.5% heavy trucks were

used in the analysis along with a 91%/9% day/night split. Jackson Road traffic information is summarized below in Table 4.

Table 4: Jackson 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	3,443	53	53	70
2300 – 0700	340	5	5	

3.2 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 Commissioners Road East and Jackson Road.
- **Receiver locations, building names (letters), and block names (numbers) are shown on the attached Noise Study Plan (see Figure 2).**
- Buildings A and B are six storeys, Building C is five storeys and Blocks 1-10 are three storeys in height.
- For Buildings A-C, indoor day time and night time receiver locations assumed to be at building face and at elevations of 1.5m (ground floor), 13.5m (5th floor) and 16.5m (6th floor) above ground level (lowest and highest apartment levels for each building).
- For Blocks 1-10, indoor day time and night time receiver locations assumed to be at building face and at elevations of 7.5m (1.5 m above the 3rd floor elevation) since the predicted noise levels increase with height (i.e. most conservative prediction locations).
- Outdoor day time receiver locations assumed to be at the centre of the outdoor amenity areas at an elevation of 1.5m above ground.
- 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 B 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
Building B												
PoR-01 (1.5m HT)	N/A	45	55	65.3	55.3	10.3	**WC 'D' (AC installed prior to occupancy and Building Components potentially require acoustic treatment)**	40	54.7	44.7	4.7	Day L_{eq} Dictates
PoR-01 (16.5m HT)	N/A	45	55	66.7	56.7	11.7	**WC 'D' (AC installed prior to occupancy and Building Components potentially require acoustic treatment)**	40	56.2	46.2	6.2	Day L_{eq} Dictates
PoR-02 (1.5m HT)	N/A	45	55	61.6	51.6	6.6	**WC 'C' (provisions for AC)**	40	52.2	42.2	2.2	Day L_{eq} Dictates
PoR-02 (16.5m HT)	N/A	45	55	63.5	53.5	8.5	**WC 'C' (provisions for AC)**	40	54.0	44.0	4.0	Day L_{eq} Dictates
PoR-03 (1.5m HT)	N/A	45	55	53.3	43.3	0	None	40	45.8	35.8	0	Day L_{eq} Dictates
PoR-03 (16.5m HT)	N/A	45	55	55.6	45.6	0.6	**WC 'C' (provisions for AC)**	40	48.0	38.0	0	Day L_{eq} Dictates
PoR-04 (1.5m HT)	N/A	45	55	60.1	50.1	5.1	**WC 'C' (provisions for AC)**	40	49.4	39.4	0	Day L_{eq} Dictates
PoR-04 (16.5m HT)	N/A	45	55	62.2	52.2	7.2	**WC 'C' (provisions for AC)**	40	51.4	41.4	1.4	Day L_{eq} Dictates
Amenity Area (between Buildings A and B)												
PoR-05 (1.5m HT)	Yes	45	55	60.7	N/A	5.7	**Noise control measures required (noise barrier)**	N/A	N/A	N/A	N/A	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 (1.5m HT) **With 2.4m Barrier**	Yes	45	55	54.2	N/A	0	Noise barrier can effectively reduce noise level to under 55 dBA	N/A	N/A	N/A	N/A	Day L_{eq} Dictates
PoR-05 (1.5m HT) **If Amenity Area is at 40m from Comm. Rd centerline**	Yes	45	55	59.8	N/A	4.8	**WC 'A'**	N/A	N/A	N/A	N/A	Day L_{eq} Dictates
Building A												
PoR-06 (1.5m HT)	N/A	45	55	65.2	55.2	10.2	**WC 'D' (AC installed prior to occupancy and Building Components potentially require acoustic treatment)**	40	54.4	44.4	4.4	Day L_{eq} Dictates
PoR-06 (16.5m HT)	N/A	45	55	66.7	56.7	11.7	**WC 'D' (AC installed prior to occupancy and Building Components potentially require acoustic treatment)**	40	56.0	46.0	6.0	Day L_{eq} Dictates
PoR-07 (1.5m HT)	N/A	45	55	60.2	50.2	5.2	**WC 'C' (provisions for AC)**	40	49.6	39.6	0	Day L_{eq} Dictates
PoR-07 (16.5m HT)	N/A	45	55	62.3	52.3	7.3	**WC 'C' (provisions for AC)**	40	51.9	41.9	1.9	Day L_{eq} Dictates
PoR-08 (1.5m HT)	N/A	45	55	46.8	36.8	0	None	40	37.7	27.7	0	Day L_{eq} Dictates
PoR-08 (16.5m HT)	N/A	45	55	51.7	41.7	0	None	40	43.1	33.1	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-09 (1.5m HT)	N/A	45	55	60.1	50.1	5.1	**WC 'C' (provisions for AC)**	40	49.3	39.3	0	Day L_{eq} Dictates
PoR-09 (16.5m HT)	N/A	45	55	62.1	52.1	7.1	**WC 'C' (provisions for AC)**	40	51.4	41.4	1.4	Day L_{eq} Dictates
Amenity Area (Near Asher Crescent)												
PoR-10 (1.5m HT)	Yes	45	55	54.1	N/A	0.0	None	N/A	N/A	N/A	N/A	Day L_{eq} Dictates
Building C												
PoR-11 (1.5m HT)	N/A	45	55	59.8	49.8	4.8	**WC 'C' (provisions for AC)**	40	52.4	42.4	2.4	Day L_{eq} Dictates
PoR-11 (13.5m HT)	N/A	45	55	61.1	51.1	6.1	**WC 'C' (provisions for AC)**	40	53.5	43.5	3.5	Day L_{eq} Dictates
PoR-12 (1.5m HT)	N/A	45	55	56.0	46.0	1.0	**WC 'C' (provisions for AC)**	40	47.5	37.5	0	Day L_{eq} Dictates
PoR-12 (13.5m HT)	N/A	45	55	58.9	48.9	3.9	**WC 'C' (provisions for AC)**	40	49.9	39.9	0	Day L_{eq} Dictates
PoR-13 (1.5m HT)	N/A	45	55	51.3	41.3	0	None	40	40.8	30.8	0	Day L_{eq} Dictates
PoR-13 (13.5m HT)	N/A	45	55	54.8	44.8	0	None	40	44.1	34.1	0	Day L_{eq} Dictates
PoR-14 (1.5m HT)	N/A	45	55	53.4	43.4	0	None	40	46.1	36.1	0	Day L_{eq} Dictates
PoR-14 (13.5m HT)	N/A	45	55	55.3	45.3	0.3	**WC 'C' (provisions for AC)**	40	47.9	37.9	0	Day L_{eq} Dictates
Townhouses												
PoR-15 (7.5m HT)	N/A	45	55	60.0	50.0	5.0	**WC 'C' (provisions for AC)**	40	52.7	42.7	2.7	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-16 (7.5m HT)	N/A	45	55	54.9	44.9	0	None	40	46.7	36.7	0	Day L_{eq} Dictates
PoR-17 (7.5m HT)	N/A	45	55	59.6	49.6	4.6	**WC 'C' (provisions for AC)**	40	52.3	42.3	2.3	Day L_{eq} Dictates
PoR-18 (7.5m HT)	N/A	45	55	59.5	49.5	4.5	**WC 'C' (provisions for AC)**	40	52.3	42.3	2.3	Day L_{eq} Dictates
PoR-19 (7.5m HT)	N/A	45	55	54.9	44.9	0	None	40	47.6	37.6	0	Day L_{eq} Dictates
Amenity Area (southeast corner)												
PoR-20 (1.5m HT)	Yes	N/A	55	47	N/A	0	None	N/A	N/A	N/A	N/A	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:

- Per NPC-300, an OLA includes "backyards, front yards, gardens, terraces, or patios." As per Table 5, the OLA at PoR-05, representing the amenity area between Buildings A and B, exceeds the allowable outdoor noise level by more than 5 dBA, therefore a noise barrier wall of 2.4 m in height is required to reduce noise exposure from Commissioners Road East, as shown in Figure 2. The noise barrier must have a minimum surface density of 20 kg/m^2 with no cracks or gaps. A typical noise barrier detail is provided as an example in Figure 2.

  Alternatively, if the amenity area at PoR-05 were to be located at least 40 m from Commissioners Road East, the noise level would be below 60 dBA (i.e. less than 5 dBA above the allowable outdoor noise level) and the noise barrier would not be required as long as a warning clause is included on the title/lease agreements for all units that would use the amenity area, such as:

  Warning Clause Type A:
  "Purchasers/tenants are advised that sound levels due to increasing road traffic may on occasion 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."

- Proposed balconies or elevated decks that will be less than 4 m in depth are exempt from the requirements for an OLA per the NPC-300 guidelines, however, we recommend that the warning clause Type A above also be included for the west-end units of Blocks 1, 3, 5 and 10 since the outdoor noise level will be greater than 55 dBA.

