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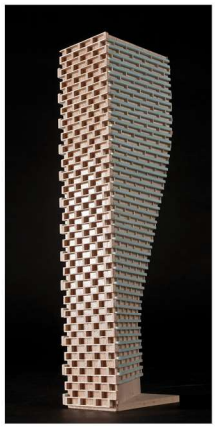
TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT

2 Robinson Avenue
Ottawa, Ontario

Report: 20-219-T.Noise & Vibrations-R1



October 28, 2021

PREPARED FOR

2 Robinson Property Limited Partnership
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EXECUTIVE SUMMARY

This report describes a transportation noise and ground vibration assessment undertaken to satisfy the requirements for a Zoning By-law Amendment (ZBA) submission for a proposed multi-building development located at 2 Robinson Avenue in Ottawa, Ontario (hereinafter referred to as "subject site" or "proposed development"). The proposed development comprises four towers labelled A-D, with separate 6-storey podia serving each tower. Outdoor Living Areas (OLA) were considered on the ground-level, and on the podia rooftops. The major sources of roadway traffic noise include Lees Avenue and Highway 417. The Light Rail Transit (LRT) system containing the Confederation Line located to the south of the subject site was considered as a source of noise and ground vibrations. Figure 1 illustrates a complete site plan with the surrounding context.

The assessment is based on (i) theoretical noise prediction methods that conform to the Ministry of the Environment, Conservation and Parks (MECP) and City of Ottawa requirements; (ii) noise level criteria as specified by the City of Ottawa's Environmental Noise Control Guidelines (ENCG); (iii) future vehicular traffic volumes based on the City of Ottawa's Official Plan roadway classifications; (iv) LRT traffic volumes based on Gradient Wind's experience; and (v) architectural drawings provided by Roderick Lahey Architect Inc. in September 2021.

The results of the current analysis indicate that noise levels will range between 51 dBA and 75 dBA during the daytime period (07:00-23:00) and between 53 and 68 dBA during the nighttime period (23:00-07:00). The highest noise levels (i.e. 75 dBA) occur at the south-facing façades, which are nearest and most exposed to Highway 417 and Lees Avenue. The results indicate that roadway traffic is the dominant source of transportation noise that impacts the development and the LRT noise is negligible. Building components with a higher Sound Transmission Class (STC) rating will be required where exterior noise levels exceed 65 dBA.

Results of the calculations also indicate that all buildings within the development will require central air conditioning, which will allow occupants to keep windows closed and maintain a comfortable living environment. Warning Clauses will also be required in all Lease, Purchase and Sale Agreements.

Noise levels at the ground-level Outdoor Living Areas (OLA) at the courtyard of Building A and on the north side of Building D are expected to approach 60 dBA and 51 dBA, respectively. As the predicted noise levels do not exceed 60 dBA, noise control measures are only recommended as is technically and administratively feasible to reduce noise levels toward 55 dBA. In the case of the Building A courtyard, the OLA is already largely protected by the 6-storey podium to the south with minimal exposure to the traffic noise sources. A noise barrier along the east perimeter of the courtyard may provide marginal improvement, however, as this space is intended to be open and accessible, a noise barrier is not feasible.

Noise levels at the rooftop OLAs (Receptors 23-30) are expected to exceed the ENCG criteria for OLAs during the daytime period. If these areas are to be used as outdoor living areas programmed for the quiet enjoyment of the outdoors, noise control measures are required to reduce the Leq to as close to 55 dBA, as technically and administratively feasible. Further analysis investigated the noise mitigating impact of raising applicable perimeter guards from a standard height of 1.1 m (base case) up to 4 m above the walking surface, as seen in Figure 4.

Results of the investigation proved that noise levels at the most exposed OLAs (Level 2 – Building A Terrace; Level 7 – Building A Podium (Southeast); Level 7 – Building B Podium (South); Level 7 – Building C Podium) can be reduced to 60 dBA by raising the perimeter guard to a minimum of 4-metres above the walking surface. The installation of a high wall around the amenity areas to reduce the noise levels to 60 dBA may not be considered architecturally feasible. Furthermore, results proved that noise levels at the OLA on the Level 7 – Building D Podium (West) can be reduced to 60 dBA with a 2-metre noise barrier on the west side of the amenity space. All other OLAs can achieve acceptable noise levels with the implementation of a standard 1.1-metre perimeter guard surrounding the amenity space. Table 6 summarizes the results of the barrier investigation.

The guardrail must be constructed from materials having a minimum surface density of 20 kg/m^2 (STC rating of 30) and contain no gaps. Design of the guardrail will conform to the requirements outlined in Part 5 of the ENCG. The following information will be required by the City for review prior to installation of the barrier:

1. Shop drawings, signed and sealed by a qualified Professional Engineer licenced by the Professional Engineers of Ontario, showing the details of the acoustic barrier systems components, including material specifications.
2. Structural drawing(s), signed by a qualified Professional Engineer licenced by the Professional Engineers of Ontario, showing foundation details and specifying design criteria, climatic design loads, as well as applicable geotechnical data used in the design.
3. Layout plan, and wall elevations, showing proposed colours and patterns.

Vibration levels due to LRT activity in the area are expected to fall below the criterion of 0.10 mm/s at the nearest façade to the LRT rail line. Thus, mitigation for vibrations is not required.

With regard to stationary noise impacts of the development's mechanical equipment onto surrounding noise-sensitive properties, a stationary noise study is recommended for the site during detailed design once mechanical plans become available. This study would assess impacts of stationary noise from rooftop mechanical units and any other stationary sources serving the proposed buildings on surrounding noise-sensitive areas. This study will include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits. Noise impacts can generally be minimized by judicious selection and placement of the equipment. The best noise strategy would be to locate louder pieces of equipment on the center of the roof or in a mechanical penthouse. Where necessary, noise screens and silencers can be incorporated into the design.

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1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by 2 Robinson Property Limited Partnership to undertake a transportation noise and ground vibration assessment to satisfy the requirements for a Zoning By-law Amendment (ZBA) application submission for a proposed multi-building development located at 2 Robinson Avenue in Ottawa, Ontario (hereinafter referred to as "subject site" or "proposed development"). This report summarizes the methodology, results, and recommendations related to the assessment of exterior and interior noise levels generated by local roadway and Light Rail Transit (LRT) traffic, as well as ground vibrations generated by the LRT Confederation line.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa[1] and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on architectural drawings provided by Roderick Lahey Architect Inc. in September 2021, with future roadway traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications and LRT traffic information based on previous project experience.

2. TERMS OF REFERENCE

The focus of this transportation noise and ground vibration assessment is a proposed multi-building development located at 2 Robinson Avenue in Ottawa, Ontario. The subject site is situated on a roughly triangular parcel of land bounded by Lees Avenue to the south, Chapel Crescent to the northeast, and Mann Avenue to the northwest. The subject site includes four high-rise buildings served by separate podia. Throughout this report, the Lees Avenue elevation is referred to as the south elevation.

At the southwest of the site, Tower A rises to a height of 28-storeys from a 6-storey 'C-shaped' podium. At Level 7, the podium rooftops may accommodate two common amenity terraces, one to the northeast and one to the southeast of Tower A. At the southeast of the site, Towers B and C both rise to a height of 32-storeys from a shared podium. At Level 2, the podium divides into a 6-storey west podium, which serves Tower B, and a 6-storey east podium, which serves Tower C. At Level 7, the podium rooftops may

[1] City of Ottawa Environmental Noise Control Guidelines, January 2016
[2] Ontario Ministry of the Environment and Climate Change – Environmental Noise Guidelines, Publication NPC-300, Queens Printer for Ontario, Toronto, 2013

accommodate common amenity terraces. At the north of the site, Tower D rises to a height of 28-storeys from a 6-storey podium. At Level 7, the podium rooftops may accommodate two common amenity terraces, one to the west and one to the east of Tower D. Rooftop Outdoor Living Areas (OLA) were considered at the common amenity terraces on the 2nd and 7th levels of the development. Balconies which extend less than 4 metres (m) from the façade do not require consideration as OLAs in this study. Areas within the subject site at grade include various driveways, landscaped areas, and ground-level OLAs at the courtyard of Building A, and on the north side of Building D.

The surroundings include low-rise residential buildings to the north, mid-rise buildings to the northwest, several high-rise buildings to the south beyond Highway 417. The major sources of roadway traffic noise include Lees Avenue and Highway 417. The LRT system containing the Confederation Line located to the south of the subject site was considered as a source of noise and ground vibrations. Figure 1 illustrates a complete site plan with surrounding context.

3. OBJECTIVES

The principal objectives of this study are to (i) calculate the future noise levels on the study buildings produced by local roadway and LRT traffic, (ii) estimate ground vibration levels produced by local LRT traffic, and (iii) ensure that interior and exterior noise levels do not exceed the allowable limits specified by the City of Ottawa's Environmental Noise Control Guidelines as outlined in Section 4.2 of this report.

4. METHODOLOGY

4.1 Background

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

3 dBA increase in measured noise levels and is just perceptible to most people. An increase of 10 dBA is often perceived to be twice as loud.

4.2 Transportation Noise

4.2.1 Criteria for Roadway and LRT Traffic Noise

For roadway and LRT traffic noise, the equivalent sound energy level, L_{eq}, provides a measure of the time varying noise levels, which is well correlated with the annoyance of sound. It is defined as the continuous sound level, which has the same energy as a time varying noise level over a period of time. For roadways and LRT systems, the L_{eq} is commonly calculated on the basis of a 16-hour (L_{eq16}) daytime (07:00-23:00) / 8-hour (L_{eq8}) nighttime (23:00-07:00) split to assess its impact on residential buildings. The City of Ottawa's Environmental Noise Control Guidelines (ENCG) specifies that the recommended indoor noise limit range (that is relevant to this study) is 50, 45 and 40 dBA for reception areas, living rooms and sleeping quarters, respectively, for roadways and LRT systems as listed in Table 1.

TABLE 1: INDOOR SOUND LEVEL CRITERIA (ROAD AND LRT) [3]

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

Predicted noise levels at the plane of window (POW) dictate the action required to achieve the recommended sound levels. An open window is considered to provide a 10 dBA reduction in noise, while a standard closed window is capable of providing a minimum 20 dBA noise reduction[4]. A closed window due to a ventilation requirement will bring noise levels down to achieve an acceptable indoor

[3] Adapted from ENCG 2016 – Tables 2.2b and 2.2c
[4] Burberry, P.B. (2014). Mitchell's Environment and Services. Routledge, Page 125

environment[5]. Therefore, where noise levels exceed 55 dBA daytime and 50 dBA nighttime, the ventilation for the building should consider the need for having windows and doors closed, which triggers the need for forced air heating with provision for central air conditioning. Where noise levels exceed 65 dBA daytime and 60 dBA nighttime, air conditioning will be required and building components will require higher levels of sound attenuation[6].

The sound level criterion for outdoor living areas is 55 dBA, which applies during the daytime (07:00 to 23:00). When noise levels exceed 55 dBA, mitigation must be provided to reduce noise levels where technically and administratively feasible to acceptable levels at or below the criterion.

4.2.2 Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway's classification at the mature state of development. Therefore, roadway traffic volumes are based on the roadway classifications outlined in the City of Ottawa's Official Plan (OP) and Transportation Master Plan[7] which provide additional details on future roadway expansions. Average Annual Daily Traffic (AADT) volumes are then based on data in Table B1 of the ENCG for each roadway classification. The LRT traffic volumes are based on Gradient Wind's experience with similar projects. Table 2 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 2: ROADWAY AND LRT TRAFFIC DATA

Segment	Classification	Speed Limit (km/h)	Traffic Volumes
Lees Avenue	2-Lane Urban Arterial	50	**15,000**
Highway 417 (East of Nicholas Street)	8-Lane Highway	100	**146,664**
Highway 417 (West of Nicholas Street)	6-Lane Highway	100	**109,998**
Confederation Line	LRT	70	**540/60***

* Daytime/nighttime volumes

[5] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.8
[6] MECP, Environmental Noise Guidelines, NPC 300 – Part C, Section 7.1.3
[7] City of Ottawa Transportation Master Plan, November 2013

4.2.3 Theoretical Transportation Noise Predictions

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

Transportation noise calculations were performed by treating each roadway and LRT segment as separate line sources of noise. In addition to the traffic volumes summarized in Table 2, theoretical noise predictions were based on the following parameters:

- Truck traffic on all roadways was taken to comprise 5% heavy trucks and 7% medium trucks, as per ENCG requirements for noise level predictions.
- The day/night split for all streets was taken to be 92%/8%, respectively.
- Ground surfaces were taken to be absorptive and reflective based on specific source-receiver path ground characteristics.
- For select receptors where appropriate, the proposed and surrounding buildings were considered as barriers, partially or fully obstructing the exposure to the source.
- Noise receptors were strategically placed at 30 locations around the study area (see Figure 2).
- Receptor distances and exposure angles are illustrated in Figures A1-A22 in Appendix A.

4.3 Indoor Noise Calculations

The difference between outdoor and indoor noise levels is the noise attenuation provided by the building envelope. According to common industry practice, complete walls and individual wall elements are rated according to the Sound Transmission Class (STC). The STC ratings of common residential walls built in conformance with the Ontario Building Code (2012) typically exceed STC 35, depending on exterior cladding, thickness and interior finish details. For example, brick veneer walls can achieve STC 50 or more. Standard commercially sided exterior metal stud walls have around STC 45. Standard good quality double-glazed non-operable windows can have STC ratings ranging from 25 to 40, depending on the window manufacturer, pane thickness and inter-pane spacing. As previously mentioned, the windows are the known weak point in a partition.

As per Section 4.2, when daytime noise levels (from road and rail sources) at the plane of the window exceed 65 dBA, calculations must be performed to evaluate the sound transmission quality of the building components to ensure acceptable indoor noise levels. The calculation procedure[8] considers:

- Window type and total area as a percentage of total room floor area.
- Exterior wall type and total area as a percentage of the total room floor area.
- Acoustic absorption characteristics of the room.
- Outdoor noise source type and approach geometry.
- Indoor sound level criteria, which vary according to the intended use of a space.

Based on published research[9], exterior walls possess specific sound attenuation characteristics that are used as a basis for calculating the required STC ratings of windows in the same partition. Due to the limited information available at the time of the study, which was prepared for a joint ZBA and SPA application, detailed floor layouts and building elevations have not been finalized; therefore, detailed STC calculations could not be performed at this time. As a guideline, the anticipated STC requirements for windows have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels).

4.4 Ground Vibration & Ground-borne Noise

Transit systems and heavy vehicles on roadways can produce perceptible levels of ground vibrations, especially when they are in close proximity to residential neighbourhoods or vibration-sensitive buildings. Similar to sound waves in air, vibrations in solids are generated at a source, propagated through a medium, and intercepted by a receiver. In the case of ground vibrations, the medium can be uniform, or more often, a complex layering of soils and rock strata. Also, similar to sound waves in air, ground vibrations produce perceptible motions and regenerated noise known as 'ground-borne noise' when the vibrations encounter a hollow structure such as a building. Ground-borne noise and vibrations are generated when there is excitation of the ground, such as from a train. Repetitive motion of the wheels on the track or rubber tires passing over an uneven surface causes vibrations to propagate through the soil. When they

[8] Building Practice Note: Controlling Sound Transmission into Buildings by J.D. Quirt, National Research Council of Canada, September 1985
[9] CMHC, Road & Rail Noise: Effects on Housing

encounter a building, vibrations pass along the structure of the building beginning at the foundation and propagating to all floors. Air inside the building excited by the vibrating walls and floors represents regenerated airborne noise. Characteristics of the soil and the building are imparted to the noise, thereby creating a unique noise signature.

Human response to ground vibrations is dependent on the magnitude of the vibrations, which is measured by the root mean square (RMS) of the movement of a particle on a surface. Typical units of ground vibration measures are millimeters per second (mm/s), or inch per second (in/s). Since vibrations can vary over a wide range, it is also convenient to represent them in decibel units, or dBV. In North America, it is common practice to use the reference value of one micro-inch per second (µin/s) to represent vibration levels for this purpose. The threshold level of human perception to vibrations is about 0.10 mm/s RMS or about 72 dBV. Although somewhat variable, the threshold of annoyance for continuous vibrations is 0.5 mm/s RMS (or 85 dBV), five times higher than the perception threshold, whereas the threshold for significant structural damage is 10 mm/s RMS (or 112 dBV), at least one hundred times higher than the perception threshold level.

4.4.1 Ground Vibration Criteria

In the United States, the Federal Transportation Authority (FTA) has set vibration criteria for sensitive land uses next to transit corridors. Similar standards have been developed by a partnership between the MECP and the Toronto Transit Commission[10]. These standards indicate that the appropriate criterion for residential buildings is 0.10 mm/s RMS for vibrations. As the main vibration source is due to the LRT Confederation Line, which will have frequent events, the 0.10 mm/s RMS (72 dBV) vibration criteria and 35 dBA ground-borne noise criteria were adopted for this study.

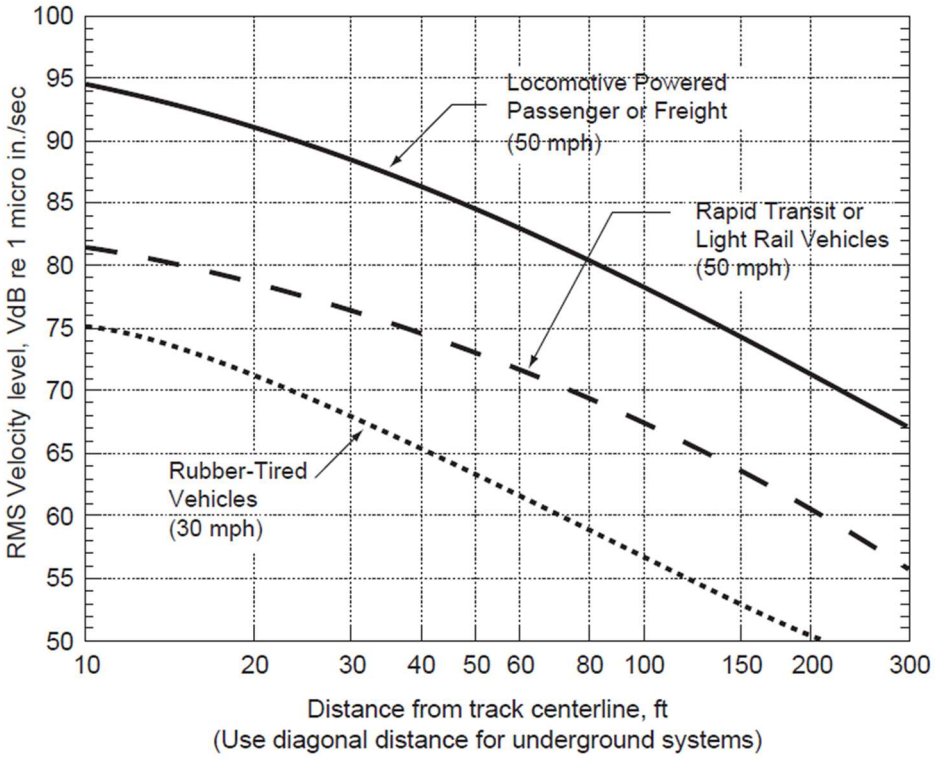
[10] MECP/TTC Protocol for Noise and Vibration Assessment for the Proposed Yonge-Spadina Subway Loop, June 16, 1993

4.4.2 Theoretical Ground Vibration Prediction Procedure

Potential vibration impacts of the Confederation LRT line were predicted using the FTA's Transit Noise and Vibration Impact Assessment[11] protocol. The FTA general vibration assessment is based on an upper bound generic set of curves that show vibration level attenuation with distance. These curves, illustrated in the figure below, are based on ground vibration measurements at various transit systems throughout North America. Vibration levels at points of reception are adjusted by various factors to incorporate known characteristics of the system being analyzed, such as operating speed of vehicle, conditions of the track, construction of the track and geology, as well as the structural type of the impacted building structures. Based on the setback distance of the closest building (Building A), initial vibration levels were deduced from a curve for light rail trains at 50 miles per hour (mph). Details of the vibration calculations are presented in Appendix B. Adjustment factors were considered based on the following information:

- The maximum operating speed of the streetcars was assumed to be 70 km/h at peak.
- The distance between the southwest corner of Building A, which is the closest building of the development to LRT, and the centreline of the closest track is approximately 64 m (210 feet).
- The vehicles are assumed to have soft primary suspensions.
- Tracks are not welded, though in otherwise good condition.
- Soil conditions do not efficiently propagate vibrations.
- The building's foundation is large masonry on piles.