- Installation of a central air conditioning system will be required for units whose indoor sound levels exceed the allowable by 10 dBA or more. A warning clause for future purchasers and tenants will also be mandatory. All units along the north side of Buildings A and B (fronting Commissioners Road East) are recommended to have mandatory central air conditioning installed. The following warning clause shall be included in all agreements of rental, sale, or lease of these units:

  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."

- Provisions for a central air conditioning system are required for units whose indoor noise levels exceed the guidelines by less than 10 dBA. 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 select units within Building A (units on east and west sides), Building B (units on east, west, and south sides), Building C (units on north, west, and south sides), and Blocks 1, 3, 5, and 10 (units at west end of blocks), as identified on Figure 2, and the following warning clause shall be given to prospective purchasers or tenants of these units.

  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 NPC-300* (Ministry of the Environment, August 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. 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, the warning clause Type D should be used instead of warning clause Type C.

- Building components with sufficient Acoustical Insulation Factors will be required for units that have a day time sound level in excess of 65 dBA outside the living room window or a night time sound in excess of 60 dBA outside the bedroom window. For these units, the building components including doors, windows, and walls must be designed and installed so that the indoor sound levels meet the noise levels outlined by the MOECC in NPC-300.

  All units along the north side of Buildings A and B (fronting Commissioners Road East) will require building components with noise isolation. An EW5 construction rating or masonry equivalent from floor to ceiling is recommended along with the installation of double glazed windows. An example of exterior wall construction EW5 includes 12.7 mm gypsum board, vapour barrier, and 38 x 89mm studs with 50mm (or thicker) mineral wool or fiberglass batts in interstud cavities, plus sheathing, 25mm air space and brick/concrete. SB-3 of the "Supplementary Standards" of the Ontario Building Code supplies alternative EW5 construction examples and pertinent STC ratings for alternative construction techniques.

- 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 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 Talu Properties Inc. 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.

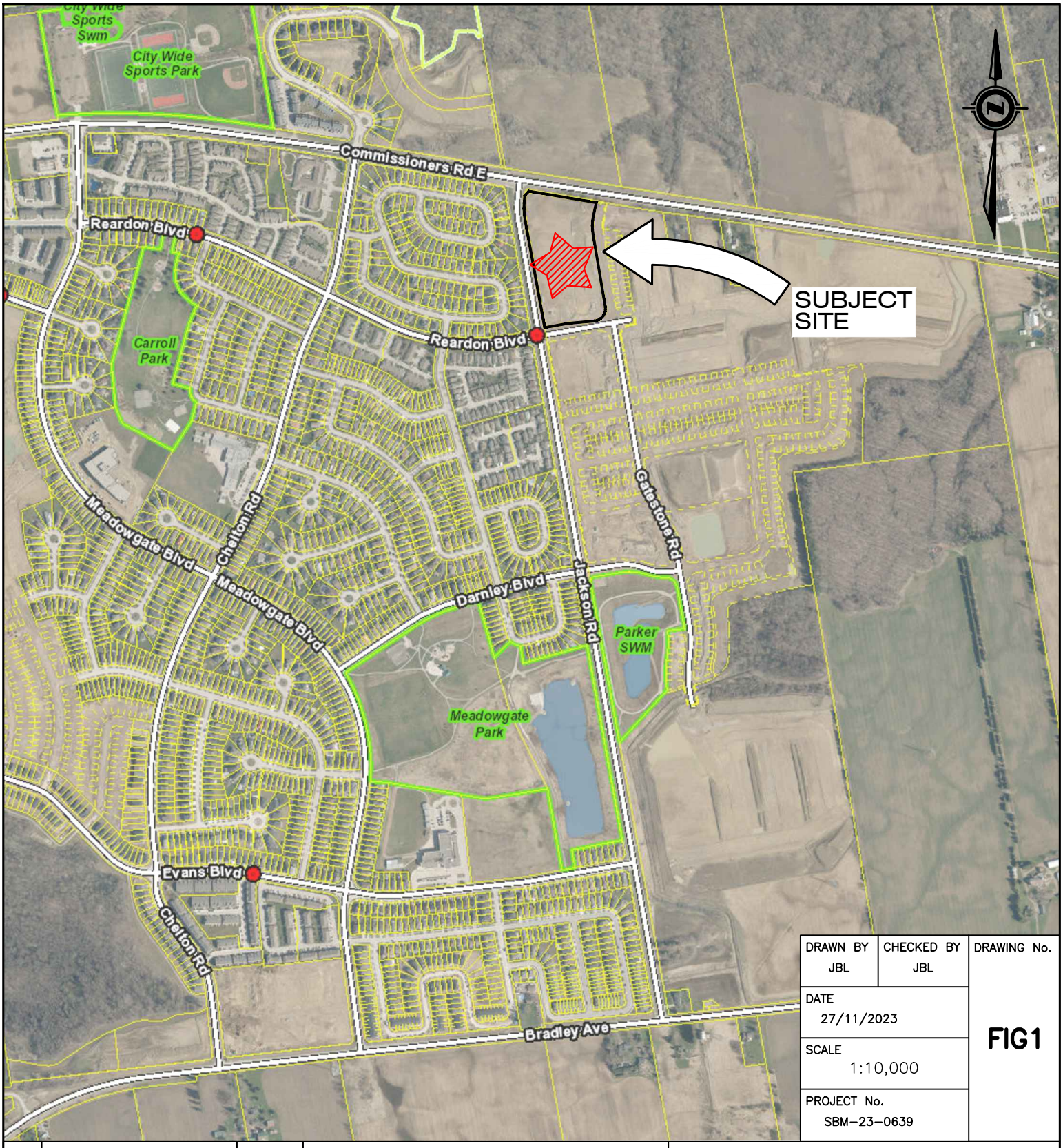
7 CLOSURE

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: 27/11/2023		
SCALE: 1:10,000		
PROJECT No.: SBM–23–0639		

No.	REVISIONS	D/M/Y
1	FOR ZBA	27/11/23

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TITLE
LOCATION PLAN

PROJECT
RESIDENTIAL COMPLEX
BLOCK 231 (39T–06507_1)
LONDON, ON.

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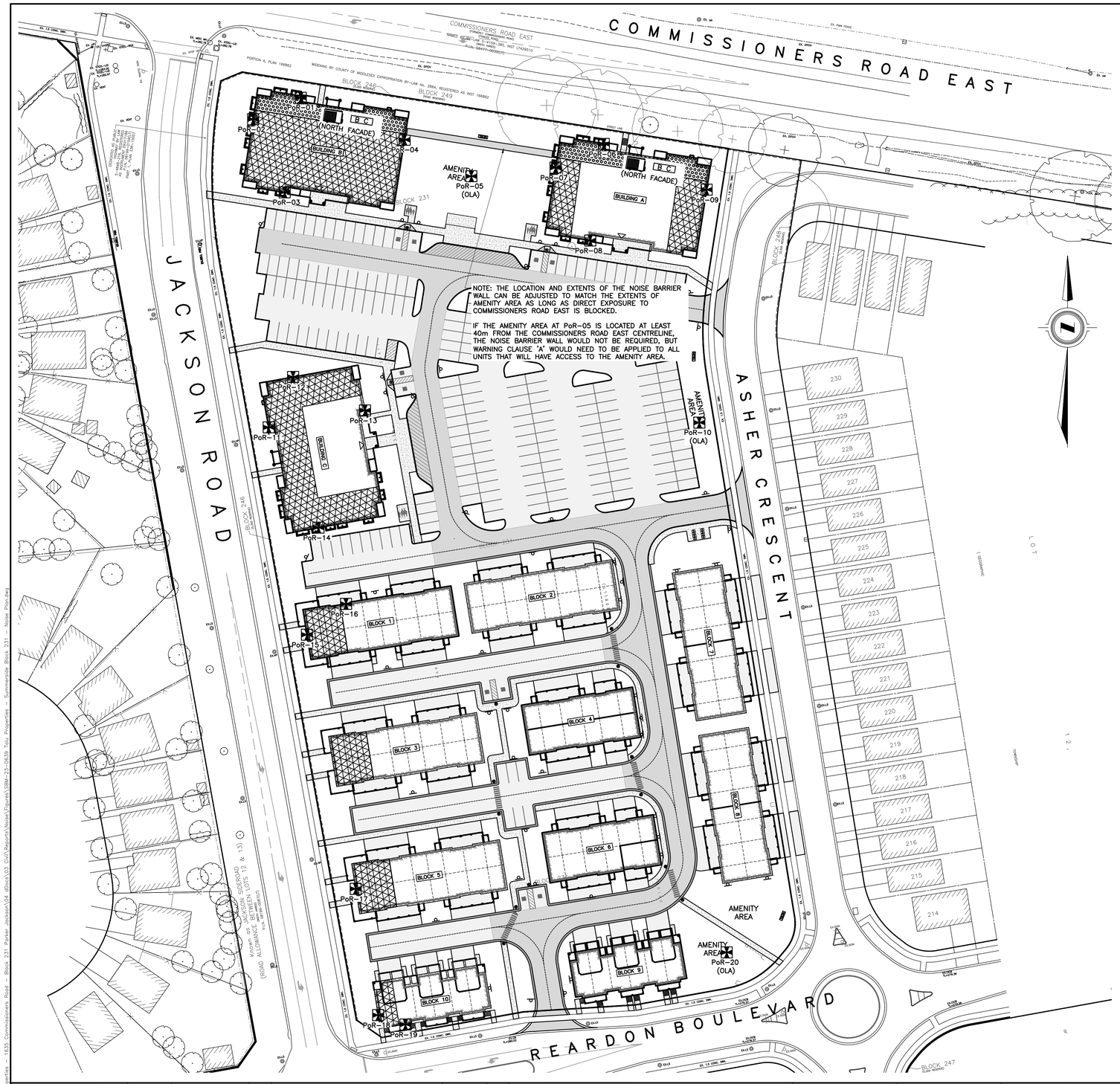
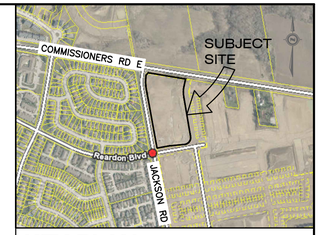


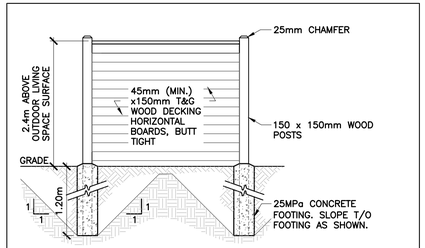


KEY PLAN

N.T.S.

LEGEND:

- ORNAMENT (STAMSON) RECEIVER TEST LOCATION
- WARNING CLAUSE 'A' APPLICABLE
- WARNING CLAUSE 'B' APPLICABLE
- WARNING CLAUSE 'C' APPLICABLE
- WARNING CLAUSE 'D' APPLICABLE
- AIR CONDITIONING SYSTEM INSTALLATION REQUIRED
- B C — BUILDING COMPONENT INSTALLATION REQUIRED
- PROPOSED NOISE BARRIER WALL



NOTES:
1. ALL WOOD (BOARDS, POSTS, ETC.) SHALL BE PRESSURE TREATED, FREE FROM CRACKS, WARPS, SPLITS AND GAPS WITHIN OR BELOW ITS EXTENTS.
2. ALL FASTENERS (INCLUDING HANGERS) TO BE HOT DIPPED GALVANIZED.
3. ALL DIMENSION ARE NOMINAL (NOT ACTUAL) U.N.O.

TYP. NOISE BARRIER DETAIL

N.T.S.

POINT OF ASSESSMENT NOTES:

1. FOR THE PURPOSE OF NOISE IMPACT ASSESSMENT IN AN OUTDOOR LIVING AREA, THE RECEIVER LOCATION HAS BEEN ASSUMED TO BE AT THE CENTER OF THE OUTDOOR AMENITY AREA.

2. NOISE SENSITIVE LAND USES MAY HAVE ONE OR MORE POINTS OF RECEPTION. THE FOLLOWING IS A POINT OF RECPTION:
   2.1. 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 MID OR HIGH-RISE MULTI-UNIT BUILDING.

3. BUILDING FACE POINTS OF ASSESSMENT UTILIZED AS DAYTIME AND NIGHT TIME RECEIVERS FOR 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 SITE PLAN APPROVAL	27/11/23	JBL
		DRAWN JBL				
		CHECKED JBL				
		APPROVED JBL				
		DATE 27/11/2023				
		CAD 23-0639				

CONSULTANT
STRIK BALDINELLI MONIZ
PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL
1599 Adelaide St. N, Unit 301, London, Ontario, N5X 4E8
Tel: (519) 471-6667 Fax: (519) 471-0034
Email: sbm@sbmltd.ca

ENGINEER'S STAMP

ENGINEER'S STAMP

CLIENT
TALU PROPERTIES INC.
1-320 DUNDAS STREET
LONDON, ON
N6B 3R8

SCALE
SCALE – 1:600
6.0 0 12.0m

TITLE
NOISE STUDY PLAN
RESIDENTIAL COMPLEX
BLOCK 231 (39T-06507_1)
LONDON, ON.

PROJECT No. SBM-23-0639
SHEET No. FIG2
PLAN FILE No. –

S:\2023 Jobs\SBM-23-0639 Talu Properties - 1635 Commissioners Road - Block 231 Parker Jackson\04 dfwg\03 Civil\Reports\Noise\Figures\SBM-23-0639 Talu Properties - Somerville Block 231 - Noise Plan.dwg

Appendix A – Traffic Data

Jonah Lester

From: Harpal, Dhaval <dharpal@london.ca>
Sent: Thursday, May 11, 2023 4:00 PM
To: Jonah Lester
Subject: RE: Traffic Data Request for Noise Study - Commissioners Road East SBM-23-0639

Hi Jonah,

Extremely sorry for the delay, things kind of really busy recently.

The AADT along Jackson Rd would be similar to previously shared. An AADT of 3,000 vehicle a day. Please use 2.5% growth rate in this area and 1.5% heavy and 1.5% medium vehicles on the road.

Jackson Rd:
AADT – 3,000 vehicle
Growth rate – 2.5%
Truck traffic – 3% (including 1.5% heavy and 1.5% medium)
Day night splits – 96/4%

Commissioners Rd:
AADT – 13,000 vehicle
Growth rate – 2.0%
Truck traffic – 4%
Day night splits – 96/4%

Thank you,

Dhaval Harpal
Transportation Technologist
Transportation Planning and Design
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
Sent: Wednesday, April 26, 2023 9:07 AM
To: Harpal, Dhaval <dharpal@london.ca>
Subject: Traffic Data Request for Noise Study - Commissioners Road East SBM-23-0639

Hi Dhaval,

SBM will be preparing a Noise Study for another residential development along the east side of Jackson Road, but this one is at the Commissioners Road East intersection, so we would like to request traffic count/forecast information including ultimate AADTs (or existing AADT and recommended growth rates that we can use to develop a 10-year forecast), percentage of heavy and medium trucks, and day/night splits for Commissioners Road East at Jackson Road.

If you have any questions or need more info, just let me know.

Thanks very much.

Jonah

Jonah Lester, P.Eng.
Transportation Engineer
P: 519-471-6667 x 154
E: jlester@sbmltd.ca

Appendix B – Noise Calculations

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:25:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r01_015.te Time Period: Day/Night 16/8 hours
Description: PoR-01 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 21.00 / 21.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           :   0.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  28.00 / 28.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Commissioner (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     90   0.66  69.03   0.00  -2.43  -1.46   0.00   0.00   0.00  65.15
-------------------------------------------------------------------------------

Segment Leq : 65.15 dBA


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

Source height = 1.11 m

ROAD (0.00 + 49.69 + 0.00) = 49.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     30   0.66  62.11   0.00  -4.50  -7.91   0.00   0.00   0.00  49.69
-------------------------------------------------------------------------------

Segment Leq : 49.69 dBA

Total Leq All Segments: 65.27 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 54.41 + 0.00) = 54.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.29	0.00	-2.43	-1.46	0.00	0.00	0.00	54.41

Segment Leq : 54.41 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 42.56 + 0.00) = 42.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.66	54.98	0.00	-4.50	-7.91	0.00	0.00	0.00	42.56

Segment Leq : 42.56 dBA

Total Leq All Segments: 54.68 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.27
(NIGHT): 54.68

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:26:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r01_165.te Time Period: Day/Night 16/8 hours
Description: PoR-01 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 21.00 / 21.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           :   0.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  28.00 / 28.00  m
Receiver height           :   1.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 66.67 + 0.00) = 66.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.22  69.03   0.00  -1.78  -0.58   0.00   0.00   0.00  66.67
-------------------------------------------------------------------------------

Segment Leq : 66.67 dBA


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

Source height = 1.11 m

ROAD (0.00 + 49.69 + 0.00) = 49.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     30   0.66  62.11   0.00  -4.50  -7.91   0.00   0.00   0.00  49.69
-------------------------------------------------------------------------------

Segment Leq : 49.69 dBA

Total Leq All Segments: 66.76 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 55.93 + 0.00) = 55.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.22	58.29	0.00	-1.78	-0.58	0.00	0.00	0.00	55.93