[11] C. E. Hanson; D. A. Towers; and L. D. Meister, Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.



FTA GENERALIZED CURVES OF VIBRATION LEVELS VERSUS DISTANCE (ADOPTED FROM FIGURE 10-1, FTA TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT)

5. RESULTS AND DISCUSSION

5.1 Transportation Noise Levels

The results of the transportation noise calculations are summarized in Table 3 below. A complete set of input and output data from all STAMSON 5.04 calculations are available in Appendix A.

TABLE 3: EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
A				
1	83.5	POW – Level 28, West Façade	72	64
2	83.5	POW – Level 28, South Façade	74	66
3	83.5	POW – Level 28, East Façade	71	64
B				
4	97.5	POW – Level 32, West Façade	72	64
5	97.5	POW – Level 32, South Façade	75	68
6	97.5	POW – Level 32, East Façade	72	64
C				
7	97.5	POW – Level 32, West Façade	68	60
8	97.5	POW – Level 32, South Façade	73	65
9	97.5	POW – Level 32, East Façade	70	63
D				
10	83.5	POW – Level 28, West Façade	65	57
11	83.5	POW – Level 28, South Façade	68	61
12	83.5	POW – Level 28, East Façade	63	56
A Podium (Southeast)				
13	1.5	POW – Level 1, West Façade	69	61
14	20.5	POW – Level 6, South Façade	75	67
15	20.5	POW – Level 6, East Façade	72	65

TABLE 3 (CONTINUED): EXTERIOR NOISE LEVELS DUE TO ROADWAY TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
A Podium (Northeast)				
16	20.5	POW – Level 6, South Façade	66	58
B Podium				
17	20.5	POW – Level 6, West Façade	66	58
C Podium				
18	20.5	POW – Level 6, Southwest Façade	72	64
19	20.5	POW – Level 6, Southeast Façade	74	66
D Podium				
20	20.5	POW – Level 6, South Façade	61	53
Outdoor Living Areas				
21	1.5	OLA – Ground Level – Building A – Courtyard	60	N/A*
22	1.5	OLA – Ground Level – Building D – North Side	51	N/A*
23	8.0	OLA – Level 2 – Building A Terrace	72	N/A*
24	9.3	OLA – Level 2 – Buildings B+C Terrace	65	N/A*
25	23.5	OLA – Level 7 – Building A Podium (Southeast)	73	N/A*
26	23.5	OLA – Level 7 – Building A Podium (Northeast)	63	N/A*
27	23.5	OLA – Level 7 – Building B Podium (South)	74	N/A*
28	23.5	OLA – Level 7 – Building C Podium	71	N/A*
29	23.5	OLA – Level 7 – Building D Podium (West)	66	N/A*
30	23.5	OLA – Level 7 – Building D Podium (East)	61	N/A*

*Noise levels at OLAs during the nighttime period are not considered as per the ENCG.

The results of the current analysis indicate that noise levels will range between 51 dBA and 75 dBA during the daytime period (07:00-23:00) and between 53 and 68 dBA during the nighttime period (23:00-07:00). The highest noise levels (i.e. 75 dBA) occur at the south-facing façades, which are nearest and most exposed to Highway 417 and Lees Avenue.

The LRT system to the south was considered in the noise calculations for Receptor 2. The noted receptor is nearest and most exposed to the LRT line. The results, as seen in Table 4 below, indicate that roadway traffic is the dominant source of transportation noise that impacts the development and the LRT noise is negligible. As such, the LRT line has been considered insignificant for all other receptors.

TABLE 4: EXTERIOR NOISE LEVEL COMPARISON BETWEEN ROADWAY AND LRT

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)			
			Roadway		LRT	
			Day	Night	Day	Night
2	83.5	POW – Level 28, South Façade of Building A	74	66	55	49

5.2 Noise Control Measures

The noise levels predicted due to roadway traffic exceed the criteria listed in Section 4.2 for building components. As discussed in Section 4.3, the anticipated STC requirements for windows have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels). As per city of Ottawa requirements, detailed STC calculations will be required to be completed prior to building permit application for each unit type. The STC requirements for the windows are summarized below for various units within the development (see Figure 3).

TABLE 5: STC REQUIREMENTS FOR WINDOWS

Location	Façade	Bedroom Window STC	Living Room Window STC	Reception Area / Retail / Office Window STC
Building A	West	35	30	25
	South	38	33	28
	East	35	30	25
Building B	West	35	30	25
	South	38	33	28
	East	35	30	25

TABLE 5 (CONTINUED): STC REQUIREMENTS FOR WINDOWS

Location	Façade	Bedroom Window STC	Living Room Window STC	Reception Area / Retail / Office Window STC
Building C	West	31	26	21
	South	38	33	28
	East	35	30	25
Building D	South	31	26	21
A Podium (Southeast)	West	35	30	25
	South	38	33	28
	East	35	30	25
A Podium (Northeast)	South	31	26	21
	East	31	26	21
B Podium	West	31	26	21
	East	31	26	21
C Podium	Southwest	35	30	25
	Southeast	38	33	28

Note: Exterior wall components on these façades are recommended to have a minimum STC of 45 where a window and stud wall system is used.

The STC requirements apply to windows, doors, spandrel panels and curtainwall elements. Exterior wall components on these façades are recommended to have a minimum STC of 45, where a window and stud wall system is used. A review of window supplier literature indicates that the specified STC ratings can be achieved by a variety of window systems having a combination of glass thickness and inter-pane spacing. We have specified an example window configuration, however, several manufacturers and various combinations of window components, such as those proposed, will offer the necessary sound attenuation rating. It is the responsibility of the manufacturer to ensure that the specified window achieves the required STC. This can only be assured by using window configurations that have been certified by laboratory testing. The requirements for STC ratings assume that the remaining components of the building are constructed and installed according to the minimum standards of the Ontario Building Code. The specified STC requirements also apply to swinging and/or sliding patio doors.

Results of the calculations also indicate that all buildings in the development will require central air conditioning, which will allow occupants to keep windows closed and maintain a comfortable living environment. In addition to ventilation requirements, Warning Clauses will also be required in all Lease, Purchase and Sale Agreements, as summarized in Section 6.

5.3 Noise Barrier Calculation

Noise levels at the rooftop amenity areas (Receptors 23-30) are expected to exceed the ENCG criteria for Outdoor Living Areas (OLA) during the daytime period. If these areas are to be used as outdoor living areas programmed for the quiet enjoyment of the outdoors, noise control measures are required to reduce the L_{eq} to as close to 55 dBA, as technically and administratively feasible. Further analysis investigated the noise mitigating impact of raising applicable perimeter guards from a standard height of 1.1 m (base case) up to 4 m above the walking surface, as seen in Figure 4.

Results of the investigation proved that noise levels at the most exposed OLAs (Level 2 – Building A Terrace; Level 7 – Building A Podium (Southeast); Level 7 – Building B Podium (South); Level 7 – Building C Podium) can be reduced to 60 dBA by raising the perimeter guard to a minimum of 4-metres above the walking surface. The installation of a high wall around the amenity areas to reduce the noise levels to 60 dBA may not be considered architecturally feasible.

Furthermore, results proved that noise levels at the OLA on the Level 7 – Building D Podium (West) can be reduced to 60 dBA with a 2-metre noise barrier on the west side of the amenity space. All other rooftop OLAs can achieve acceptable noise levels with the implementation of a standard 1.1-metre perimeter guard surrounding the space. Table 6 summarizes the results of the barrier investigation.

TABLE 6: RESULTS OF NOISE BARRIER INVESTIGATION

Reference Receptor	Location	Barrier Height (m)	Daytime L_{eq} Noise Levels (dBA)
23	OLA – Level 2 – Building A Terrace	No Barrier	72
		1.1	72
		2.0	65
		3.0	62
		4.0	59
24	OLA – Level 2 – Buildings B+C Terrace	No Barrier	65
		1.1	59
25	OLA – Level 7 – Building A Podium (Southeast)	No Barrier	73
		1.1	68
		2.0	65
		3.0	63
		4.0	60
26	OLA – Level 7 – Building A Podium (Northeast)	No Barrier	63
		1.1	57
27	OLA – Level 7 – Building B Podium (South)	No Barrier	74
		1.1	73
		2.0	66
		3.0	62
		4.0	60

TABLE 6 (CONTINUED): RESULTS OF NOISE BARRIER INVESTIGATION

28	OLA – Level 7 – Building C Podium	No Barrier	71
		1.1	66
		2.0	63
		3.0	61
		4.0	59
29	OLA – Level 7 – Building D Podium (West)	No Barrier	66
		1.1	61
		1.5	61
		2.0	60
30	OLA – Level 7– Building D Podium (East)	No Barrier	61
		1.1	57

5.4 Ground Vibrations & Ground-borne Noise Levels

Based on an offset distance of approximately 64 metres between the LRT Confederation Line centerline and the nearest building foundation (southwest corner of Building A), the estimated vibration level at the nearest point of reception is expected to be 0.014 mm/s RMS (55 dBV) based on the FTA protocol. Details of the calculation are provided in Appendix B. Since predicted vibration levels are below the criterion of 0.10 mm/s RMS, no mitigation will be required.

According to the United States Federal Transit Authority's vibration assessment protocol, ground-borne noise can be estimated by subtracting 35 dB from the velocity vibration level in dBV. Since vibration levels were predicted to be less than 0.10 mm/s RMS, ground-borne noise levels are also expected to be below the ground-borne noise criteria of 35 dB.

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that noise levels will range between 51 dBA and 75 dBA during the daytime period (07:00-23:00) and between 53 and 68 dBA during the nighttime period (23:00-07:00). The highest noise levels (i.e. 75 dBA) occur at the south-facing façades, which are nearest and most exposed to Highway 417 and Lees Avenue. The results indicate that roadway traffic is the dominant source of transportation noise that impacts the development and the LRT noise is negligible. Building components with a higher Sound Transmission Class (STC) rating will be required where exterior noise levels exceed 65 dBA, as indicated in Figure 3.

Results of the calculations also indicate that all buildings within the development will require central air conditioning, which will allow occupants to keep windows closed and maintain a comfortable living environment. The following Warning Clause[12] will also be required to be placed on all Lease, Purchase and Sale Agreements, as summarized below:

> *"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 roadway and LRT traffic may, on occasion, interfere with some activities of the dwelling occupants, as the sound levels exceed the sound level limits of the City and the Ministry of the Environment. To help address the need for sound attenuation, this development includes:*
>
> - *STC rated multi-pane glazing elements and spandrel panels*
> - *STC rated exterior walls*
> - *An acoustic barrier*
>
> *This dwelling unit has also been designed with air conditioning. Air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment.*
>
> *To ensure that provincial sound level limits are not exceeded, it is important to maintain these sound attenuation features."*

[12] City of Ottawa Environmental Noise Control Guidelines, January 2016

Noise levels at the ground-level Outdoor Living Areas (OLA) at the courtyard of Building A and on the north side of Building D are expected to approach 60 dBA and 51 dBA, respectively. As the predicted noise levels do not exceed 60 dBA, noise control measures are only recommended as is technically and administratively feasible to reduce noise levels toward 55 dBA. In the case of the Building A courtyard, the OLA is already largely protected by the 6-storey podium to the south with minimal exposure to the traffic noise sources. A noise barrier along the east perimeter of the courtyard may provide marginal improvement, however, as this space is intended to be open and accessible, a noise barrier is not feasible.

Noise levels at the rooftop OLAs (Receptors 23-30) are expected to exceed the ENCG criteria for OLAs during the daytime period. If these areas are to be used as outdoor living areas programmed for the quiet enjoyment of the outdoors, noise control measures are required to reduce the L_{eq} to as close to 55 dBA, as technically and administratively feasible. Further analysis investigated the noise mitigating impact of raising applicable perimeter guards from a standard height of 1.1 m (base case) up to 4 m above the walking surface, as seen in Figure 4.

Results of the investigation proved that noise levels at the most exposed OLAs (Level 2 – Building A Terrace; Level 7 – Building A Podium (Southeast); Level 7 – Building B Podium (South); Level 7 – Building C Podium) can be reduced to 60 dBA by raising the perimeter guard to a minimum of 4-metres above the walking surface. The installation of a high wall around the amenity areas to reduce the noise levels to 60 dBA may not be considered architecturally feasible. Furthermore, results proved that noise levels at the OLA on the Level 7 – Building D Podium (West) can be reduced to 60 dBA with a 2-metre noise barrier on the west side of the amenity space. All other OLAs can achieve acceptable noise levels with the implementation of a standard 1.1-metre perimeter guard surrounding the amenity space. Table 6 summarizes the results of the barrier investigation.

The guardrail must be constructed from materials having a minimum surface density of 20 kg/m^2 (STC rating of 30) and contain no gaps. Design of the guardrail will conform to the requirements outlined in Part 5 of the ENCG. The following information will be required by the City for review prior to installation of the barrier:

1. Shop drawings, signed and sealed by a qualified Professional Engineer licenced by the Professional Engineers of Ontario, showing the details of the acoustic barrier systems components, including material specifications.
2. Structural drawing(s), signed by a qualified Professional Engineer licenced by the Professional Engineers of Ontario, showing foundation details and specifying design criteria, climatic design loads, as well as applicable geotechnical data used in the design.
3. Layout plan, and wall elevations, showing proposed colours and patterns.

Vibration levels due to LRT activity in the area are expected to fall below the criterion of 0.10 mm/s at the nearest façade to the LRT rail line. Thus, mitigation for vibrations is not required.

With regard to stationary noise impacts of the development's mechanical equipment onto surrounding noise sensitive properties, a stationary noise study is recommended for the site during detailed design once mechanical plans become available. This study would assess impacts of stationary noise from rooftop mechanical units and any other stationary sources serving the proposed buildings on surrounding noise-sensitive areas. This study will include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits. Noise impacts can generally be minimized by judicious selection and placement of the equipment. The best noise strategy would be to locate louder pieces of equipment on the center of the roof or in a mechanical penthouse. Where necessary, noise screens and silencers can be incorporated into the design.

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

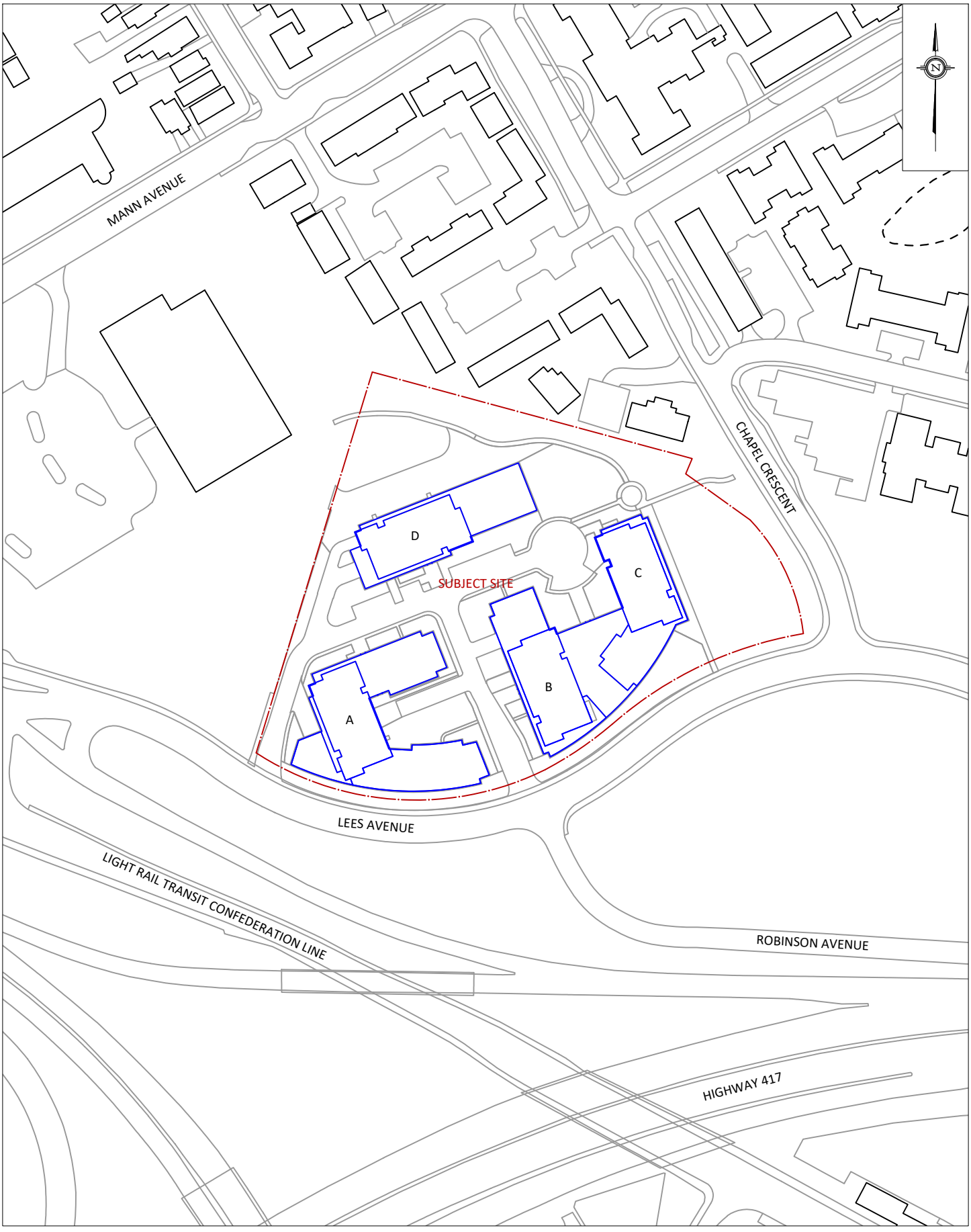
Sincerely,

Gradient Wind Engineering Inc.