Segment Leq : 55.93 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 43.84 + 0.00) = 43.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.22	54.98	0.00	-3.31	-7.83	0.00	0.00	0.00	43.84

Segment Leq : 43.84 dBA

Total Leq All Segments: 56.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.76
(NIGHT): 56.19

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:27:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r02_015.te Time Period: Day/Night 16/8 hours
Description: PoR-02 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  23.00 / 23.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 60.07 + 0.00) = 60.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  69.03   0.00  -4.50  -4.47   0.00   0.00   0.00  60.07
-------------------------------------------------------------------------------

Segment Leq : 60.07 dBA


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

Source height = 1.11 m

ROAD (0.00 + 56.18 + 0.00) = 56.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     30   0.66  62.11   0.00  -3.08  -2.85   0.00   0.00   0.00  56.18
-------------------------------------------------------------------------------

Segment Leq : 56.18 dBA

Total Leq All Segments: 61.56 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 49.33 + 0.00) = 49.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.66	58.29	0.00	-4.50	-4.47	0.00	0.00	0.00	49.33

Segment Leq : 49.33 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 49.05 + 0.00) = 49.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.66	54.98	0.00	-3.08	-2.85	0.00	0.00	0.00	49.05

Segment Leq : 49.05 dBA

Total Leq All Segments: 52.20 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.56
(NIGHT): 52.20

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:26:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r02_165.te Time Period: Day/Night 16/8 hours
Description: PoR-02 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  23.00 / 23.00  m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 62.13 + 0.00) = 62.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.22  69.03   0.00  -3.31  -3.60   0.00   0.00   0.00  62.13
-------------------------------------------------------------------------------

Segment Leq : 62.13 dBA


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

Source height = 1.11 m

ROAD (0.00 + 57.63 + 0.00) = 57.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     30   0.22  62.11   0.00  -2.27  -2.21   0.00   0.00   0.00  57.63
-------------------------------------------------------------------------------

Segment Leq : 57.63 dBA

Total Leq All Segments: 63.45 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 51.39 + 0.00) = 51.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.22	58.29	0.00	-3.30	-3.59	0.00	0.00	0.00	51.39

Segment Leq : 51.39 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 50.50 + 0.00) = 50.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.22	54.98	0.00	-2.27	-2.21	0.00	0.00	0.00	50.50

Segment Leq : 50.50 dBA

Total Leq All Segments: 53.98 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.45
(NIGHT): 53.98

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:27:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r03_015.te Time Period: Day/Night 16/8 hours
Description: PoR-03 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 46.00 / 46.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 17.50 m
Barrier receiver distance : 0.10 / 0.10 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (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  :  30.00 / 30.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 44.84 + 0.00) = 44.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00  -4.87   0.00   0.00   0.00 -19.32  44.84
-------------------------------------------------------------------------------

Segment Leq : 44.84 dBA


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

Source height = 1.11 m

ROAD (0.00 + 52.64 + 0.00) = 52.64 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  62.11   0.00  -5.00  -4.47   0.00   0.00   0.00  52.64
-------------------------------------------------------------------------------

Segment Leq : 52.64 dBA

Total Leq All Segments: 53.31 dBA


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

Source height = 1.20 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.20 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 34.10 + 0.00) = 34.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  58.29   0.00  -4.87   0.00   0.00   0.00 -19.32  34.10
-------------------------------------------------------------------------------

Segment Leq : 34.10 dBA


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

Source height = 1.09 m

ROAD (0.00 + 45.51 + 0.00) = 45.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  54.98   0.00  -5.00  -4.47   0.00   0.00   0.00  45.51
-------------------------------------------------------------------------------

Segment Leq : 45.51 dBA

Total Leq All Segments: 45.81 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 53.31
(NIGHT): 45.81

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:27:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r03_165.te Time Period: Day/Night 16/8 hours
Description: PoR-03 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 46.00 / 46.00 m
Receiver height : 16.50 / 16.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 17.50 m
Barrier receiver distance : 22.00 / 22.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (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  :  30.00 / 30.00  m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !       16.50 !        9.18 !         9.18

ROAD (0.00 + 47.69 + 0.00) = 47.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00  -4.87   0.00   0.00   0.00 -16.48  47.69
-------------------------------------------------------------------------------

Segment Leq : 47.69 dBA


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

Source height = 1.11 m

ROAD (0.00 + 54.83 + 0.00) = 54.83 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.22  62.11   0.00  -3.68  -3.60   0.00   0.00   0.00  54.83
-------------------------------------------------------------------------------

Segment Leq : 54.83 dBA

Total Leq All Segments: 55.60 dBA


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

Source height = 1.20 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.20 !       16.50 !        9.18 !         9.18

ROAD (0.00 + 36.95 + 0.00) = 36.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  58.29   0.00  -4.87   0.00   0.00   0.00 -16.48  36.95
-------------------------------------------------------------------------------

Segment Leq : 36.95 dBA


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

Source height = 1.09 m

ROAD (0.00 + 47.69 + 0.00) = 47.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.22  54.98   0.00  -3.68  -3.60   0.00   0.00   0.00  47.69
-------------------------------------------------------------------------------

Segment Leq : 47.69 dBA

Total Leq All Segments: 48.04 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 55.60
(NIGHT): 48.04

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:28:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r04_015.te Time Period: Day/Night 16/8 hours
Description: PoR-04 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  63.00 / 63.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 0.00 deg
Barrier height            :  17.50 m
Barrier receiver distance :   0.10 / 0.10   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 60.07 + 0.00) = 60.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.66  69.03   0.00  -4.50  -4.47   0.00   0.00   0.00  60.07
-------------------------------------------------------------------------------

Segment Leq : 60.07 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 33.57 + 0.00) = 33.57 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	62.11	0.00	-6.23	-3.01	0.00	0.00	-19.30	33.57

Segment Leq : 33.57 dBA

Total Leq All Segments: 60.08 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 49.33 + 0.00) = 49.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.66	58.29	0.00	-4.50	-4.47	0.00	0.00	0.00	49.33

Segment Leq : 49.33 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	1.50	1.50	1.50

ROAD (0.00 + 26.43 + 0.00) = 26.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	54.98	0.00	-6.23	-3.01	0.00	0.00	-19.30	26.43

Segment Leq : 26.43 dBA

Total Leq All Segments: 49.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.08
(NIGHT): 49.35

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:28:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r04_165.te Time Period: Day/Night 16/8 hours
Description: PoR-04 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  63.00 / 63.00  m
Receiver height           :  16.50 / 16.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 0.00 deg
Barrier height            :  17.50 m
Barrier receiver distance :   0.10 / 0.10   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 62.13 + 0.00) = 62.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.22  69.03   0.00  -3.31  -3.60   0.00   0.00   0.00  62.13
-------------------------------------------------------------------------------

Segment Leq : 62.13 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !       16.50 !       16.48 !        16.48

ROAD (0.00 + 38.84 + 0.00) = 38.84 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	62.11	0.00	-6.23	-3.01	0.00	0.00	-14.02	38.84

Segment Leq : 38.84 dBA

Total Leq All Segments: 62.15 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 51.39 + 0.00) = 51.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.22	58.29	0.00	-3.30	-3.59	0.00	0.00	0.00	51.39

Segment Leq : 51.39 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	16.50	16.48	16.48

ROAD (0.00 + 31.71 + 0.00) = 31.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	54.98	0.00	-6.23	-3.01	0.00	0.00	-14.02	31.71

Segment Leq : 31.71 dBA

Total Leq All Segments: 51.44 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.15
(NIGHT): 51.44

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:28:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r05_015.te Time Period: Day/Night 16/8 hours
Description: PoR-05 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -60.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  :  84.00 / 84.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -40.00 deg
Barrier height            :   7.00 m
Barrier receiver distance :  80.00 / 80.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 60.60 + 0.00) = 60.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     60   0.66  69.03   0.00  -6.11  -2.32   0.00   0.00   0.00  60.60
-------------------------------------------------------------------------------

Segment Leq : 60.60 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !        1.50 !        1.12 !         1.12

ROAD (0.00 + 30.36 + 42.92) = 43.15 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-40	0.25	62.11	0.00	-9.37	-6.74	0.00	0.00	-15.64	30.36
-40	0	0.66	62.11	0.00	-12.42	-6.77	0.00	0.00	0.00	42.92

Segment Leq : 43.15 dBA

Total Leq All Segments: 60.68 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 50.63 + 0.00) = 50.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	60	0.49	58.29	0.00	-5.48	-2.18	0.00	0.00	0.00	50.63

Segment Leq : 50.63 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	7.50	1.40	1.40

ROAD (0.00 + 25.78 + 37.10) = 37.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-40	0.07	54.98	0.00	-8.02	-5.92	0.00	0.00	-15.25	25.78
-40	0	0.49	54.98	0.00	-11.16	-6.71	0.00	0.00	0.00	37.10