Tanyon Matheson-Fitchett, B.Eng.
Junior Environmental Scientist

Joshua Foster, P.Eng.
Principal

Gradient Wind File 20-219-T.Noise & Vibrations-R1



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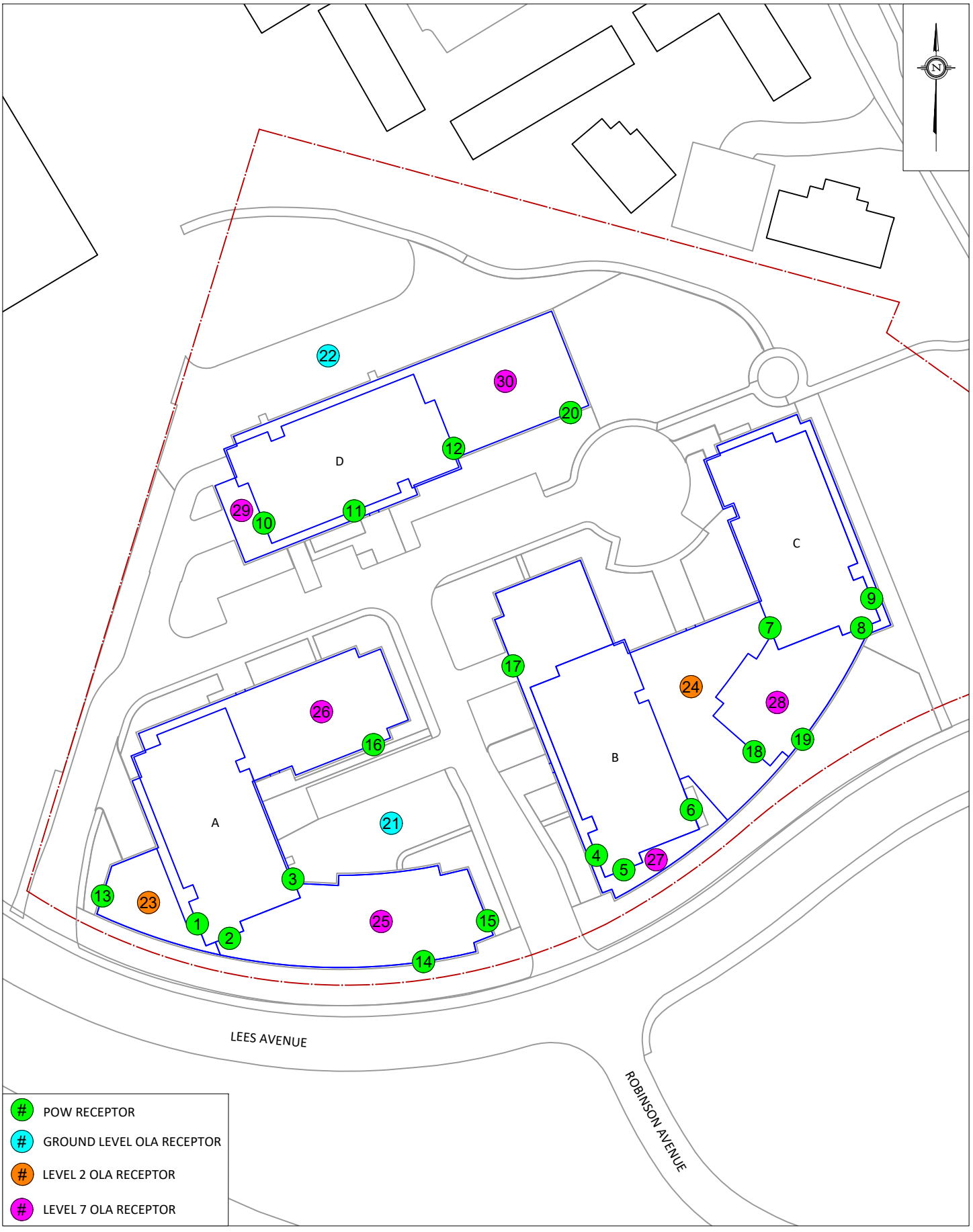
DATE	JULY 2, 2021
DRAWN BY	T.M.F.
DESCRIPTION	FIGURE 1: SITE PLAN AND SURROUNDING CONTEXT



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DESCRIPTION

FIGURE 2:
RECEPTOR LOCATIONS

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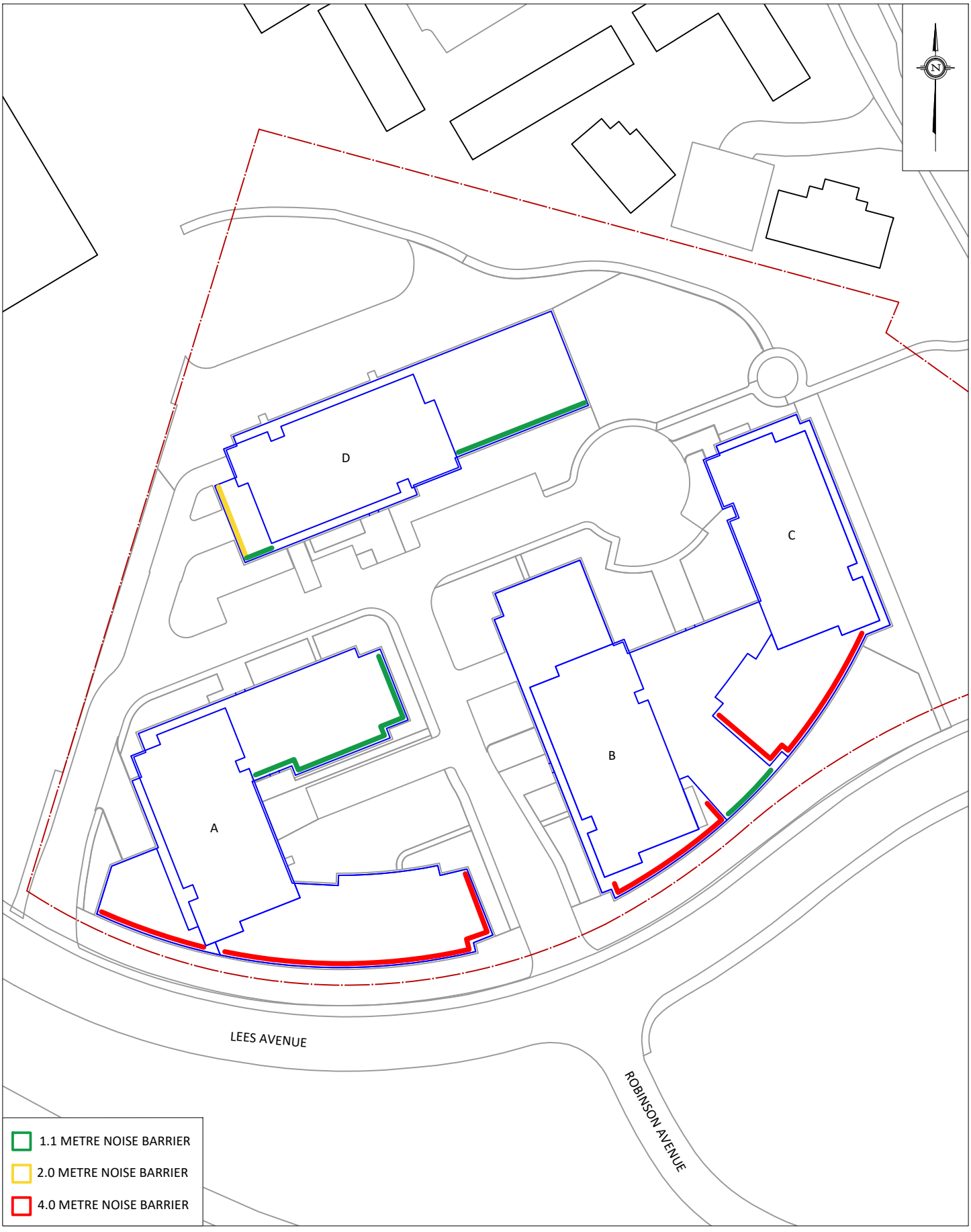
DRAWING NO.	GW20-219-3
DATE	JULY 2, 2021
DRAWN BY	T.M.F.
DESCRIPTION	FIGURE 3: WINDOW STC REQUIREMENTS



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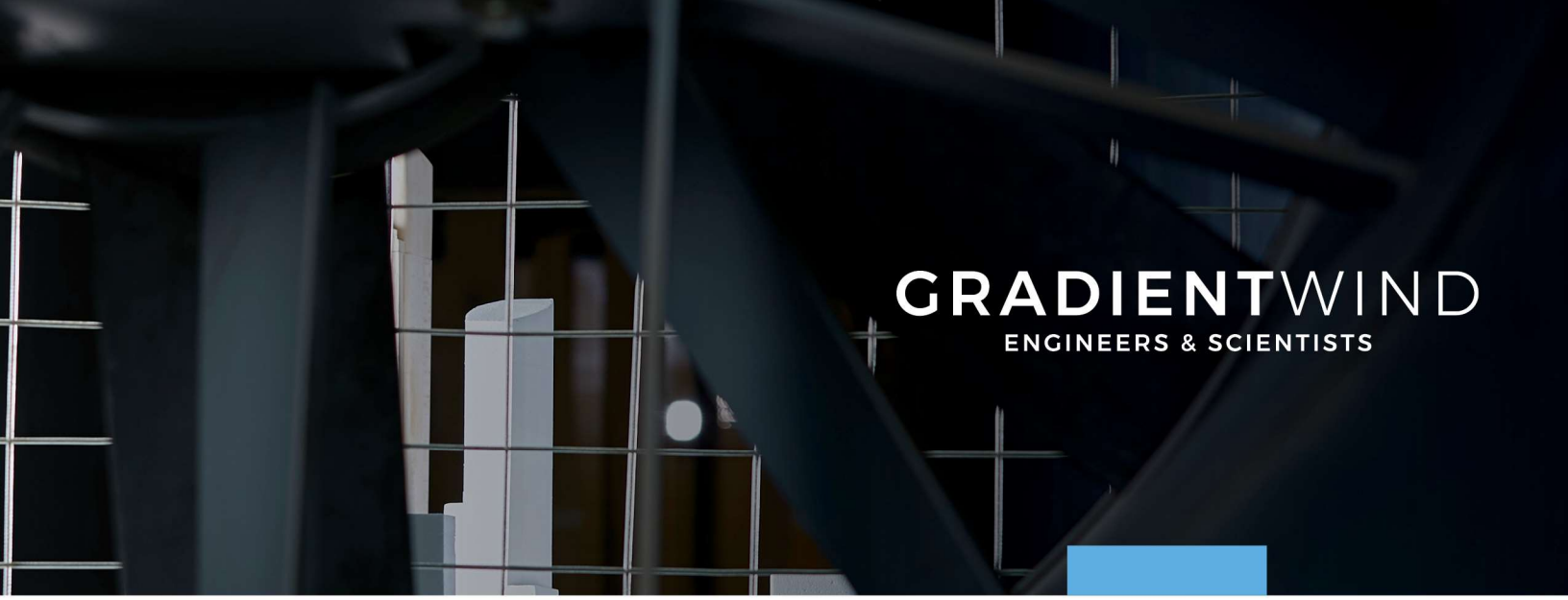
SCALE	1:1000 (APPROX.)
DRAWING NO.	GW20-219-4
DATE	JULY 6, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 4:
LOCATION OF NOISE BARRIERS INVESTIGATED



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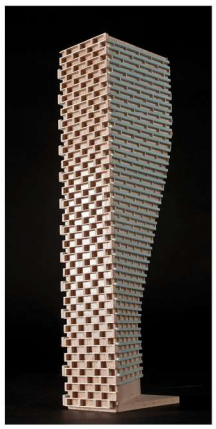

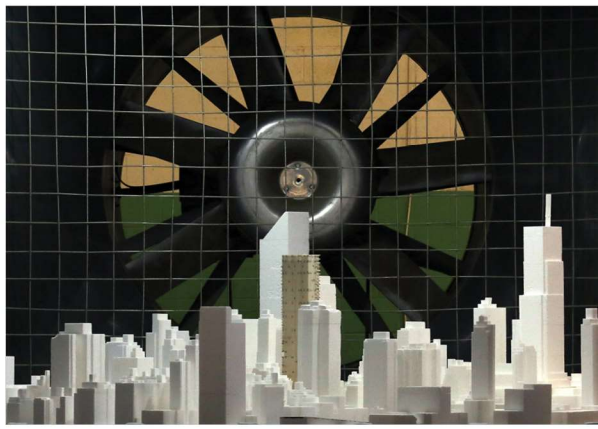

APPENDIX A

STAMSON 5.04 – INPUT AND OUTPUT DATA AND SUPPORTING FIGURES

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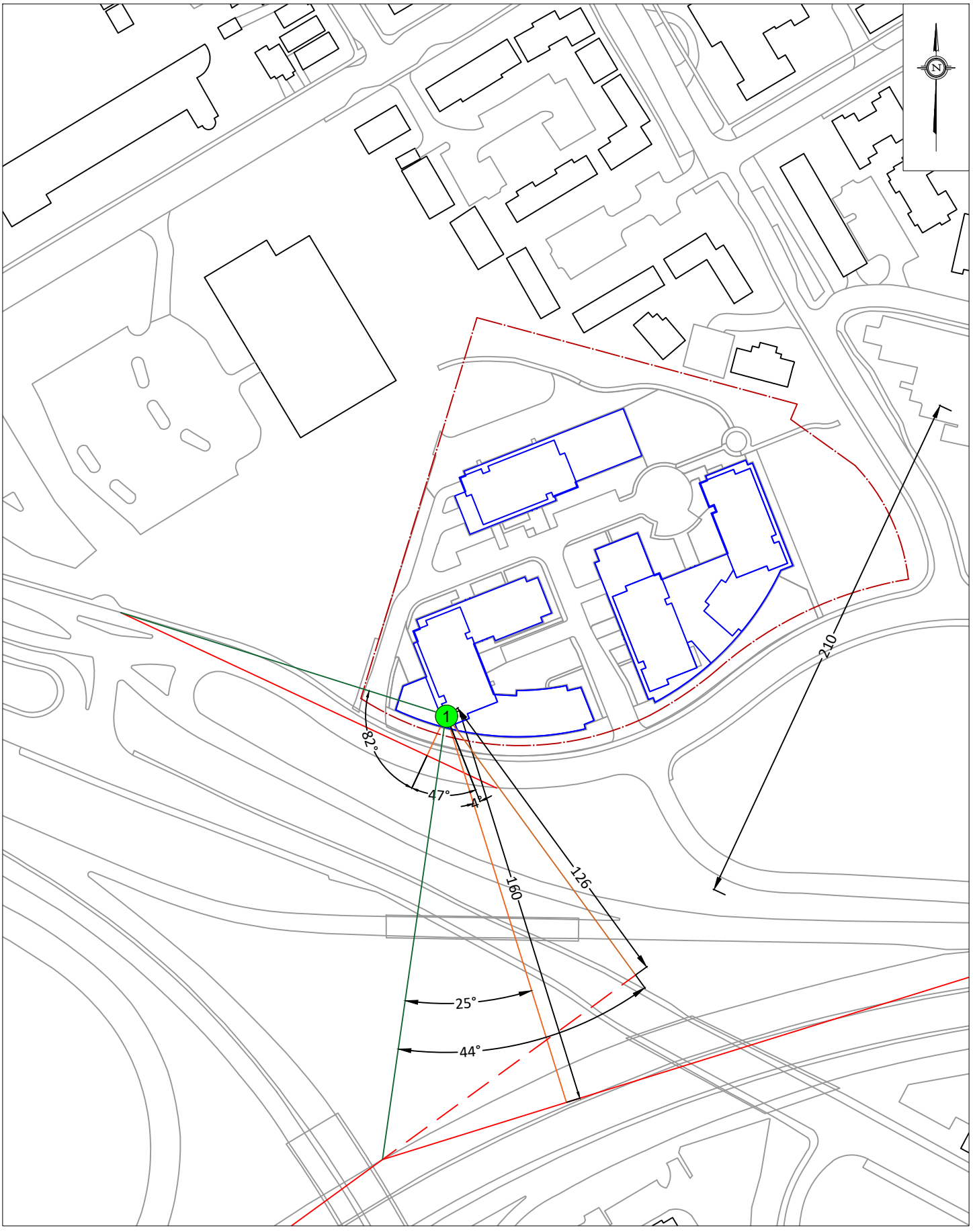