Segment Leq : 37.41 dBA

Total Leq All Segments: 50.83 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.68
(NIGHT): 50.83

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:29:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r05_015b.te Time Period: Day/Night 16/8 hours
Description: PoR-05 1.5 m with 2.4m barrier

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -60.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 35.00 / 35.00 m
Receiver height : 1.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -60.00 deg Angle2 : 60.00 deg
Barrier height : 2.40 m
Barrier receiver distance : 10.00 / 10.00 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (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  :  85.00 / 85.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -50.00 deg
Barrier height            :   7.00 m
Barrier receiver distance :  80.00 / 80.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !        1.50 !        1.41 !         1.41

ROAD (0.00 + 53.80 + 0.00) = 53.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     60   0.53  69.03   0.00  -5.61  -2.21   0.00   0.00  -7.41  53.80
-------------------------------------------------------------------------------

Segment Leq : 53.80 dBA
```

Results segment # 2: Jackson (day)

Source height = 1.11 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.11	1.50	1.13	1.13

ROAD (0.00 + 30.13 + 43.66) = 43.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-50	0.25	62.11	0.00	-9.43	-7.93	0.00	0.00	-14.61	30.13
-50	0	0.66	62.11	0.00	-12.51	-5.94	0.00	0.00	0.00	43.66

Segment Leq : 43.85 dBA

Total Leq All Segments: 54.22 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.20	7.50	5.70	5.70

ROAD (0.00 + 50.63 + 0.00) = 50.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	60	0.35	58.29	0.00	-4.95	-2.06	0.00	0.00	0.00	51.28*
-60	60	0.49	58.29	0.00	-5.48	-2.18	0.00	0.00	0.00	50.63

 * Bright Zone !

Segment Leq : 50.63 dBA

Results segment # 2: Jackson (night)

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

Source height = 1.09 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.09 !        7.50 !        1.47 !         1.47

ROAD (0.00 + 25.83 + 37.88) = 38.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -50   0.07  54.98   0.00  -8.08  -6.96   0.00   0.00 -14.11  25.83
-------------------------------------------------------------------------------
   -50      0   0.49  54.98   0.00 -11.24  -5.85   0.00   0.00   0.00  37.88
-------------------------------------------------------------------------------

Segment Leq : 38.15 dBA

Total Leq All Segments: 50.87 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 54.22
                           (NIGHT): 50.87
```

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:29:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r05_015c.te Time Period: Day/Night 16/8 hours
Description: PoR-05 1.5 m at 40m from Comm CL

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -60.00 deg 60.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 1.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  :  84.00 / 84.00  m
Receiver height           :   1.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -40.00 deg
Barrier height            :   7.00 m
Barrier receiver distance :  80.00 / 80.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 59.64 + 0.00) = 59.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -60     60   0.66  69.03   0.00  -7.07  -2.32   0.00   0.00   0.00  59.64
-------------------------------------------------------------------------------

Segment Leq : 59.64 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !        1.50 !        1.12 !         1.12

ROAD (0.00 + 30.36 + 42.92) = 43.15 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-40	0.25	62.11	0.00	-9.37	-6.74	0.00	0.00	-15.64	30.36
-40	0	0.66	62.11	0.00	-12.42	-6.77	0.00	0.00	0.00	42.92

Segment Leq : 43.15 dBA

Total Leq All Segments: 59.74 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 49.77 + 0.00) = 49.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-60	60	0.49	58.29	0.00	-6.34	-2.18	0.00	0.00	0.00	49.77

Segment Leq : 49.77 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	7.50	1.40	1.40

ROAD (0.00 + 25.78 + 37.10) = 37.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-40	0.07	54.98	0.00	-8.02	-5.92	0.00	0.00	-15.25	25.78
-40	0	0.49	54.98	0.00	-11.16	-6.71	0.00	0.00	0.00	37.10

Segment Leq : 37.41 dBA

Total Leq All Segments: 50.02 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.74
(NIGHT): 50.02

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:30:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r06_015.te Time Period: Day/Night 16/8 hours
Description: PoR-06 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 21.00 / 21.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           :   0.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: Commissioner (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     90   0.66  69.03   0.00  -2.43  -1.46   0.00   0.00   0.00  65.15
-------------------------------------------------------------------------------

Segment Leq : 65.15 dBA


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

Source height = 1.11 m

ROAD (0.00 + 38.14 + 0.00) = 38.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     20   0.66  62.11   0.00 -14.36  -9.60   0.00   0.00   0.00  38.14
-------------------------------------------------------------------------------

Segment Leq : 38.14 dBA

Total Leq All Segments: 65.16 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 54.41 + 0.00) = 54.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.29	0.00	-2.43	-1.46	0.00	0.00	0.00	54.41

Segment Leq : 54.41 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 31.01 + 0.00) = 31.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	20	0.66	54.98	0.00	-14.36	-9.60	0.00	0.00	0.00	31.01

Segment Leq : 31.01 dBA

Total Leq All Segments: 54.43 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.16
(NIGHT): 54.43

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:30:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r06_165.te Time Period: Day/Night 16/8 hours
Description: PoR-06 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 21.00 / 21.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           :   0.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 66.67 + 0.00) = 66.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.22  69.03   0.00  -1.78  -0.58   0.00   0.00   0.00  66.67
-------------------------------------------------------------------------------

Segment Leq : 66.67 dBA


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

Source height = 1.11 m

ROAD (0.00 + 41.97 + 0.00) = 41.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     20   0.22  62.11   0.00 -10.57  -9.56   0.00   0.00   0.00  41.97
-------------------------------------------------------------------------------

Segment Leq : 41.97 dBA

Total Leq All Segments: 66.68 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 55.93 + 0.00) = 55.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.22	58.29	0.00	-1.78	-0.58	0.00	0.00	0.00	55.93

Segment Leq : 55.93 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 34.84 + 0.00) = 34.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	20	0.22	54.98	0.00	-10.58	-9.56	0.00	0.00	0.00	34.84

Segment Leq : 34.84 dBA

Total Leq All Segments: 55.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.68
(NIGHT): 55.96

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:30:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r07_015.te Time Period: Day/Night 16/8 hours
Description: PoR-07 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     30 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 60.07 + 0.00) = 60.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  69.03   0.00  -4.50  -4.47   0.00   0.00   0.00  60.07
-------------------------------------------------------------------------------

Segment Leq : 60.07 dBA


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

Source height = 1.11 m

ROAD (0.00 + 43.83 + 0.00) = 43.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     30   0.66  62.11   0.00 -14.03  -2.85   0.00  -1.40   0.00  43.83
-------------------------------------------------------------------------------

Segment Leq : 43.83 dBA

Total Leq All Segments: 60.17 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 49.33 + 0.00) = 49.33 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.66	58.29	0.00	-4.50	-4.47	0.00	0.00	0.00	49.33

Segment Leq : 49.33 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 36.70 + 0.00) = 36.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.66	54.98	0.00	-14.03	-2.85	0.00	-1.40	0.00	36.70

Segment Leq : 36.70 dBA

Total Leq All Segments: 49.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.17
(NIGHT): 49.56

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:30:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r07_165.te Time Period: Day/Night 16/8 hours
Description: PoR-07 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 105.00 / 105.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 62.13 + 0.00) = 62.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.22  69.03   0.00  -3.31  -3.60   0.00   0.00   0.00  62.13
-------------------------------------------------------------------------------

Segment Leq : 62.13 dBA


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

Source height = 1.11 m

ROAD (0.00 + 48.17 + 0.00) = 48.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     30   0.22  62.11   0.00 -10.33  -2.21   0.00  -1.40   0.00  48.17
-------------------------------------------------------------------------------

Segment Leq : 48.17 dBA

Total Leq All Segments: 62.30 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 51.39 + 0.00) = 51.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.22	58.29	0.00	-3.30	-3.59	0.00	0.00	0.00	51.39

Segment Leq : 51.39 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 42.44 + 0.00) = 42.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	30	0.22	54.98	0.00	-10.33	-2.21	0.00	0.00	0.00	42.44

Segment Leq : 42.44 dBA

Total Leq All Segments: 51.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.30
(NIGHT): 51.91

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:31:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r08_015.te Time Period: Day/Night 16/8 hours
Description: PoR-08 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 46.00 / 46.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 17.50 m
Barrier receiver distance : 0.10 / 0.10 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     20 %
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 44.84 + 0.00) = 44.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00  -4.87   0.00   0.00   0.00 -19.32  44.84
-------------------------------------------------------------------------------

Segment Leq : 44.84 dBA


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

Source height = 1.11 m
```

ROAD (0.00 + 42.38 + 0.00) = 42.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.66	62.11	0.00	-14.36	-4.47	0.00	-0.90	0.00	42.38

Segment Leq : 42.38 dBA

Total Leq All Segments: 46.79 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

Barrier height for grazing incidence

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

ROAD (0.00 + 34.10 + 0.00) = 34.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	58.29	0.00	-4.87	0.00	0.00	0.00	-19.32	34.10

Segment Leq : 34.10 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 35.24 + 0.00) = 35.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.66	54.98	0.00	-14.36	-4.47	0.00	-0.90	0.00	35.24

Segment Leq : 35.24 dBA

Total Leq All Segments: 37.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 46.79
(NIGHT): 37.72

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:31:54
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r08_165.te Time Period: Day/Night 16/8 hours
Description: PoR-08 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 46.00 / 46.00 m
Receiver height : 16.50 / 16.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 17.50 m
Barrier receiver distance : 0.10 / 0.10 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 110.00 / 110.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !       16.50 !       16.47 !        16.47

ROAD (0.00 + 49.86 + 0.00) = 49.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00  -4.87   0.00   0.00   0.00 -14.31  49.86
-------------------------------------------------------------------------------

Segment Leq : 49.86 dBA


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

Source height = 1.11 m

ROAD (0.00 + 47.03 + 0.00) = 47.03 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.22  62.11   0.00 -10.57  -3.60   0.00  -0.90   0.00  47.03
-------------------------------------------------------------------------

Segment Leq : 47.03 dBA

Total Leq All Segments: 51.68 dBA


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

Source height = 1.20 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.20 !       16.50 !       16.47 !        16.47

ROAD (0.00 + 39.12 + 0.00) = 39.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  58.29   0.00  -4.87   0.00   0.00   0.00 -14.31  39.12
-------------------------------------------------------------------------

Segment Leq : 39.12 dBA


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

Source height = 1.09 m

ROAD (0.00 + 40.80 + 0.00) = 40.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.22  54.98   0.00 -10.58  -3.60   0.00   0.00   0.00  40.80
-------------------------------------------------------------------------

Segment Leq : 40.80 dBA

Total Leq All Segments: 43.05 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 51.68
(NIGHT): 43.05

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:32:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r09_015.te Time Period: Day/Night 16/8 hours
Description: PoR-09 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  : 144.00 / 144.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 0.00 deg
Barrier height            :  17.50 m
Barrier receiver distance :   0.10 / 0.10   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 60.07 + 0.00) = 60.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.66  69.03   0.00  -4.50  -4.47   0.00   0.00   0.00  60.07
-------------------------------------------------------------------------------

Segment Leq : 60.07 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 30.02 + 0.00) = 30.02 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  62.11   0.00  -9.82  -3.01   0.00   0.00 -19.25  30.02
-------------------------------------------------------------------------

Segment Leq : 30.02 dBA

Total Leq All Segments: 60.07 dBA


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

Source height = 1.20 m

ROAD (0.00 + 49.33 + 0.00) = 49.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.66  58.29   0.00  -4.50  -4.47   0.00   0.00   0.00  49.33
-------------------------------------------------------------------------

Segment Leq : 49.33 dBA


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

Source height = 1.09 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.09 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 22.89 + 0.00) = 22.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90      0   0.00  54.98   0.00  -9.82  -3.01   0.00   0.00 -19.25  22.89
-------------------------------------------------------------------------

Segment Leq : 22.89 dBA

Total Leq All Segments: 49.34 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 60.07
(NIGHT): 49.34

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:32:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r09_165.te Time Period: Day/Night 16/8 hours
Description: PoR-09 16.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 28.00 / 28.00 m
Receiver height : 16.50 / 16.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  : 144.00 / 144.00 m
Receiver height           :  16.50 / 16.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 0.00 deg
Barrier height            :  17.50 m
Barrier receiver distance :   0.10 / 0.10   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 62.13 + 0.00) = 62.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.22  69.03   0.00  -3.31  -3.60   0.00   0.00   0.00  62.13
-------------------------------------------------------------------------------

Segment Leq : 62.13 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !       16.50 !       16.49 !        16.49

ROAD (0.00 + 35.67 + 0.00) = 35.67 dBA
```

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	62.11	0.00	-9.82	-3.01	0.00	0.00	-13.60	35.67

Segment Leq : 35.67 dBA

Total Leq All Segments: 62.14 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 51.39 + 0.00) = 51.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.22	58.29	0.00	-3.30	-3.59	0.00	0.00	0.00	51.39

Segment Leq : 51.39 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	16.50	16.49	16.49

ROAD (0.00 + 28.54 + 0.00) = 28.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.00	54.98	0.00	-9.82	-3.01	0.00	0.00	-13.60	28.54

Segment Leq : 28.54 dBA

Total Leq All Segments: 51.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.14
(NIGHT): 51.41

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:33:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10_015.te Time Period: Day/Night 16/8 hours
Description: PoR-10 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 89.00 / 35.00 m
Receiver height : 1.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (day/night)
-----------------------------------------
Angle1   Angle2           : -90.00 deg   45.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 132.00 / 132.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 53.84 + 0.00) = 53.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  69.03   0.00 -12.84  -1.46   0.00  -0.90   0.00  53.84
-------------------------------------------------------------------------------

Segment Leq : 53.84 dBA


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

Source height = 1.11 m

ROAD (0.00 + 41.55 + 0.00) = 41.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     45   0.66  62.11   0.00 -15.68  -2.29   0.00  -2.59   0.00  41.55
-------------------------------------------------------------------------------

Segment Leq : 41.55 dBA

Total Leq All Segments: 54.09 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 51.66 + 0.00) = 51.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	58.29	0.00	-5.48	-1.15	0.00	0.00	0.00	51.66

Segment Leq : 51.66 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 38.80 + 0.00) = 38.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.49	54.98	0.00	-14.09	-2.08	0.00	0.00	0.00	38.80

Segment Leq : 38.80 dBA

Total Leq All Segments: 51.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.09
(NIGHT): 51.88

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:42:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11_015.te Time Period: Day/Night 16/8 hours
Description: PoR-11 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 113.00 / 113.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  :  18.00 / 18.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 50.01 + 0.00) = 50.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  69.03   0.00 -14.56  -4.47   0.00   0.00   0.00  50.01
-------------------------------------------------------------------------------

Segment Leq : 50.01 dBA


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

Source height = 1.11 m

ROAD (0.00 + 59.34 + 0.00) = 59.34 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  62.11   0.00  -1.31  -1.46   0.00   0.00   0.00  59.34
-------------------------------------------------------------------------------

Segment Leq : 59.34 dBA

Total Leq All Segments: 59.82 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 39.27 + 0.00) = 39.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.66	58.29	0.00	-14.56	-4.47	0.00	0.00	0.00	39.27

Segment Leq : 39.27 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 52.20 + 0.00) = 52.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	54.98	0.00	-1.31	-1.46	0.00	0.00	0.00	52.20

Segment Leq : 52.20 dBA

Total Leq All Segments: 52.42 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.82
(NIGHT): 52.42

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:48:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11_135.te Time Period: Day/Night 16/8 hours
Description: PoR-11 13.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 113.00 / 113.00 m
Receiver height : 13.50 / 13.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  :  18.00 / 18.00  m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 53.75 + 0.00) = 53.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.31  69.03   0.00 -11.48  -3.80   0.00   0.00   0.00  53.75
-------------------------------------------------------------------------------

Segment Leq : 53.75 dBA


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

Source height = 1.11 m

ROAD (0.00 + 60.27 + 0.00) = 60.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.31  62.11   0.00  -1.04  -0.79   0.00   0.00   0.00  60.27
-------------------------------------------------------------------------------

Segment Leq : 60.27 dBA

Total Leq All Segments: 61.14 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 43.01 + 0.00) = 43.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.31	58.29	0.00	-11.48	-3.80	0.00	0.00	0.00	43.01

Segment Leq : 43.01 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 53.14 + 0.00) = 53.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.31	54.98	0.00	-1.04	-0.80	0.00	0.00	0.00	53.14

Segment Leq : 53.14 dBA

Total Leq All Segments: 53.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.14
(NIGHT): 53.54

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:49:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12_015.te Time Period: Day/Night 16/8 hours
Description: PoR-12 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 30 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 96.00 / 96.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900

```
    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     :  91.00

Data for Segment # 2: Jackson (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  :  28.00 / 28.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 52.79 + 0.00) = 52.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  69.03   0.00 -13.38  -1.46   0.00  -1.40   0.00  52.79
-------------------------------------------------------------------------------

Segment Leq : 52.79 dBA


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

Source height = 1.11 m

ROAD (0.00 + 53.14 + 0.00) = 53.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.66  62.11   0.00  -4.50  -4.47   0.00   0.00   0.00  53.14
-------------------------------------------------------------------------------

Segment Leq : 53.14 dBA

Total Leq All Segments: 55.98 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 42.05 + 0.00) = 42.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	58.29	0.00	-13.38	-1.46	0.00	-1.40	0.00	42.05

Segment Leq : 42.05 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 46.01 + 0.00) = 46.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.66	54.98	0.00	-4.50	-4.47	0.00	0.00	0.00	46.01

Segment Leq : 46.01 dBA

Total Leq All Segments: 47.48 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.98
(NIGHT): 47.48

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:48:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12_135.te Time Period: Day/Night 16/8 hours
Description: PoR-12 13.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 20 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 96.00 / 96.00 m
Receiver height : 13.50 / 13.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900