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DESCRIPTION

FIGURE 1A:
STAMSON INPUT PARAMETERS - RECEPTOR 1

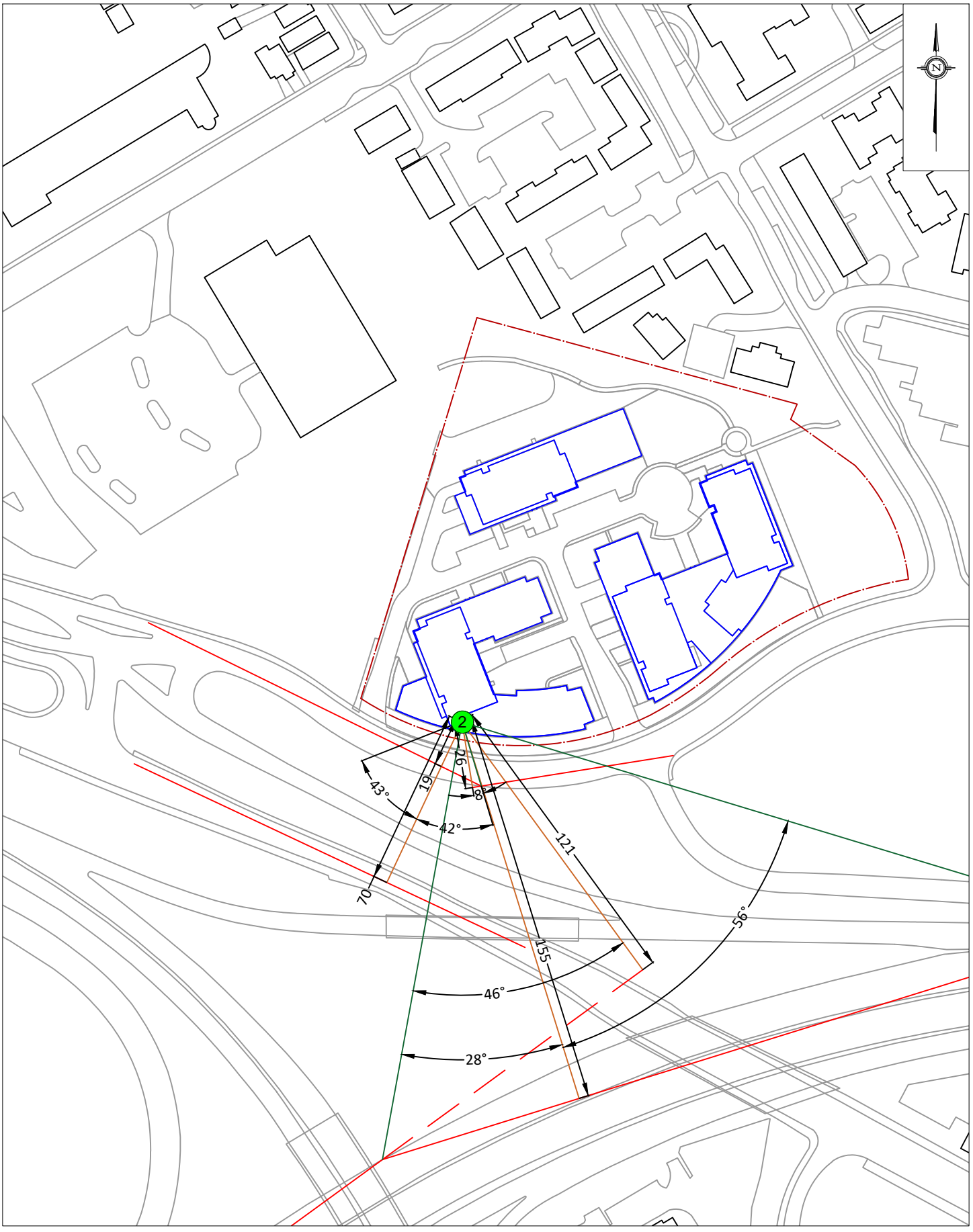

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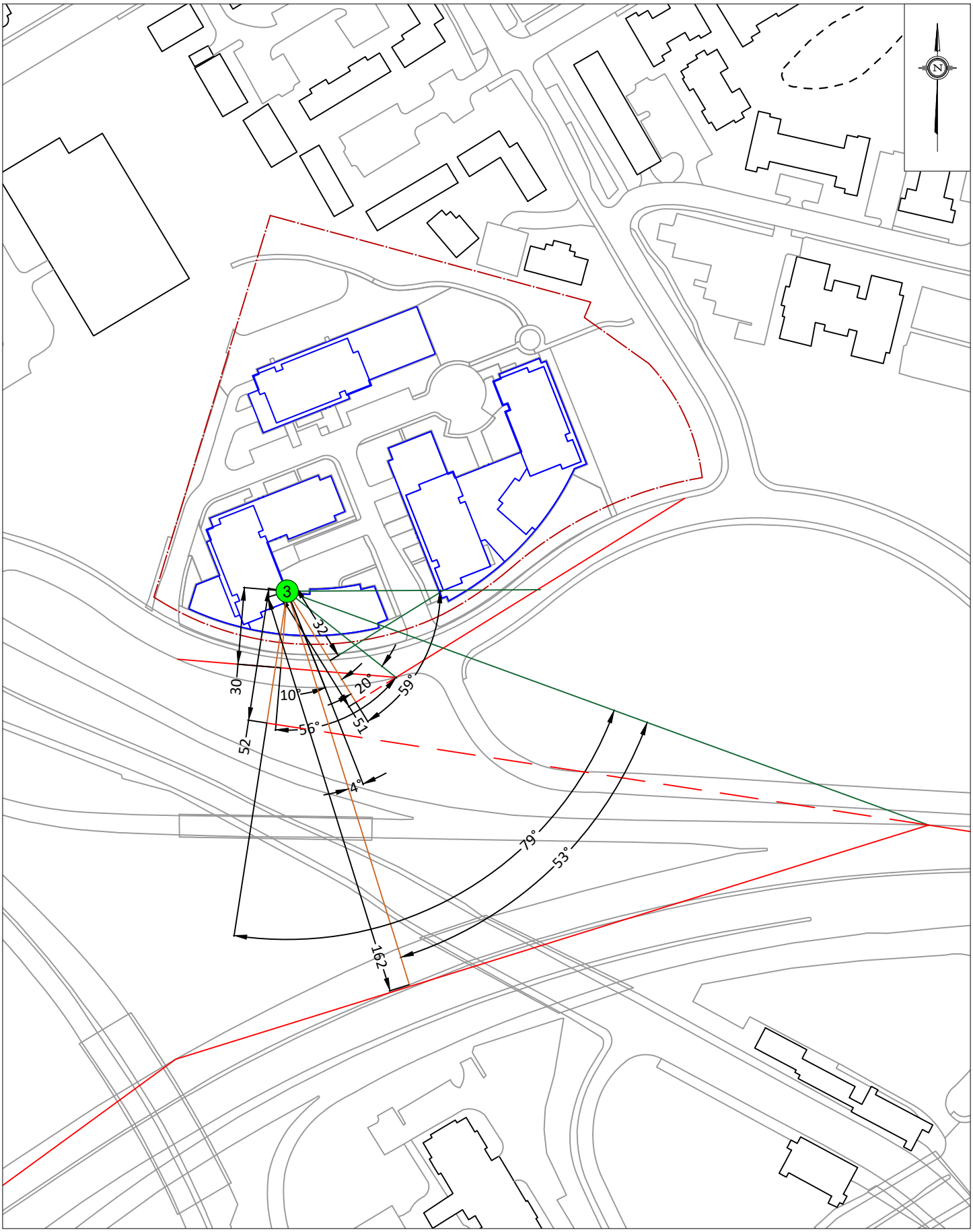
FIGURE 2A:
STAMSON INPUT PARAMETERS - RECEPTOR 2



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DESCRIPTION

FIGURE 3A:
STAMSON INPUT PARAMETERS - RECEPTOR 3

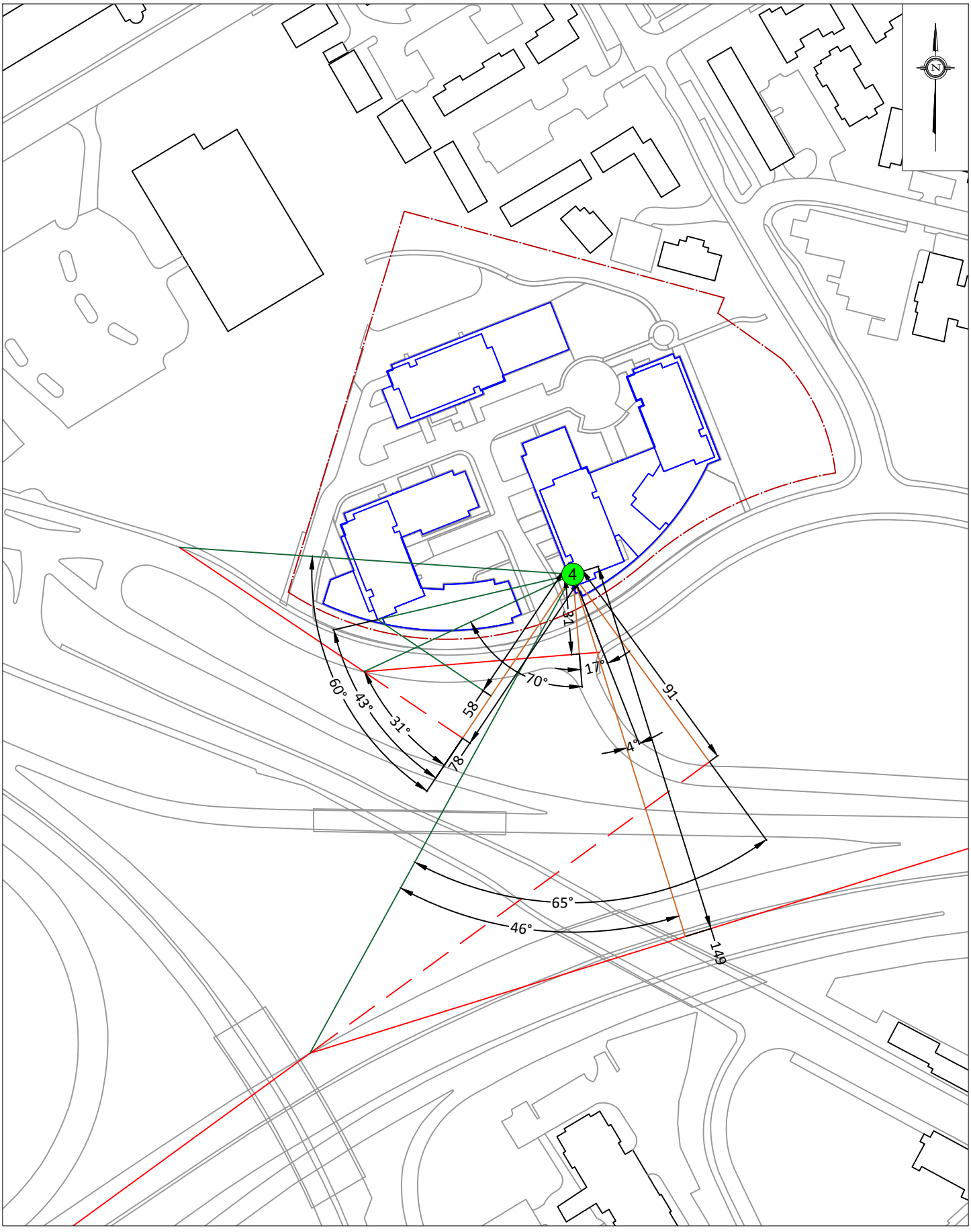

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FIGURE 4A:
STAMSON INPUT PARAMETERS - RECEPTOR 4

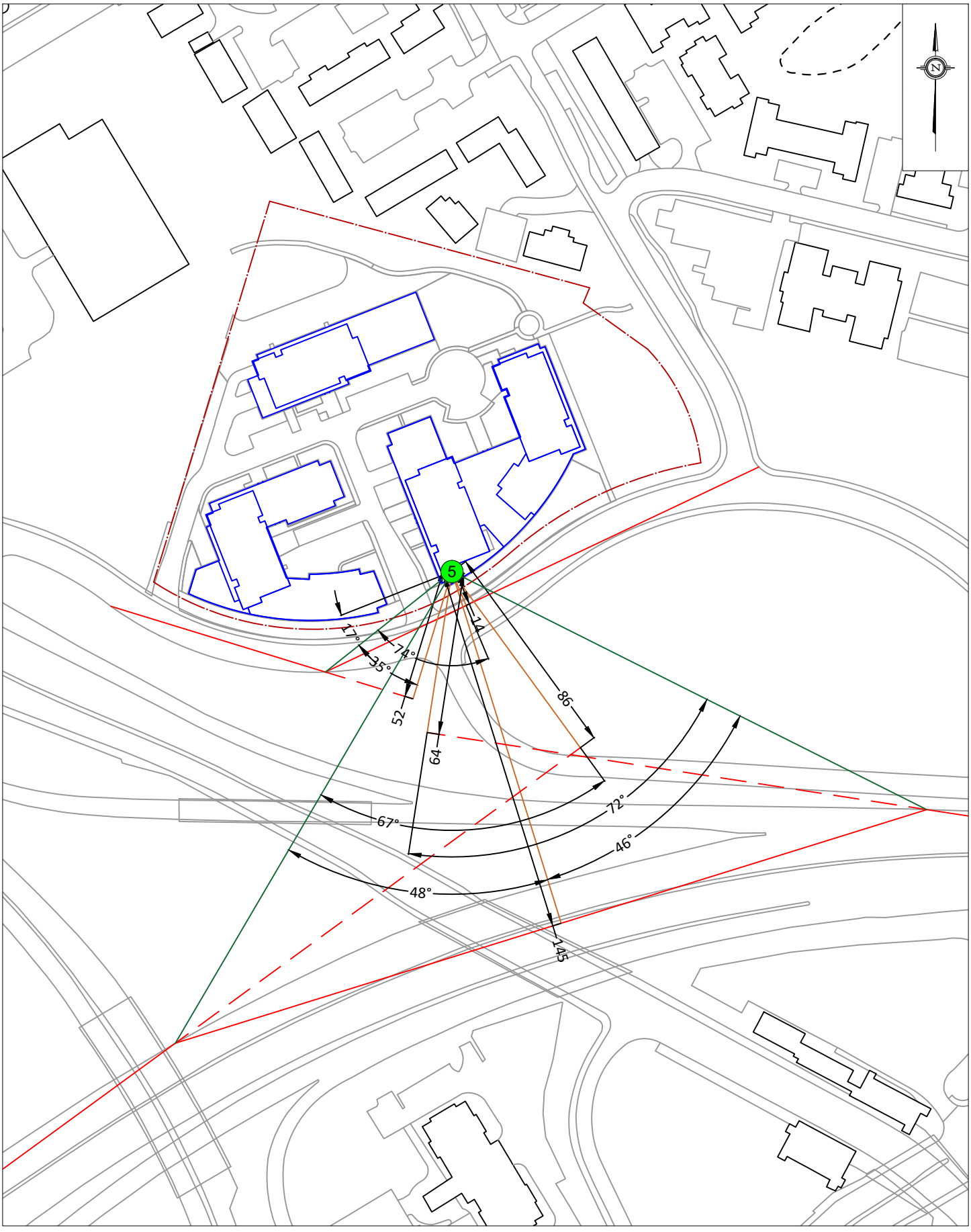

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FIGURE 5A:
STAMSON INPUT PARAMETERS - RECEPTOR 5

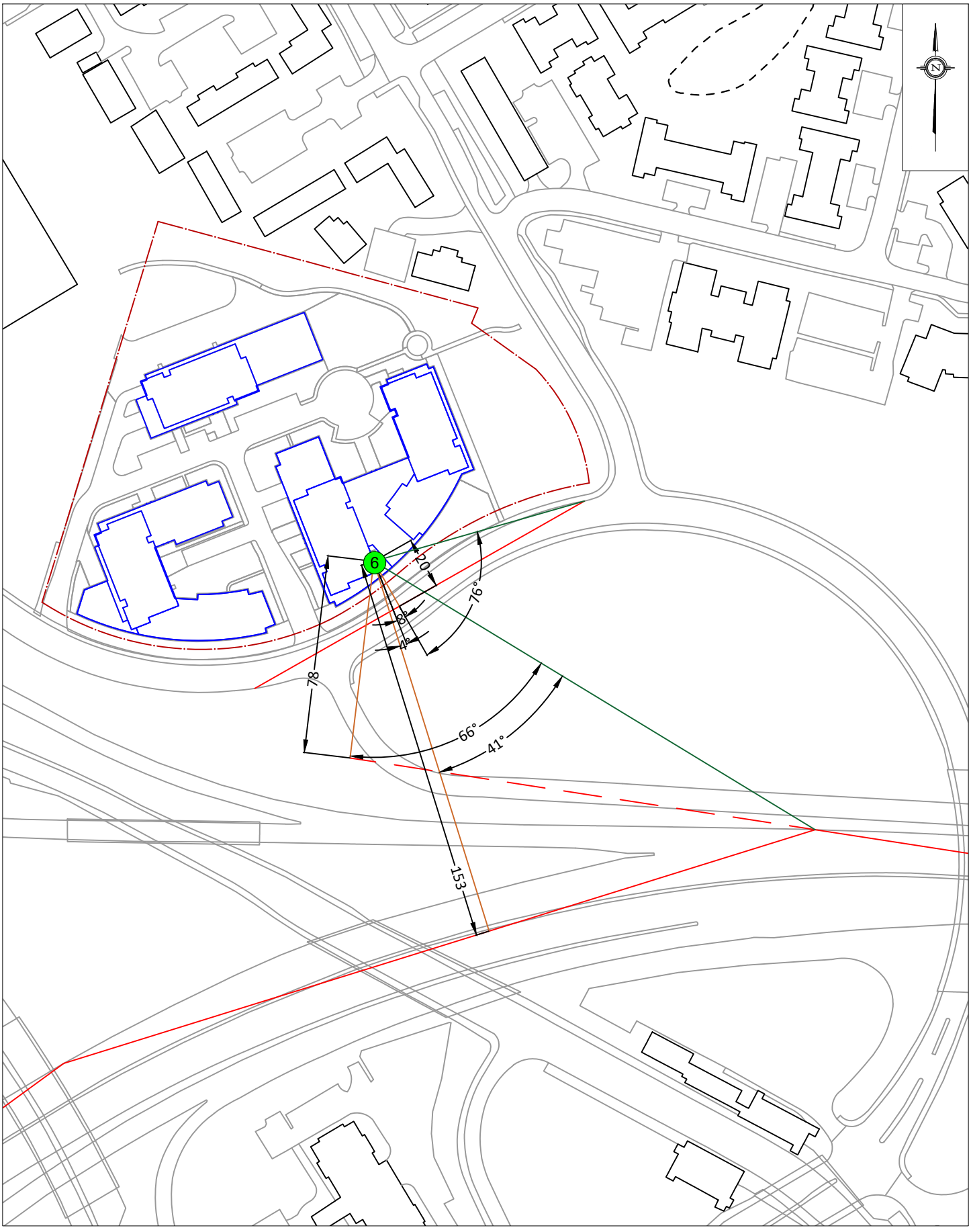

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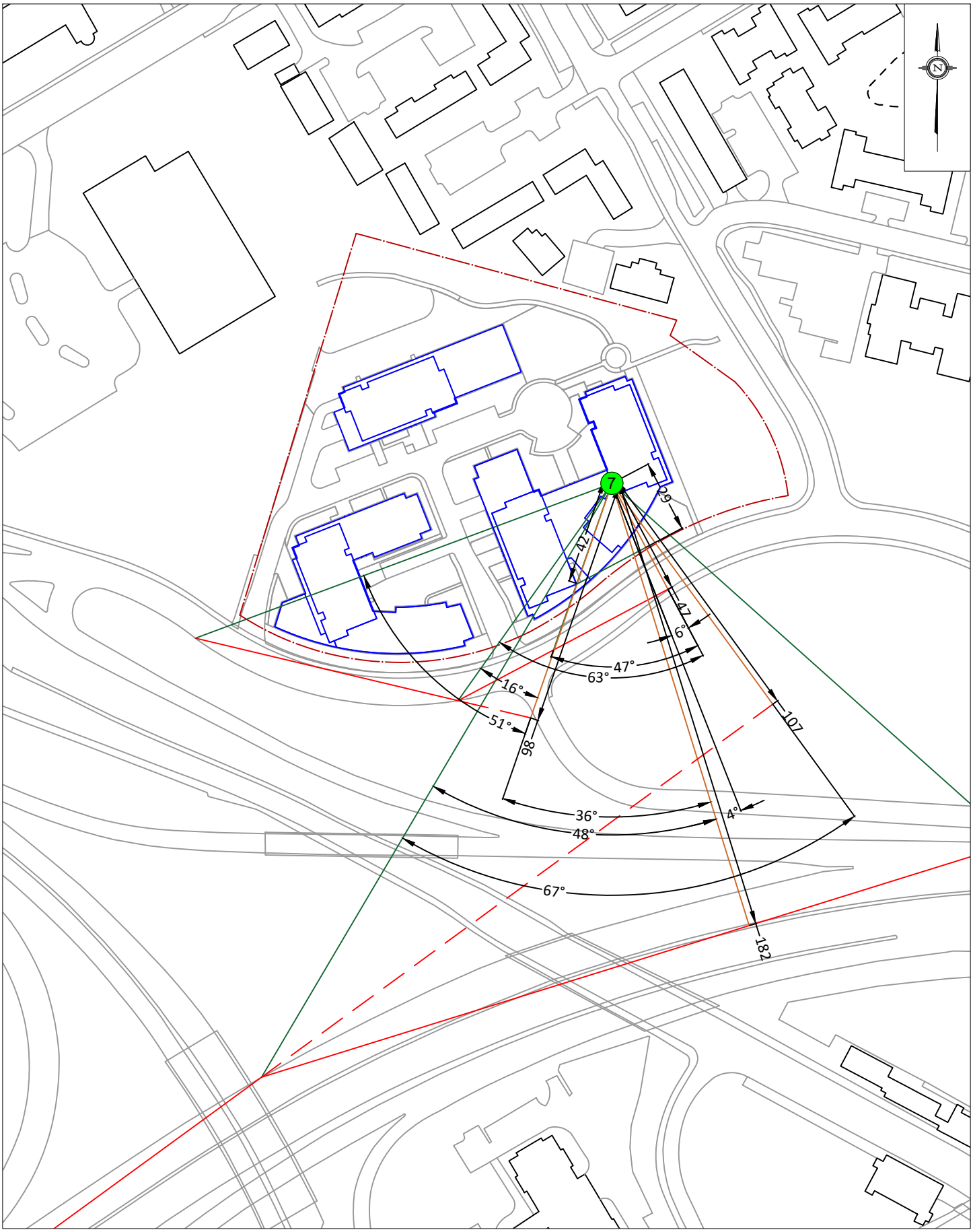
FIGURE 6A:
STAMSON INPUT PARAMETERS - RECEPTOR 6



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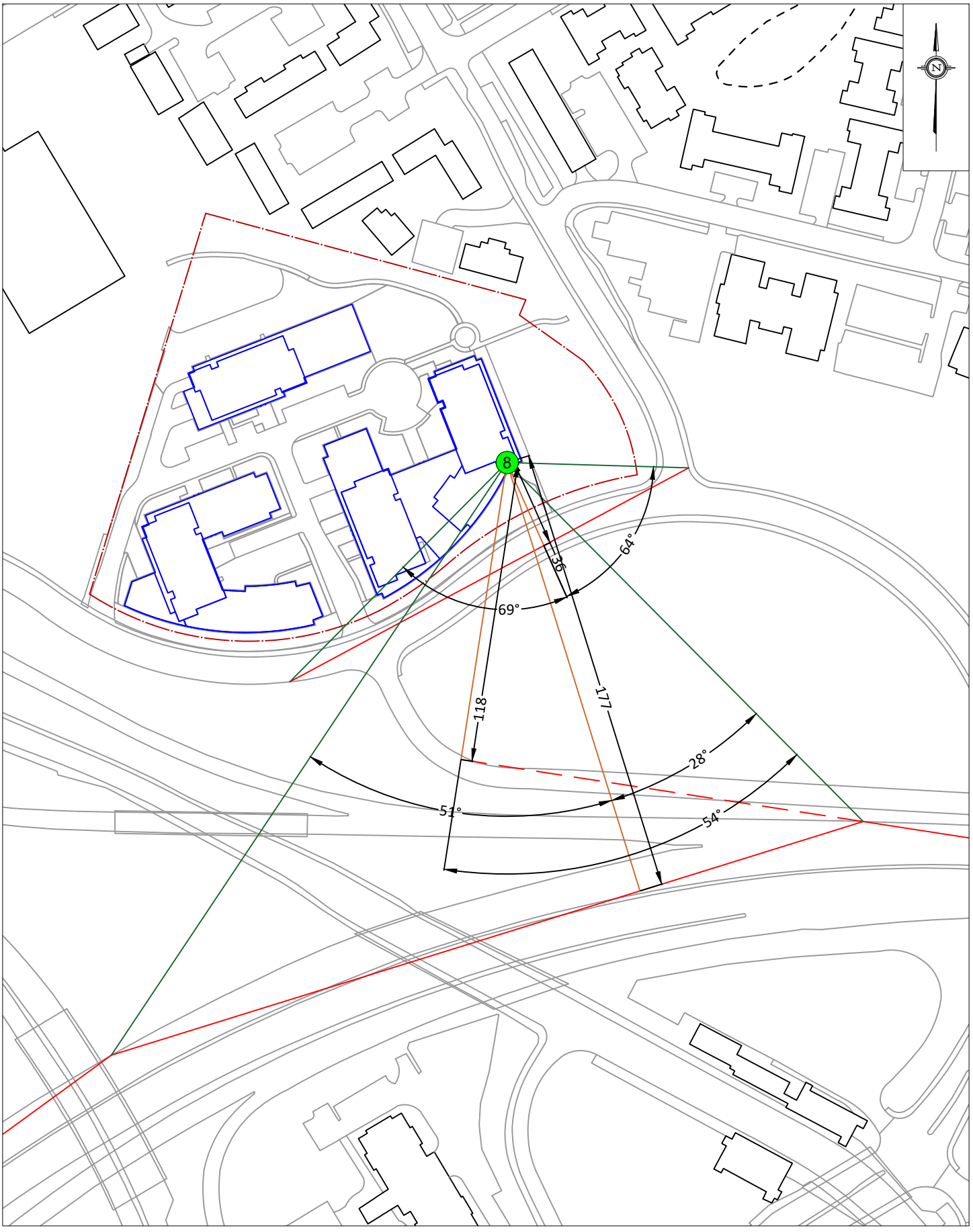
DESCRIPTION

FIGURE 7A:
STAMSON INPUT PARAMETERS - RECEPTOR 7



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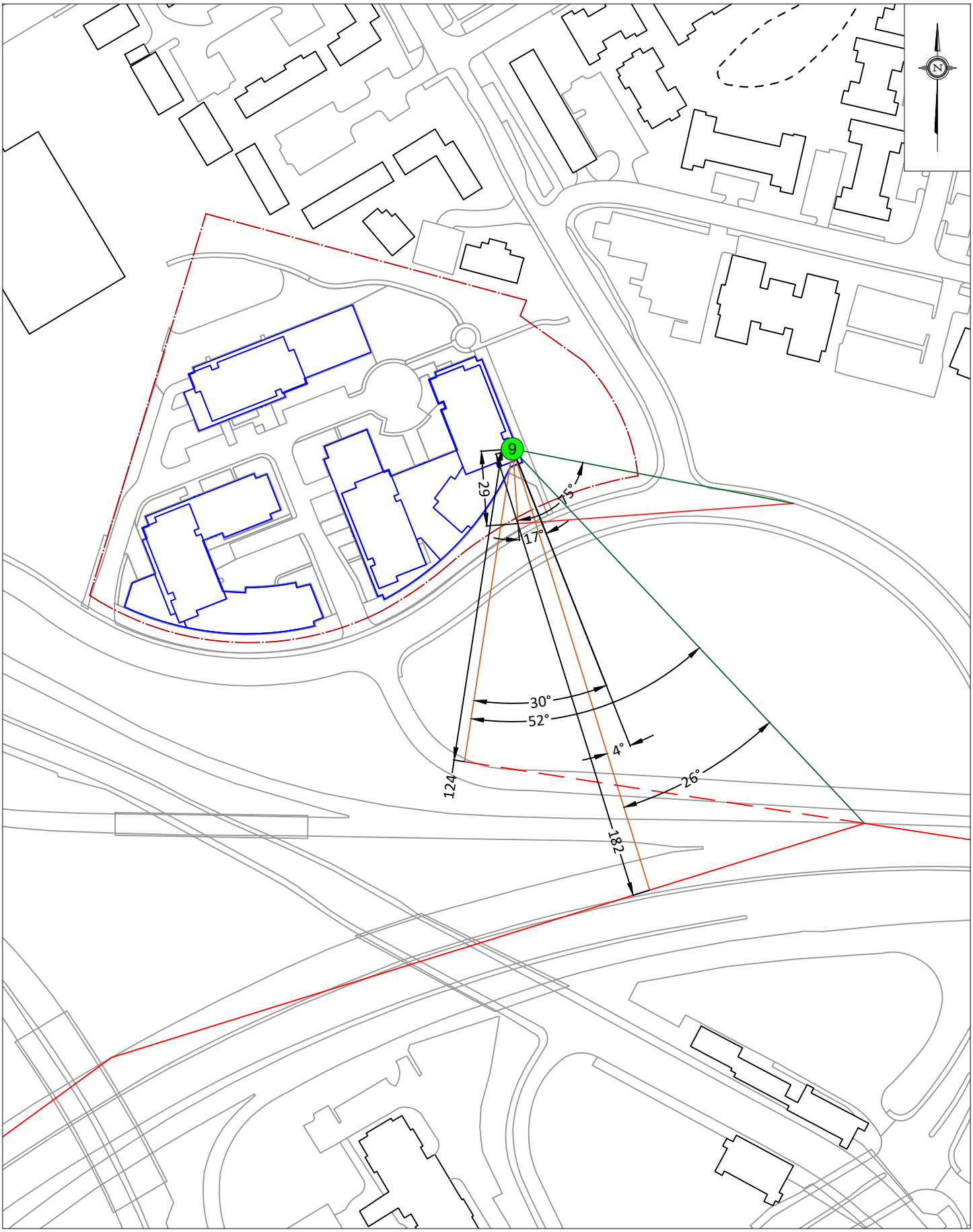
DESCRIPTION

FIGURE 8A:
STAMSON INPUT PARAMETERS - RECEPTOR 8



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DESCRIPTION

FIGURE 9A:
STAMSON INPUT PARAMETERS - RECEPTOR 9

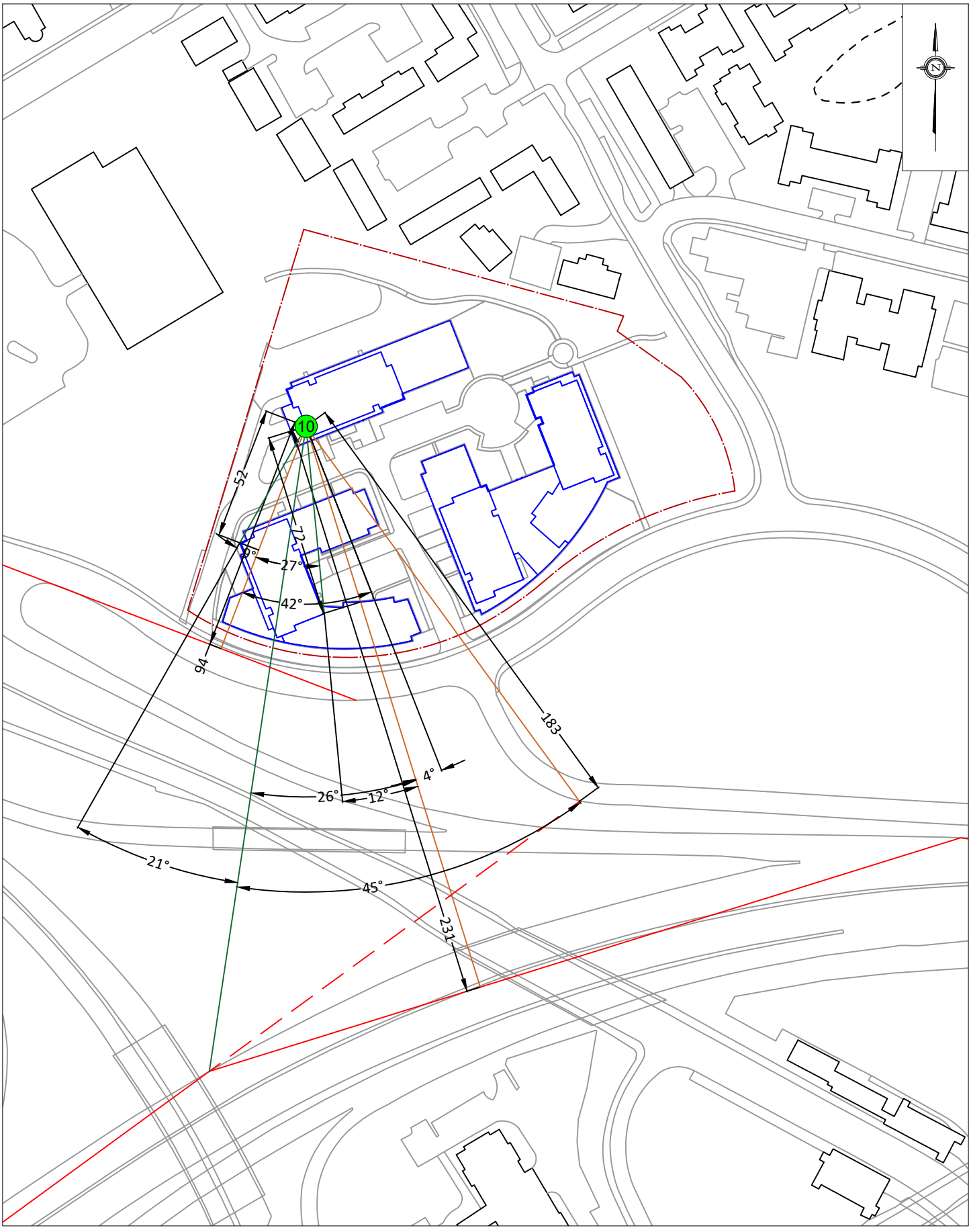

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FIGURE 10A:
STAMSON INPUT PARAMETERS - RECEPTOR 10

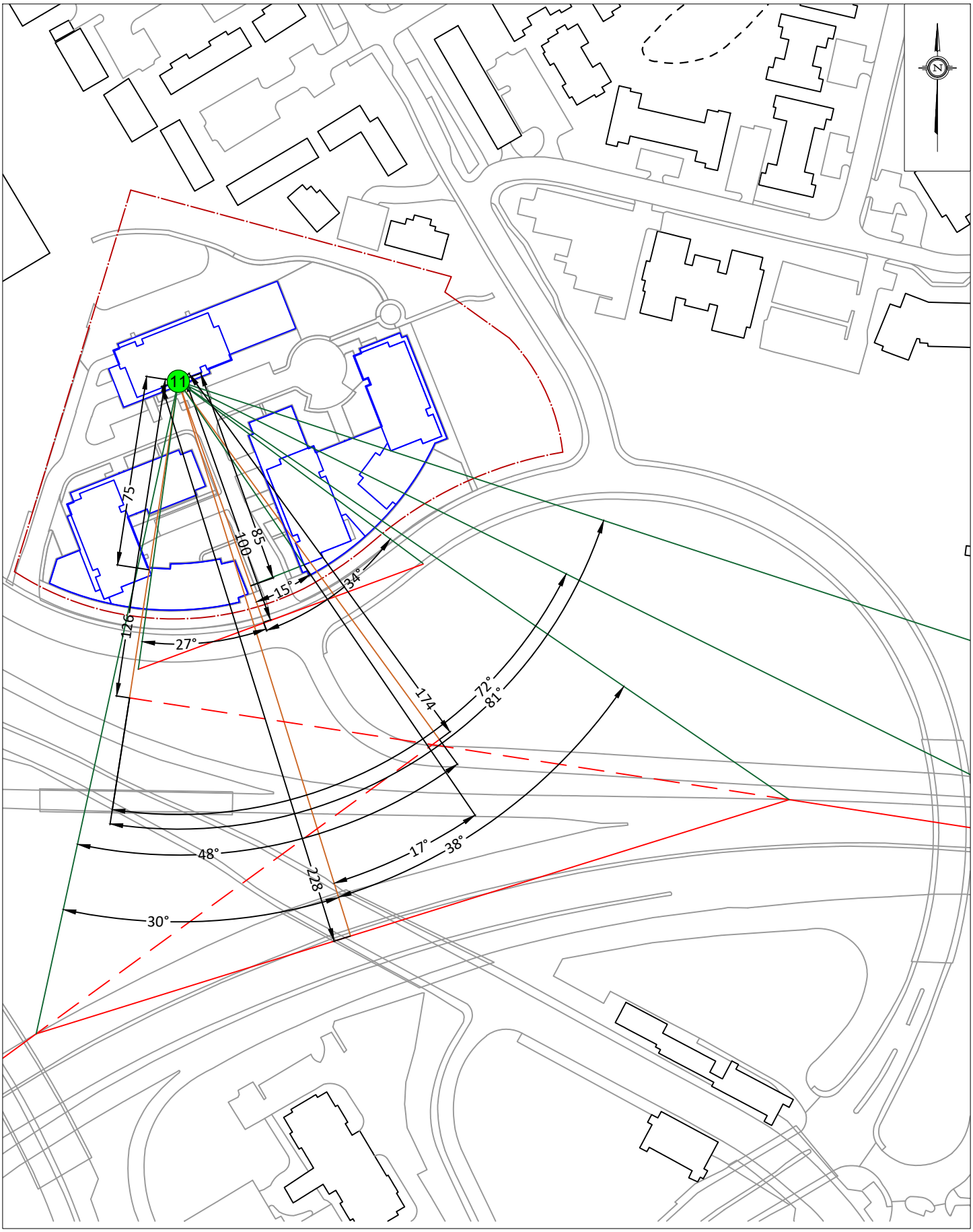

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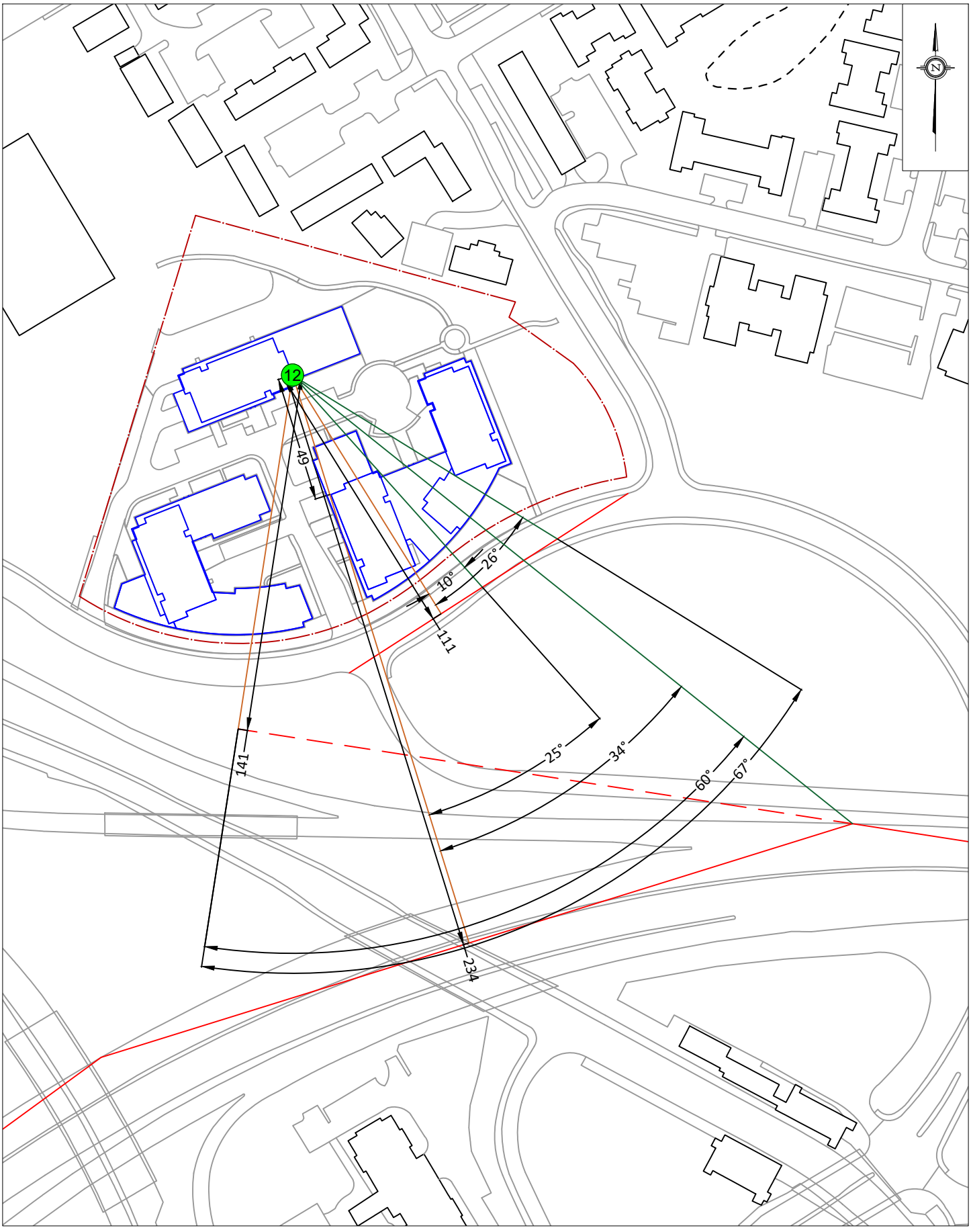
FIGURE 11A:
STAMSON INPUT PARAMETERS - RECEPTOR 11