```
    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     :  91.00

Data for Segment # 2: Jackson (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  :  28.00 / 28.00  m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 56.79 + 0.00) = 56.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.31  69.03   0.00 -10.56  -0.79   0.00  -0.90   0.00  56.79
-------------------------------------------------------------------------------

Segment Leq : 56.79 dBA


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

Source height = 1.11 m

ROAD (0.00 + 54.75 + 0.00) = 54.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.31  62.11   0.00  -3.56  -3.81   0.00   0.00   0.00  54.75
-------------------------------------------------------------------------------

Segment Leq : 54.75 dBA

Total Leq All Segments: 58.90 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 46.05 + 0.00) = 46.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.31	58.29	0.00	-10.55	-0.79	0.00	-0.90	0.00	46.05

Segment Leq : 46.05 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 47.61 + 0.00) = 47.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.31	54.98	0.00	-3.56	-3.81	0.00	0.00	0.00	47.61

Segment Leq : 47.61 dBA

Total Leq All Segments: 49.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.90
(NIGHT): 49.91

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:50:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r13_015.te Time Period: Day/Night 16/8 hours
Description: PoR-13 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 98.00 / 98.00 m
Receiver height : 1.50 / 1.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  :  44.00 / 44.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :  14.50 m
Barrier receiver distance :   0.10 / 0.10   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 51.03 + 0.00) = 51.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.66  69.03   0.00 -13.53  -4.47   0.00   0.00   0.00  51.03
-------------------------------------------------------------------------------

Segment Leq : 51.03 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !        1.50 !        1.50 !         1.50

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
-90	90	0.00	62.11	0.00	-4.67	0.00	0.00	0.00	-19.17	38.27

Segment Leq : 38.27 dBA

Total Leq All Segments: 51.25 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 40.30 + 0.00) = 40.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.66	58.29	0.00	-13.53	-4.47	0.00	0.00	0.00	40.30

Segment Leq : 40.30 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	1.50	1.50	1.50

ROAD (0.00 + 31.14 + 0.00) = 31.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	54.98	0.00	-4.67	0.00	0.00	0.00	-19.17	31.14

Segment Leq : 31.14 dBA

Total Leq All Segments: 40.80 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 51.25
(NIGHT): 40.80

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:50:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r13_135.te Time Period: Day/Night 16/8 hours
Description: PoR-13 13.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 98.00 / 98.00 m
Receiver height : 13.50 / 13.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  :  44.00 / 44.00  m
Receiver height           :  13.50 / 13.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :  14.50 m
Barrier receiver distance :  24.00 / 24.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 54.56 + 0.00) = 54.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     90   0.31  69.03   0.00 -10.67  -3.80   0.00   0.00   0.00  54.56
-------------------------------------------------------------------------------

Segment Leq : 54.56 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !       13.50 !        6.74 !         6.74

ROAD (0.00 + 41.14 + 0.00) = 41.14 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  62.11   0.00  -4.67   0.00   0.00   0.00 -16.29  41.14
-------------------------------------------------------------------------

Segment Leq : 41.14 dBA

Total Leq All Segments: 54.75 dBA


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

Source height = 1.20 m

ROAD (0.00 + 43.82 + 0.00) = 43.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
     0     90   0.31  58.29   0.00 -10.67  -3.80   0.00   0.00   0.00  43.82
-------------------------------------------------------------------------

Segment Leq : 43.82 dBA


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

Source height = 1.09 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.09 !       13.50 !        6.73 !         6.73

ROAD (0.00 + 34.00 + 0.00) = 34.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  54.98   0.00  -4.67   0.00   0.00   0.00 -16.30  34.00
-------------------------------------------------------------------------

Segment Leq : 34.00 dBA

Total Leq All Segments: 44.25 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 54.75
(NIGHT): 44.25

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:51:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r14_015.te Time Period: Day/Night 16/8 hours
Description: PoR-14 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 135.00 / 135.00 m
Receiver height : 1.50 / 1.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 14.50 m
Barrier receiver distance : 0.10 / 0.10 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (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  :  28.00 / 28.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 40.40 + 0.00) = 40.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00  -9.54   0.00   0.00   0.00 -19.09  40.40
-------------------------------------------------------------------------------

Segment Leq : 40.40 dBA


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

Source height = 1.11 m

ROAD (0.00 + 53.14 + 0.00) = 53.14 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  62.11   0.00  -4.50  -4.47   0.00   0.00   0.00  53.14
-------------------------------------------------------------------------------

Segment Leq : 53.14 dBA

Total Leq All Segments: 53.37 dBA


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

Source height = 1.20 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.20 !        1.50 !        1.50 !         1.50

ROAD (0.00 + 29.66 + 0.00) = 29.66 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  58.29   0.00  -9.54   0.00   0.00   0.00 -19.09  29.66
-------------------------------------------------------------------------------

Segment Leq : 29.66 dBA


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

Source height = 1.09 m

ROAD (0.00 + 46.01 + 0.00) = 46.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.66  54.98   0.00  -4.50  -4.47   0.00   0.00   0.00  46.01
-------------------------------------------------------------------------------

Segment Leq : 46.01 dBA

Total Leq All Segments: 46.11 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 53.37
(NIGHT): 46.11

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:50:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r14_135.te Time Period: Day/Night 16/8 hours
Description: PoR-14 13.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 135.00 / 135.00 m
Receiver height : 13.50 / 13.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 14.50 m
Barrier receiver distance : 0.10 / 0.10 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (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  :  28.00 / 28.00  m
Receiver height           :  13.50 / 13.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !       13.50 !       13.49 !        13.49

ROAD (0.00 + 45.90 + 0.00) = 45.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00  -9.54   0.00   0.00   0.00 -13.59  45.90
-------------------------------------------------------------------------------

Segment Leq : 45.90 dBA


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

Source height = 1.11 m

ROAD (0.00 + 54.75 + 0.00) = 54.75 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.31  62.11   0.00  -3.56  -3.81   0.00   0.00   0.00  54.75
-------------------------------------------------------------------------------

Segment Leq : 54.75 dBA

Total Leq All Segments: 55.28 dBA


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

Source height = 1.20 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.20 !       13.50 !       13.49 !        13.49

ROAD (0.00 + 35.16 + 0.00) = 35.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  58.29   0.00  -9.54   0.00   0.00   0.00 -13.59  35.16
-------------------------------------------------------------------------------

Segment Leq : 35.16 dBA


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

Source height = 1.09 m

ROAD (0.00 + 47.61 + 0.00) = 47.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.31  54.98   0.00  -3.56  -3.81   0.00   0.00   0.00  47.61
-------------------------------------------------------------------------------

Segment Leq : 47.61 dBA

Total Leq All Segments: 47.85 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 55.28
(NIGHT): 47.85

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:51:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r15_075.te Time Period: Day/Night 16/8 hours
Description: PoR-15 7.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 162.00 / 162.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900

```
    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     :  91.00

Data for Segment # 2: Jackson (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  :  18.00 / 18.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 46.91 + 0.00) = 46.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  69.03   0.00 -15.39  -4.17   0.00  -2.57   0.00  46.91
-------------------------------------------------------------------------------

Segment Leq : 46.91 dBA


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

Source height = 1.11 m

ROAD (0.00 + 59.77 + 0.00) = 59.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  62.11   0.00  -1.18  -1.16   0.00   0.00   0.00  59.77
-------------------------------------------------------------------------------

Segment Leq : 59.77 dBA

Total Leq All Segments: 59.99 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 36.17 + 0.00) = 36.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.49	58.29	0.00	-15.39	-4.17	0.00	-2.57	0.00	36.17

Segment Leq : 36.17 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 52.63 + 0.00) = 52.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	54.98	0.00	-1.18	-1.16	0.00	0.00	0.00	52.63

Segment Leq : 52.63 dBA

Total Leq All Segments: 52.73 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.99
(NIGHT): 52.73

```
STAMSON 5.0        NORMAL REPORT        Date: 28-08-2023 15:51:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r16_075.te           Time Period: Day/Night 16/8 hours
Description: PoR-16 7.5 m