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DESCRIPTION

FIGURE 12A:
STAMSON INPUT PARAMETERS - RECEPTOR 12

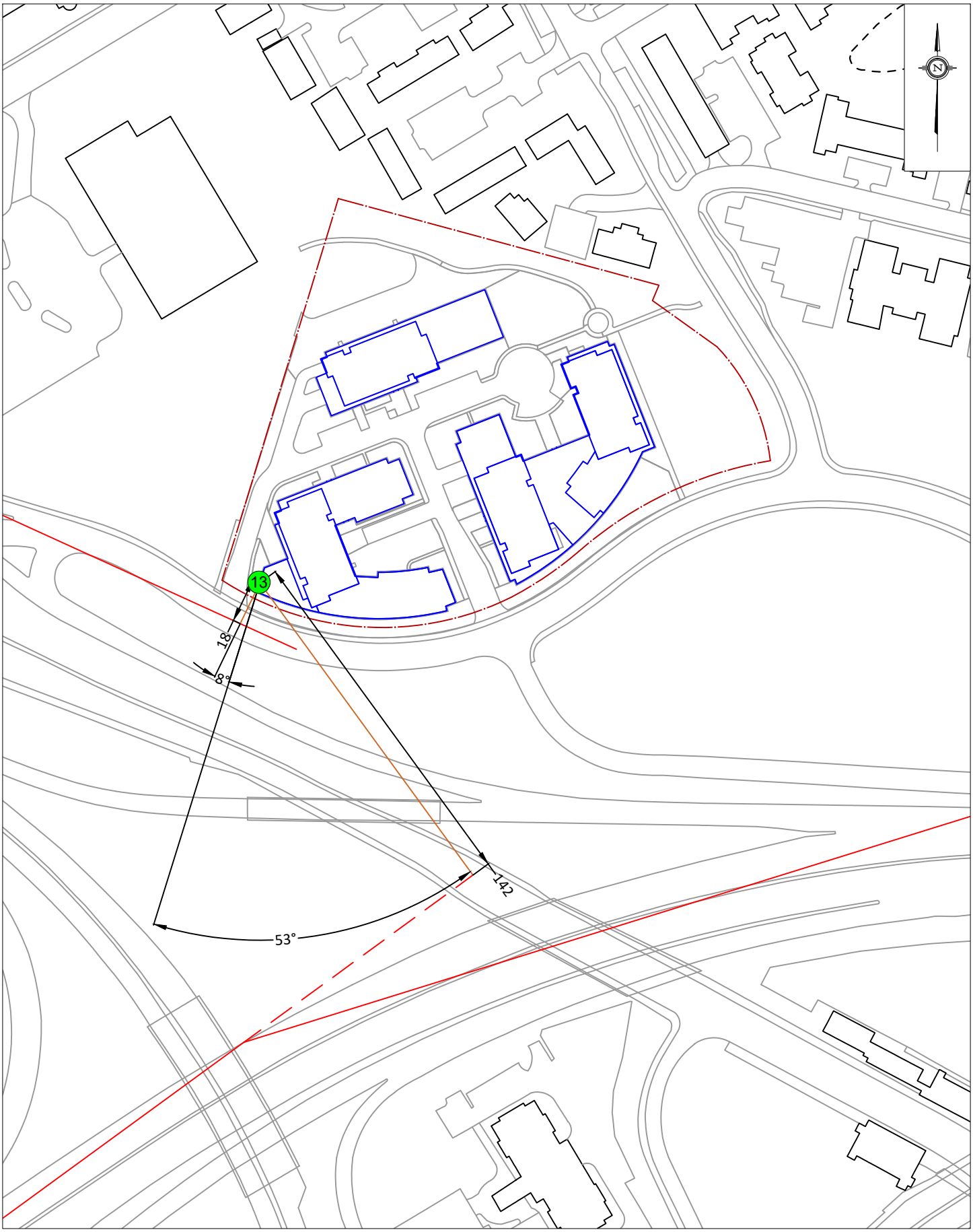

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FIGURE 13A:
STAMSON INPUT PARAMETERS - RECEPTOR 13

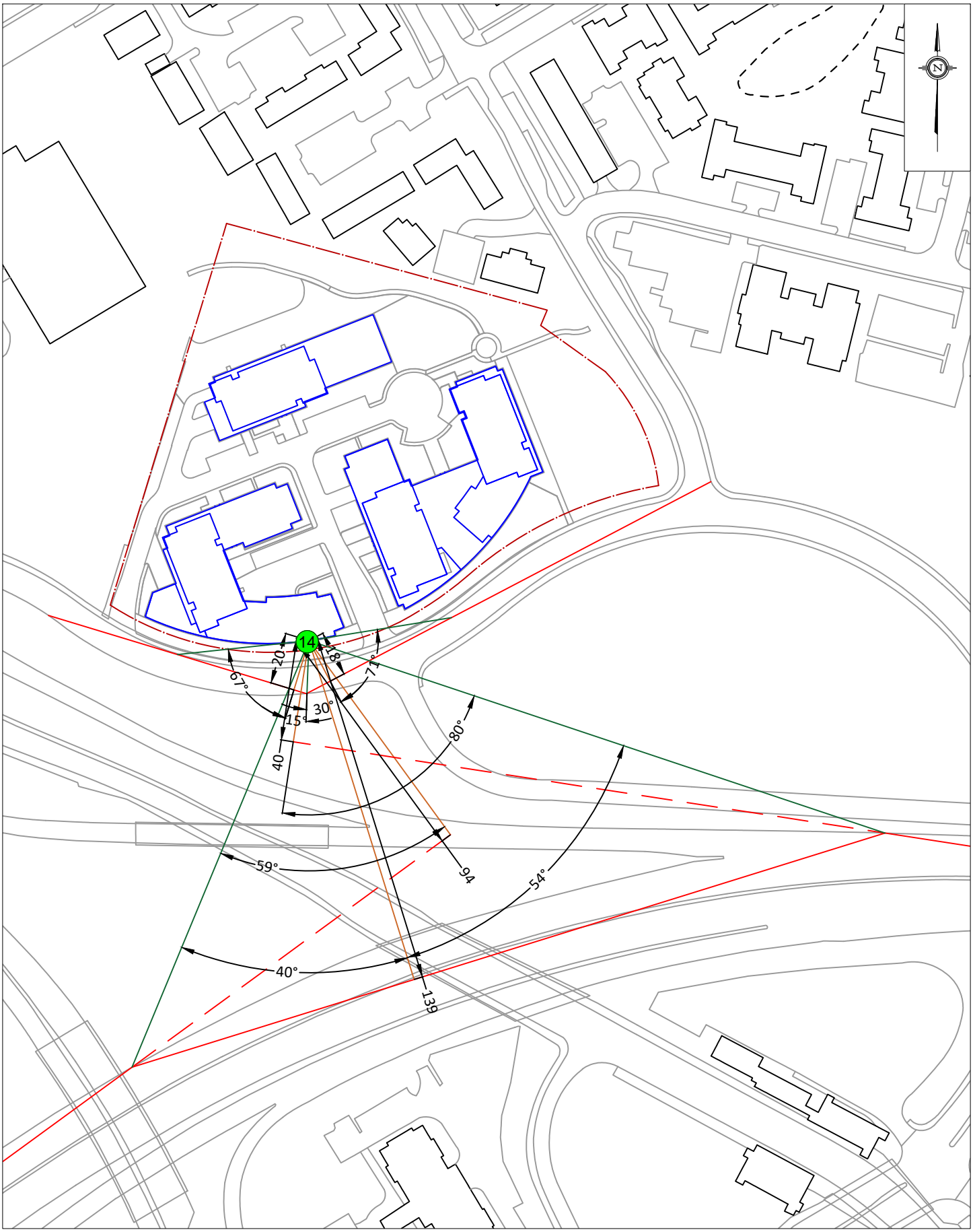

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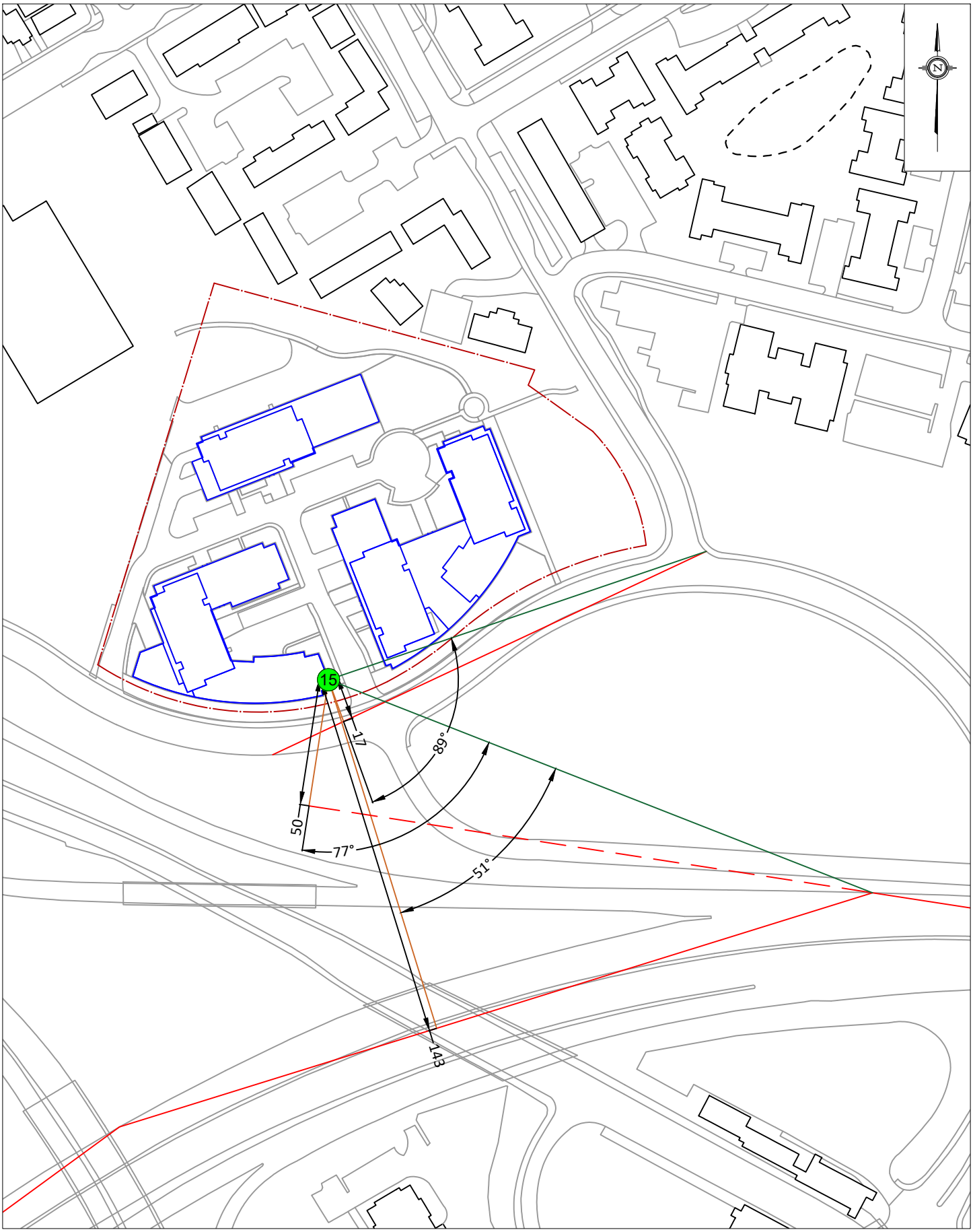
FIGURE 14A:
STAMSON INPUT PARAMETERS - RECEPTOR 14



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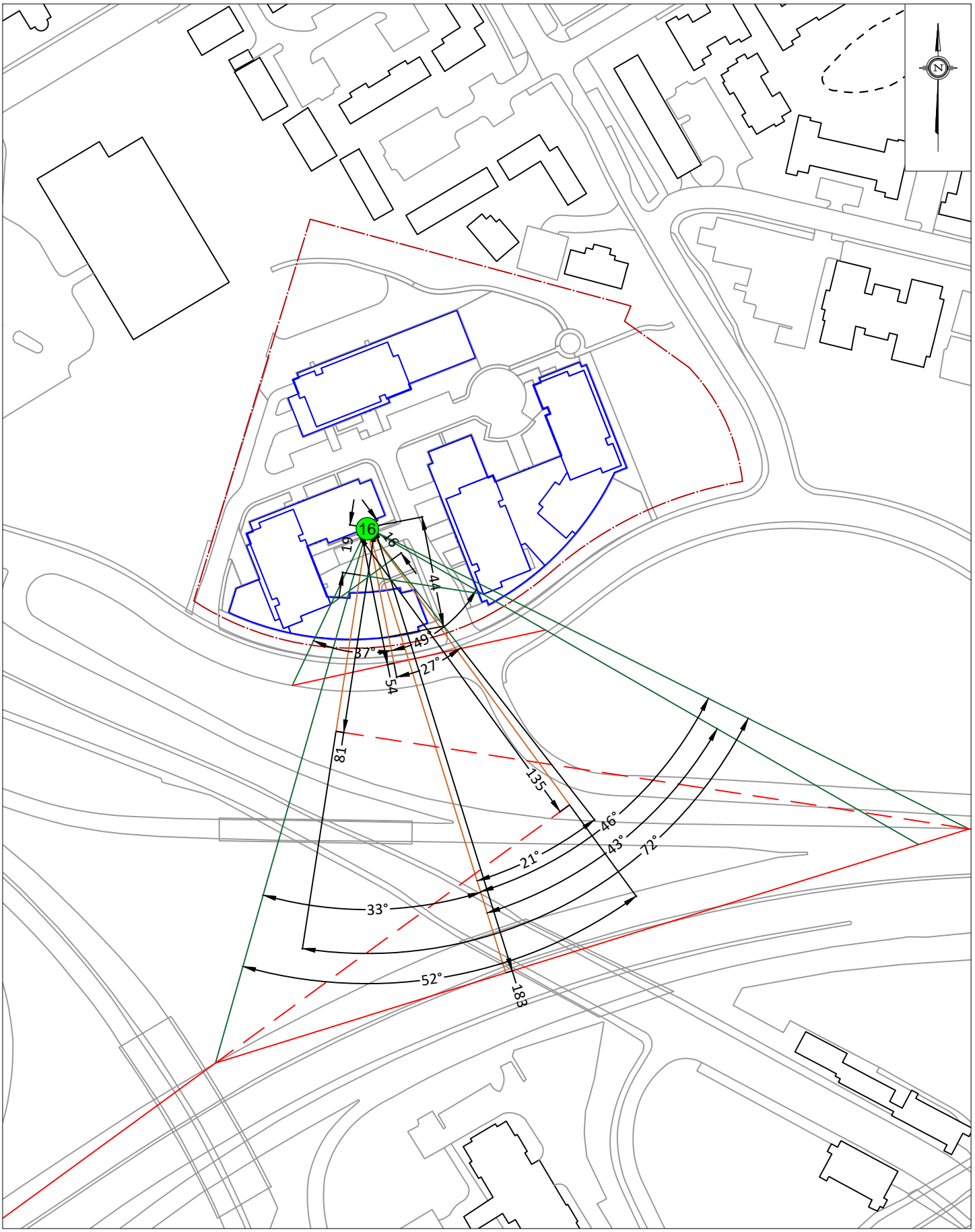
DESCRIPTION

FIGURE 15A:
STAMSON INPUT PARAMETERS - RECEPTOR 15



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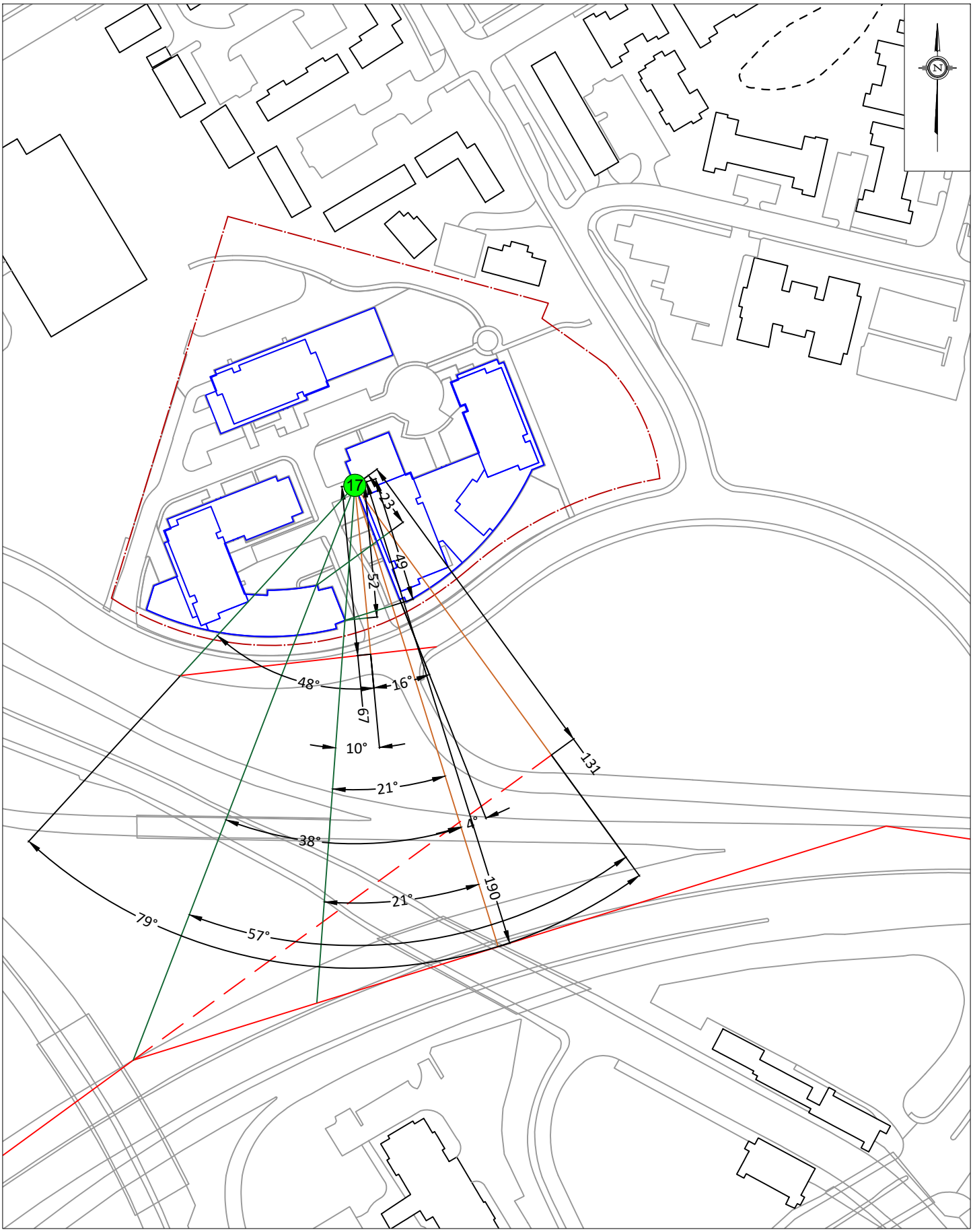
DESCRIPTION

FIGURE 16A:
STAMSON INPUT PARAMETERS - RECEPTOR 16



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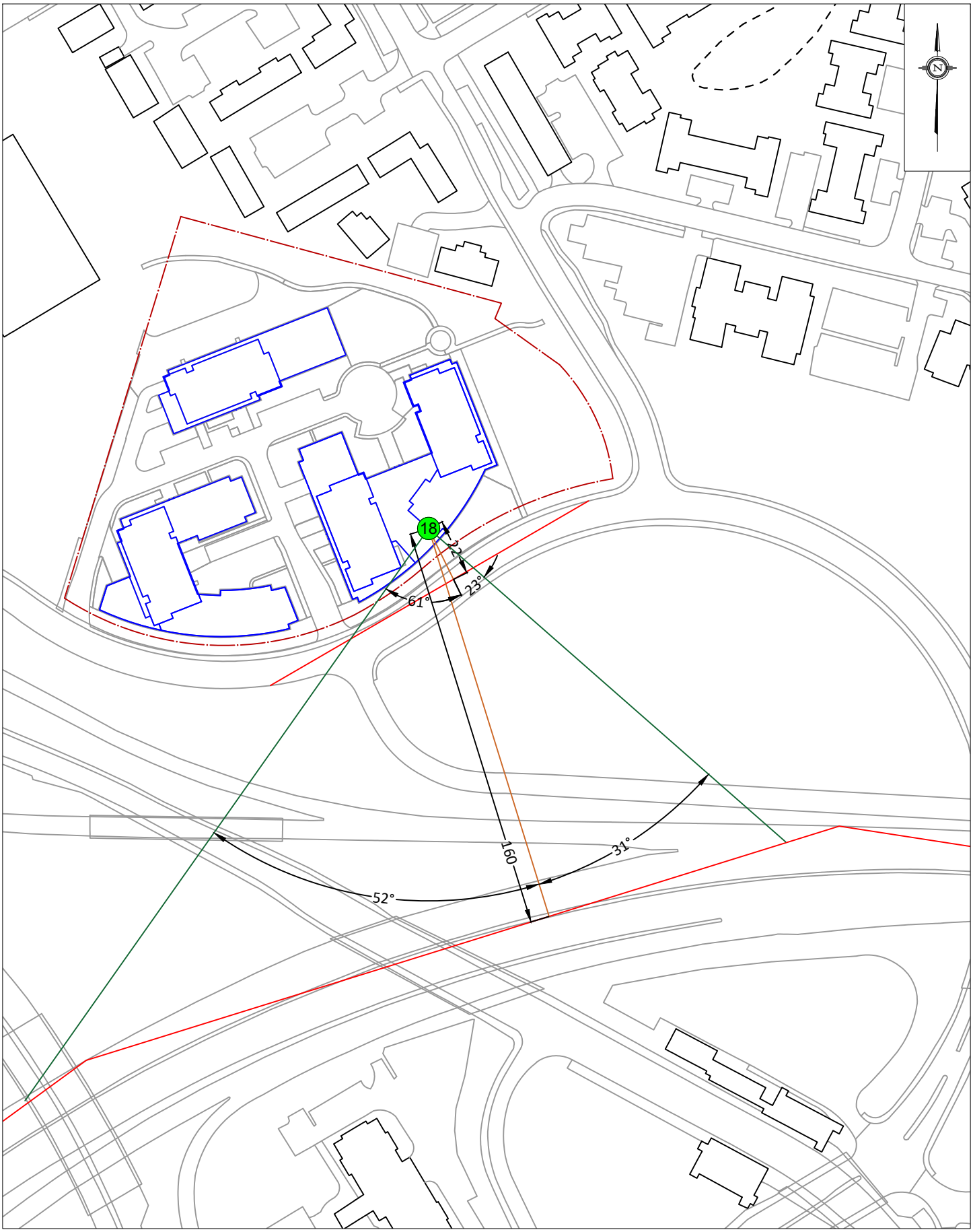
DRAWING NO.	GW20-219-17A
DATE	JULY 2, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 17A:
STAMSON INPUT PARAMETERS - RECEPTOR 17



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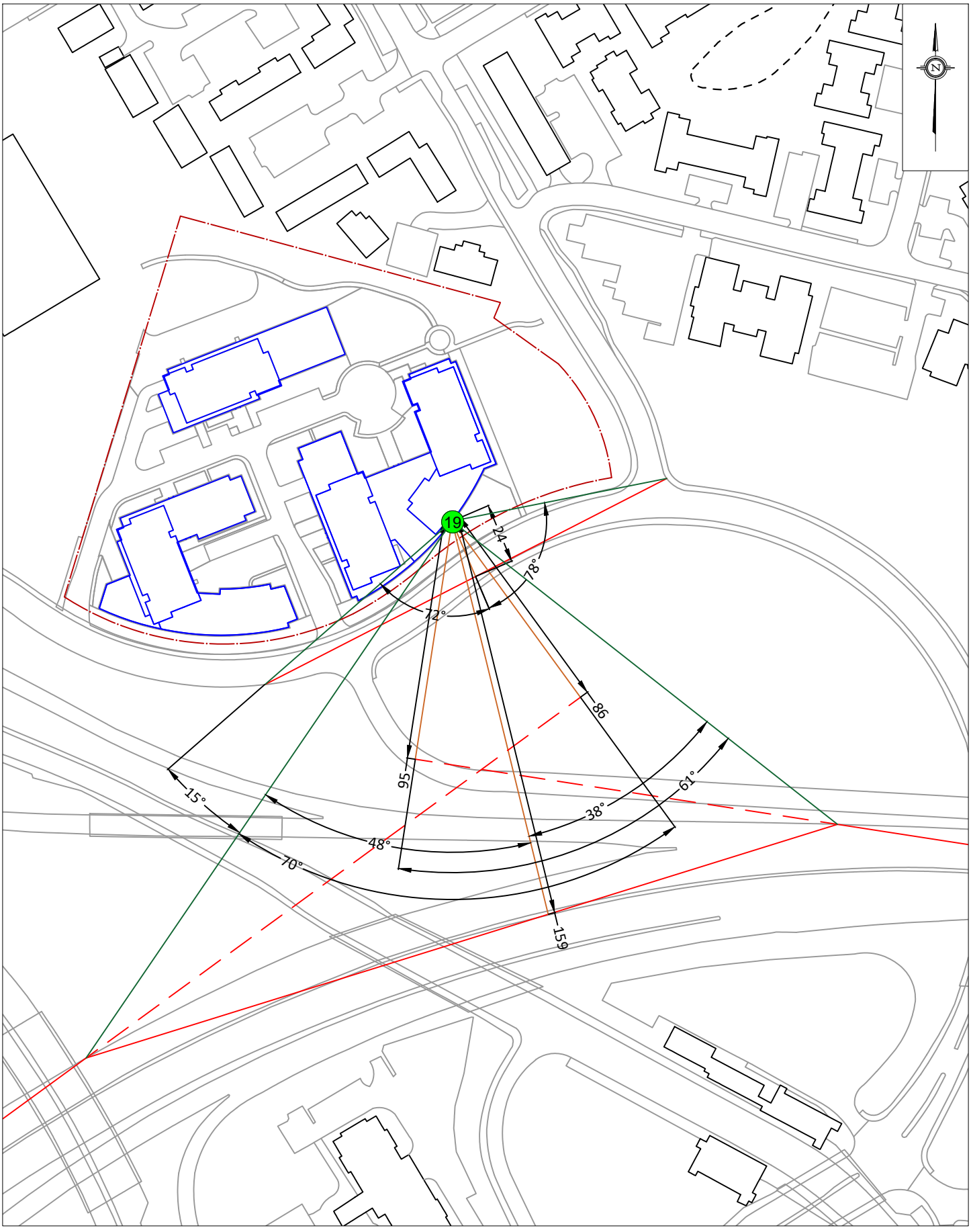
SCALE: 1:2000 (APPROX.)
DRAWING NO.: GW20-219-18A
DATE: JULY 2, 2021
DRAWN BY: T.M.F.

DESCRIPTION

FIGURE 18A:
STAMSON INPUT PARAMETERS - RECEPTOR 18



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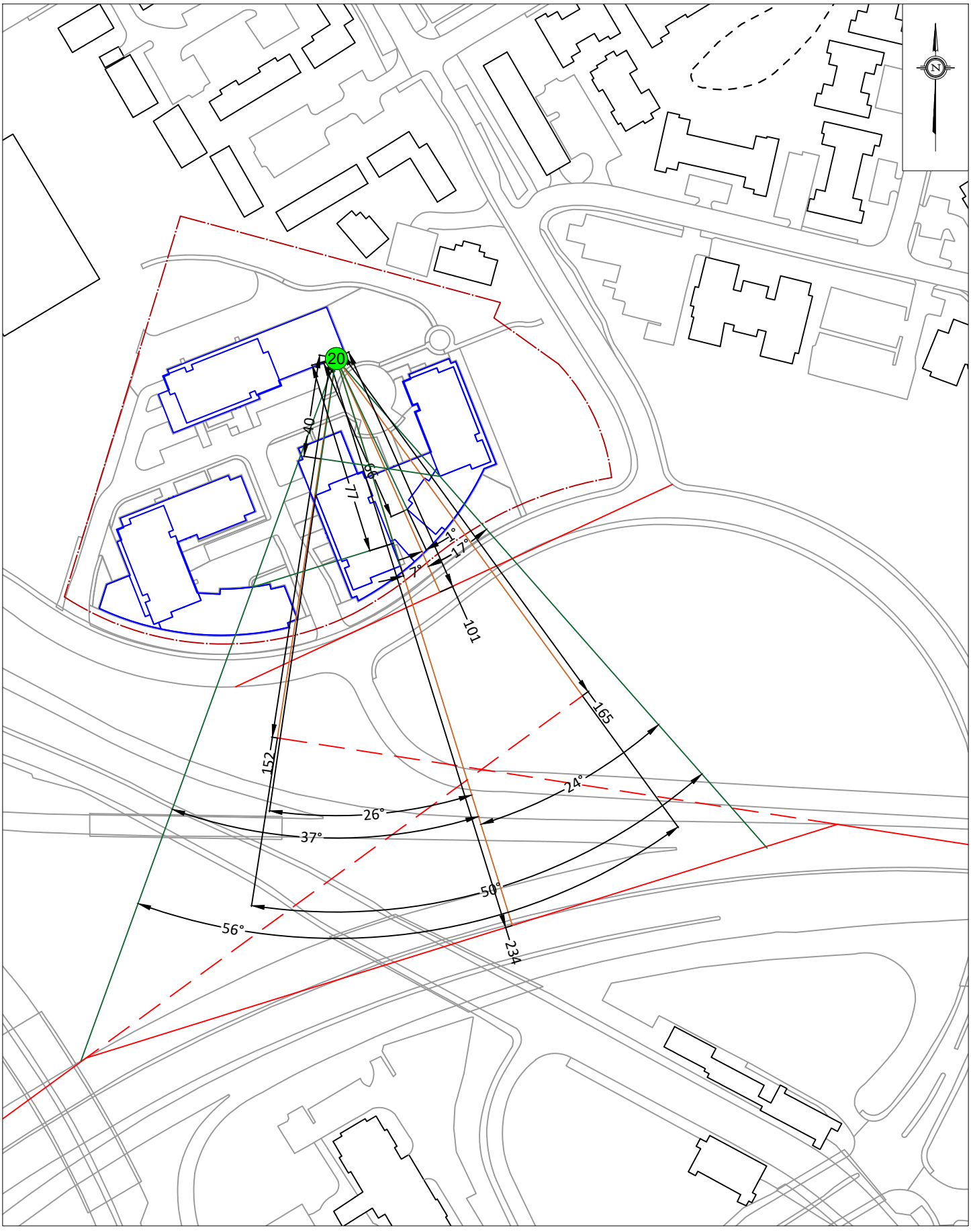
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-19A
DATE	JULY 2, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 19A:
STAMSON INPUT PARAMETERS - RECEPTOR 19



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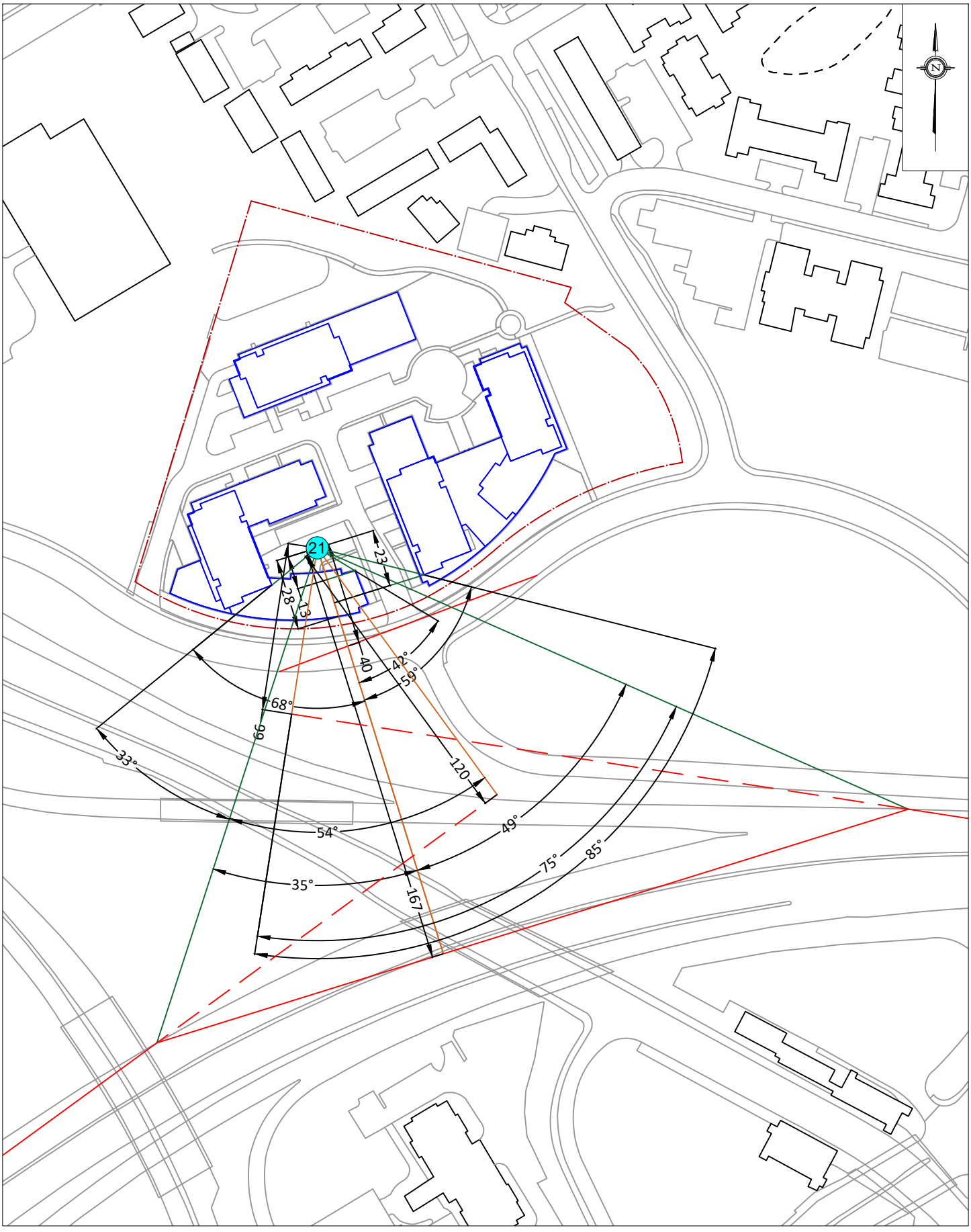
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-20A
DATE	JULY 2, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 20A:
STAMSON INPUT PARAMETERS - RECEPTOR 20



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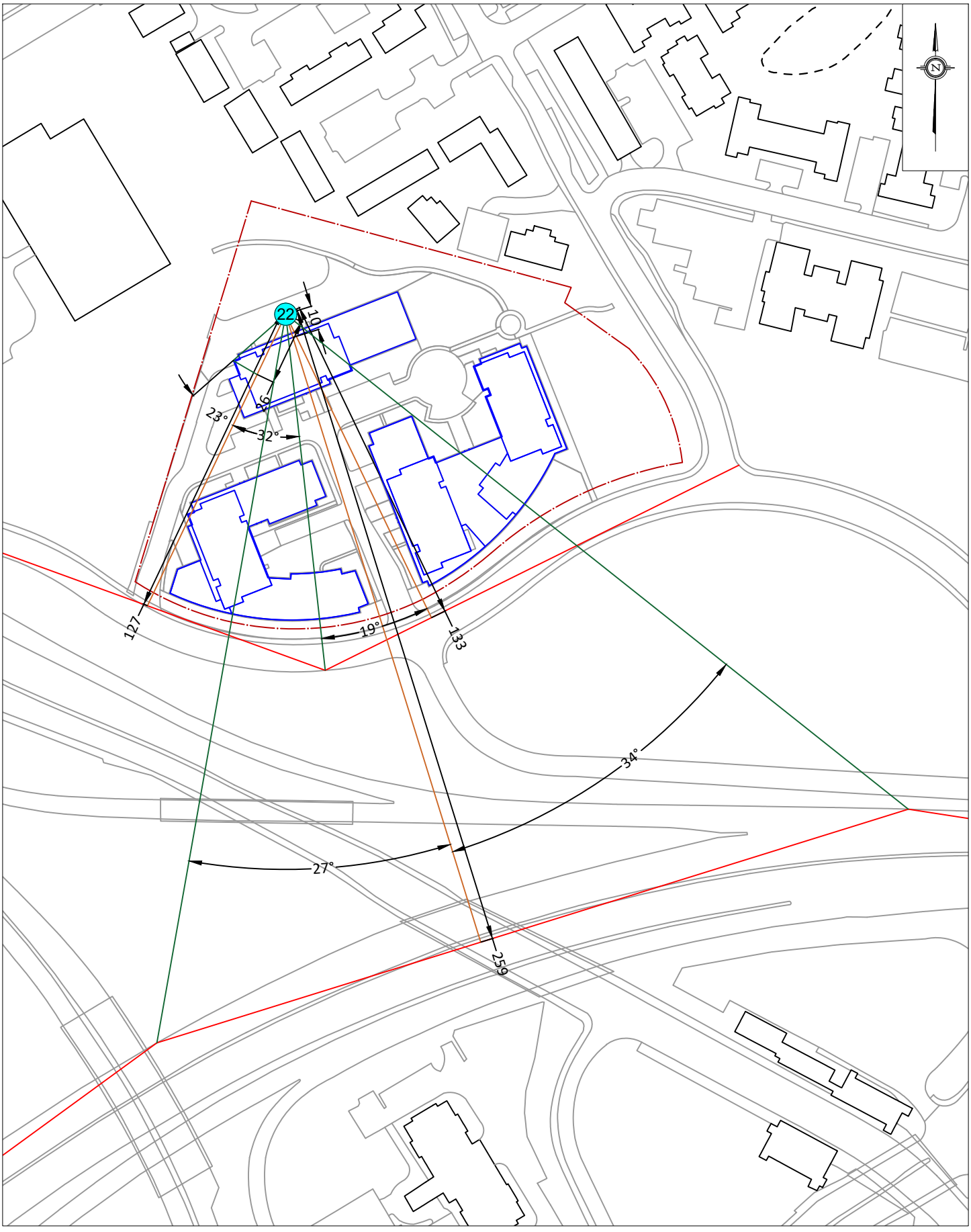
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-21A
DATE	JULY 2, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 21A:
STAMSON INPUT PARAMETERS - RECEPTOR 21