Road data, segment # 1: Commissioner (day/night)
-----------------------------------------------
Car traffic volume  : 14653/611   veh/TimePeriod  *
Medium truck volume :   305/13    veh/TimePeriod  *
Heavy truck volume  :   305/13    veh/TimePeriod  *
Posted speed limit  :    70 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):  15900
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   2.00
    Heavy Truck  % of Total Volume     :   2.00
    Day (16 hrs) % of Total Volume     :  96.00

Data for Segment # 1: Commissioner (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 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  : 155.00 / 155.00 m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: Jackson (day/night)
-------------------------------------------
Car traffic volume  :  3443/340   veh/TimePeriod  *
Medium truck volume :    53/5     veh/TimePeriod  *
Heavy truck volume  :    53/5     veh/TimePeriod  *
Posted speed limit  :    70 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):   3900
```

```
    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     :  91.00

Data for Segment # 2: Jackson (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  :  30.00 / 30.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  65.00 deg   Angle2 : 90.00 deg
Barrier height            :  14.50 m
Barrier receiver distance :  25.00 / 25.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 50.80 + 0.00) = 50.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  69.03   0.00 -15.11  -1.15   0.00  -1.97   0.00  50.80
-------------------------------------------------------------------------------

Segment Leq : 50.80 dBA


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

Source height = 1.11 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.11 !        7.50 !        2.17 !         2.17
```

ROAD (52.68 + 33.92 + 0.00) = 52.74 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	65	0.49	62.11	0.00	-4.49	-4.93	0.00	0.00	0.00	52.68
65	90	0.00	62.11	0.00	-3.01	-8.57	0.00	0.00	-16.60	33.92

Segment Leq : 52.74 dBA

Total Leq All Segments: 54.89 dBA

Results segment # 1: Commissioner (night)

Source height = 1.20 m

ROAD (0.00 + 40.06 + 0.00) = 40.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	58.29	0.00	-15.10	-1.15	0.00	-1.97	0.00	40.06

Segment Leq : 40.06 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.09	7.50	2.16	2.16

ROAD (45.55 + 26.79 + 0.00) = 45.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	65	0.49	54.98	0.00	-4.49	-4.93	0.00	0.00	0.00	45.55
65	90	0.00	54.98	0.00	-3.01	-8.57	0.00	0.00	-16.61	26.79

Segment Leq : 45.61 dBA

Total Leq All Segments: 46.68 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.89
(NIGHT): 46.68

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:52:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r17_075.te Time Period: Day/Night 16/8 hours
Description: PoR-17 7.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 229.00 / 229.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900

```
    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     :  91.00

Data for Segment # 2: Jackson (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  :  19.00 / 19.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 44.73 + 0.00) = 44.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  69.03   0.00 -17.63  -4.17   0.00  -2.51   0.00  44.73
-------------------------------------------------------------------------------

Segment Leq : 44.73 dBA


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

Source height = 1.11 m

ROAD (0.00 + 59.42 + 0.00) = 59.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  62.11   0.00  -1.53  -1.16   0.00   0.00   0.00  59.42
-------------------------------------------------------------------------------

Segment Leq : 59.42 dBA

Total Leq All Segments: 59.57 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 33.99 + 0.00) = 33.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.49	58.29	0.00	-17.63	-4.17	0.00	-2.51	0.00	33.99

Segment Leq : 33.99 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 52.28 + 0.00) = 52.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	54.98	0.00	-1.53	-1.16	0.00	0.00	0.00	52.28

Segment Leq : 52.28 dBA

Total Leq All Segments: 52.34 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.57
(NIGHT): 52.34

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:52:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r18_075.te Time Period: Day/Night 16/8 hours
Description: PoR-18 7.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

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

Angle1 Angle2 : -90.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 1
House density : 80 %
Surface : 1 (Absorptive ground surface)
Receiver source distance : 275.00 / 275.00 m
Receiver height : 7.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900

```
    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     :  91.00

Data for Segment # 2: Jackson (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  :  19.00 / 19.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 40.83 + 0.00) = 40.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  69.03   0.00 -18.81  -4.17   0.00  -5.23   0.00  40.83
-------------------------------------------------------------------------------

Segment Leq : 40.83 dBA


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

Source height = 1.11 m

ROAD (0.00 + 59.42 + 0.00) = 59.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.49  62.11   0.00  -1.53  -1.16   0.00   0.00   0.00  59.42
-------------------------------------------------------------------------------

Segment Leq : 59.42 dBA

Total Leq All Segments: 59.48 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 30.09 + 0.00) = 30.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	0	0.49	58.29	0.00	-18.81	-4.17	0.00	-5.23	0.00	30.09

Segment Leq : 30.09 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 52.28 + 0.00) = 52.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	54.98	0.00	-1.53	-1.16	0.00	0.00	0.00	52.28

Segment Leq : 52.28 dBA

Total Leq All Segments: 52.31 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.48
(NIGHT): 52.31

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:52:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r19_075.te Time Period: Day/Night 16/8 hours
Description: PoR-19 7.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 275.00 / 275.00 m
Receiver height : 7.50 / 7.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 8.50 m
Barrier receiver distance : 0.10 / 0.10 m
Source elevation : 0.00 m
Receiver elevation : 0.00 m
Barrier elevation : 0.00 m
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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):   3900
    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     :  91.00

Data for Segment # 2: Jackson (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  :  25.00 / 25.00  m
Receiver height           :   7.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.19 !        7.50 !        7.50 !         7.50

ROAD (0.00 + 43.05 + 0.00) = 43.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  69.03   0.00 -12.63   0.00   0.00   0.00 -13.35  43.05
-------------------------------------------------------------------------------

Segment Leq : 43.05 dBA


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

Source height = 1.11 m

ROAD (0.00 + 54.63 + 0.00) = 54.63 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  62.11   0.00  -3.31  -4.17   0.00   0.00   0.00  54.63
-------------------------------------------------------------------------------

Segment Leq : 54.63 dBA

Total Leq All Segments: 54.92 dBA


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

Source height = 1.20 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.20 !        7.50 !        7.50 !         7.50

ROAD (0.00 + 32.32 + 0.00) = 32.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  58.29   0.00 -12.63   0.00   0.00   0.00 -13.35  32.32
-------------------------------------------------------------------------------

Segment Leq : 32.32 dBA


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

Source height = 1.09 m

ROAD (0.00 + 47.49 + 0.00) = 47.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90      0   0.49  54.98   0.00  -3.31  -4.17   0.00   0.00   0.00  47.49
-------------------------------------------------------------------------------

Segment Leq : 47.49 dBA

Total Leq All Segments: 47.62 dBA
```

TOTAL Leq FROM ALL SOURCES (DAY): 54.92
(NIGHT): 47.62

STAMSON 5.0 NORMAL REPORT Date: 28-08-2023 15:52:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r20_015.te Time Period: Day/Night 16/8 hours
Description: PoR-20 1.5 m

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

Car traffic volume : 14653/611 veh/TimePeriod *
Medium truck volume : 305/13 veh/TimePeriod *
Heavy truck volume : 305/13 veh/TimePeriod *
Posted speed limit : 70 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): 15900
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 2.00
Heavy Truck % of Total Volume : 2.00
Day (16 hrs) % of Total Volume : 96.00

Data for Segment # 1: Commissioner (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 : 230.00 / 35.00 m
Receiver height : 1.50 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 3443/340 veh/TimePeriod *
Medium truck volume : 53/5 veh/TimePeriod *
Heavy truck volume : 53/5 veh/TimePeriod *
Posted speed limit : 70 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): 3900
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     :  91.00

Data for Segment # 2: Jackson (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  : 115.00 / 115.00 m
Receiver height           :   1.50 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.19 m

ROAD (0.00 + 44.68 + 0.00) = 44.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  69.03   0.00 -19.68  -1.46   0.00  -3.22   0.00  44.68
-------------------------------------------------------------------------------

Segment Leq : 44.68 dBA


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

Source height = 1.11 m

ROAD (0.00 + 43.36 + 0.00) = 43.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.66  62.11   0.00 -14.68  -1.46   0.00  -2.61   0.00  43.36
-------------------------------------------------------------------------------

Segment Leq : 43.36 dBA

Total Leq All Segments: 47.08 dBA


Results segment # 1: Commissioner (night)
-----------------------------------------
```

Source height = 1.20 m

ROAD (0.00 + 51.66 + 0.00) = 51.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	58.29	0.00	-5.48	-1.15	0.00	0.00	0.00	51.66

Segment Leq : 51.66 dBA

Results segment # 2: Jackson (night)

Source height = 1.09 m

ROAD (0.00 + 40.62 + 0.00) = 40.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.49	54.98	0.00	-13.20	-1.16	0.00	0.00	0.00	40.62

Segment Leq : 40.62 dBA

Total Leq All Segments: 51.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 47.08
(NIGHT): 51.99