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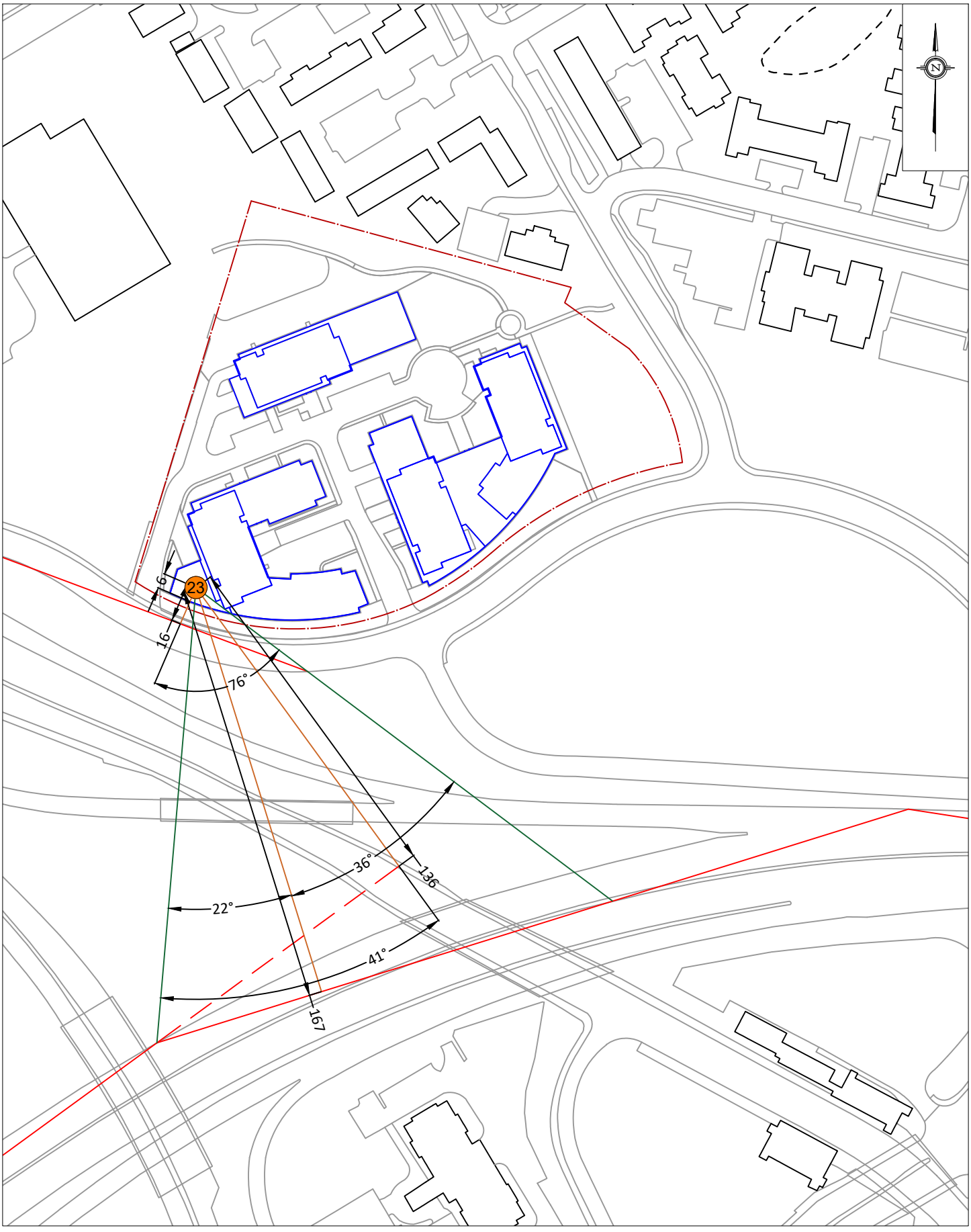
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-22A
DATE	JULY 2, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 22A:
STAMSON INPUT PARAMETERS - RECEPTOR 22



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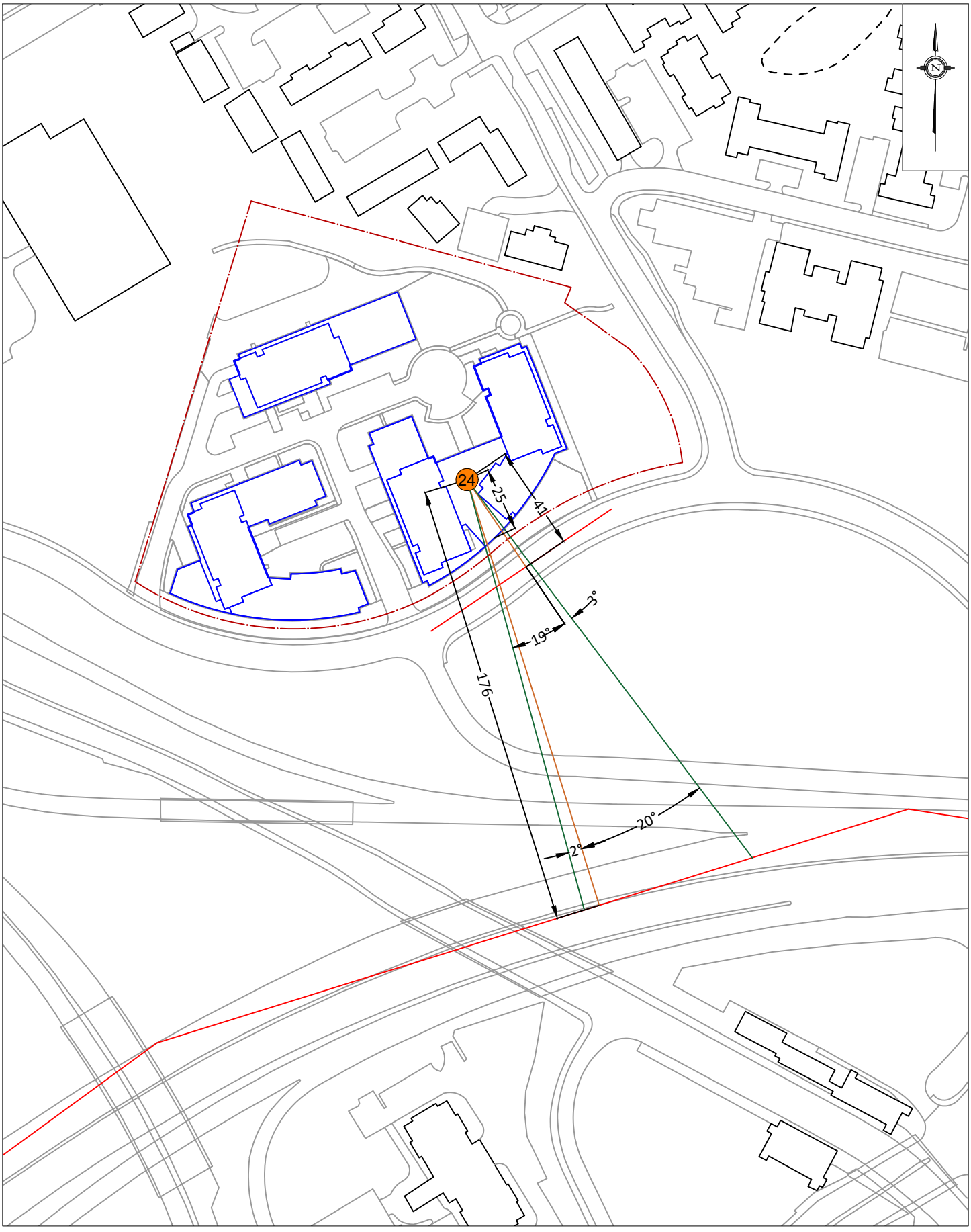
SCALE	1:2000 (APPROX.)	DRAWING NO.	GW20-219-23A
DATE	JULY 5, 2021	DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 23A:
STAMSON INPUT PARAMETERS - RECEPTOR 23



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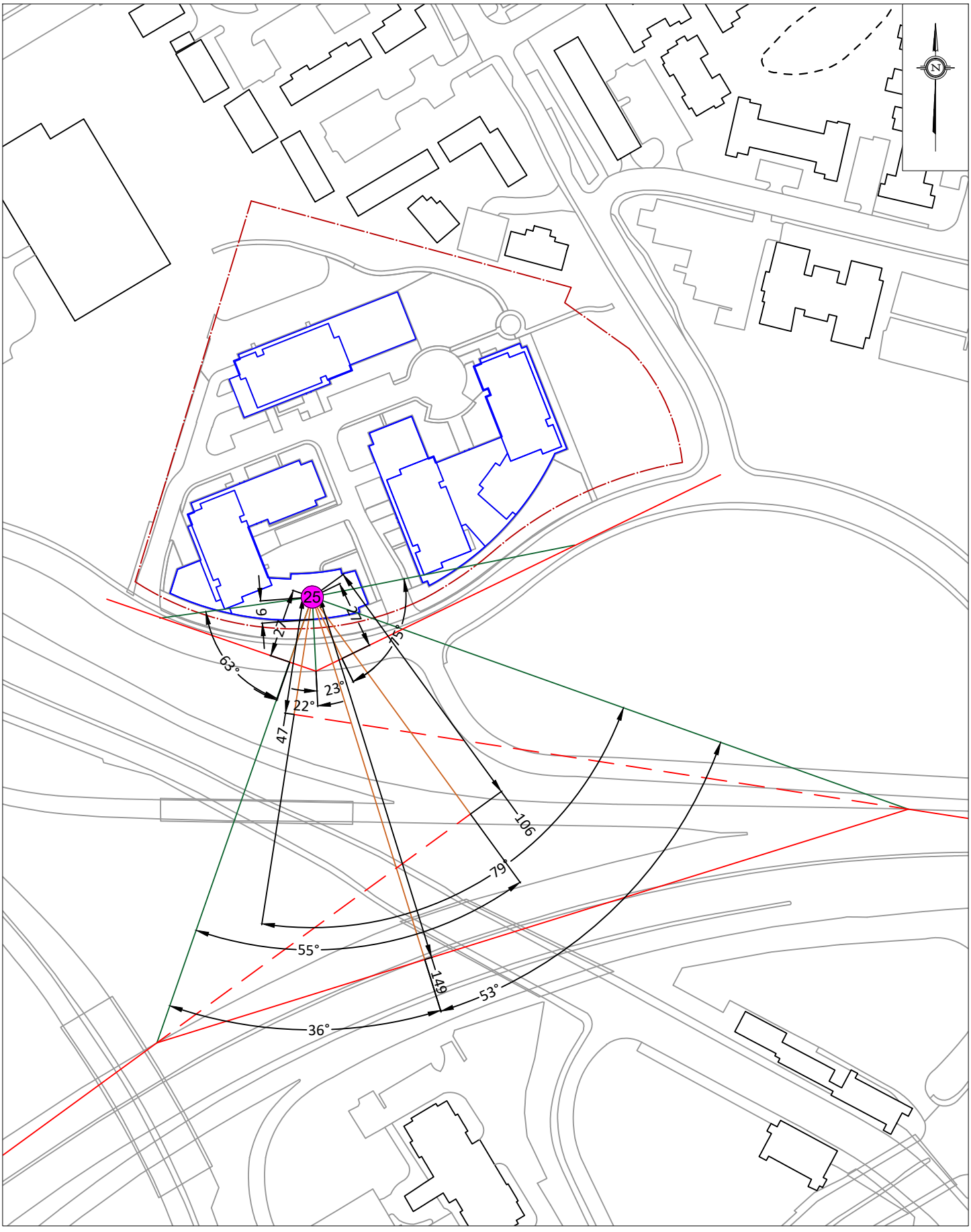
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-24A
DATE	JULY 5, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 24A:
STAMSON INPUT PARAMETERS - RECEPTOR 24



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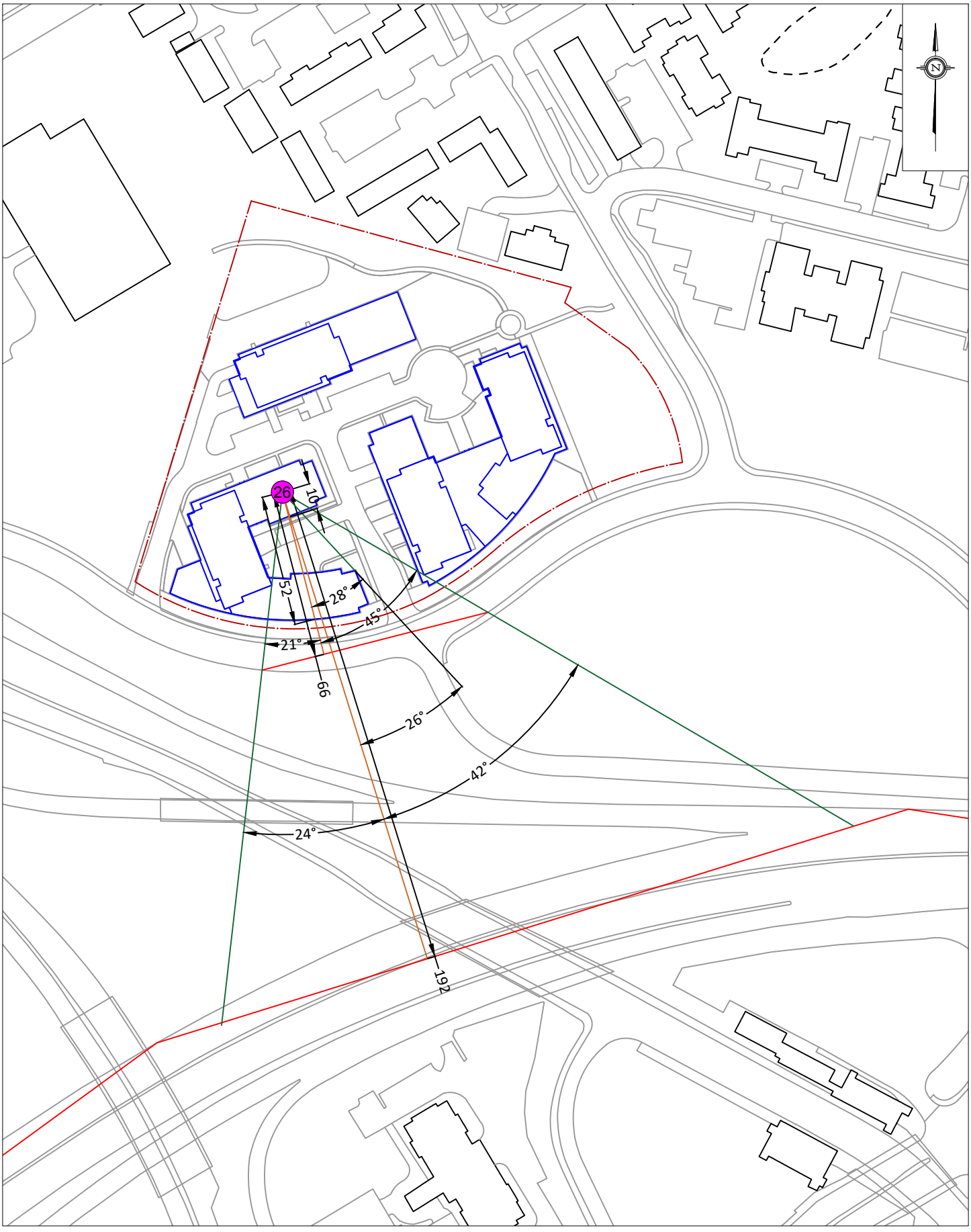
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-25A
DATE	JULY 5, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 25A:
STAMSON INPUT PARAMETERS - RECEPTOR 25



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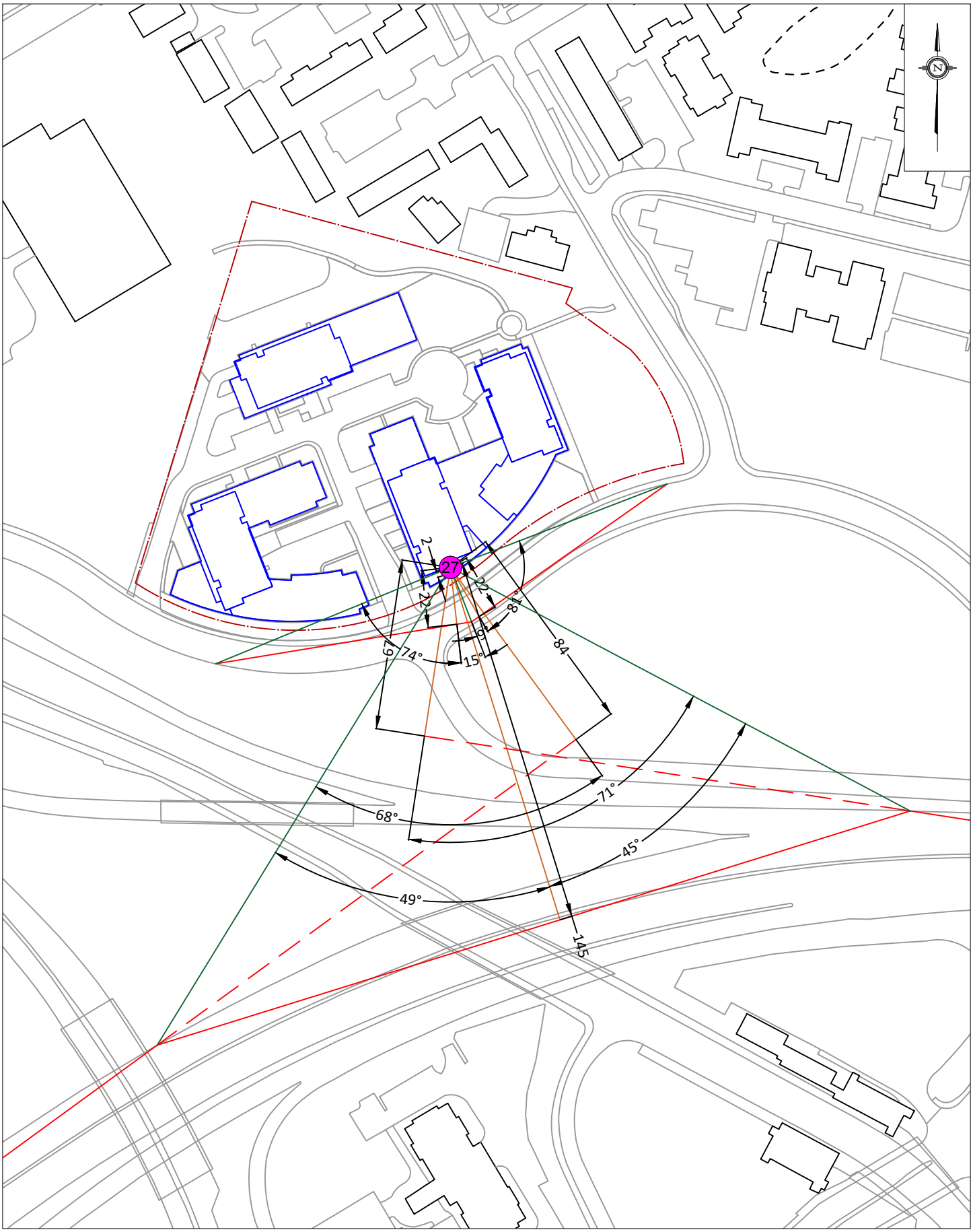
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-26A
DATE	JULY 5, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 26A:
STAMSON INPUT PARAMETERS - RECEPTOR 26



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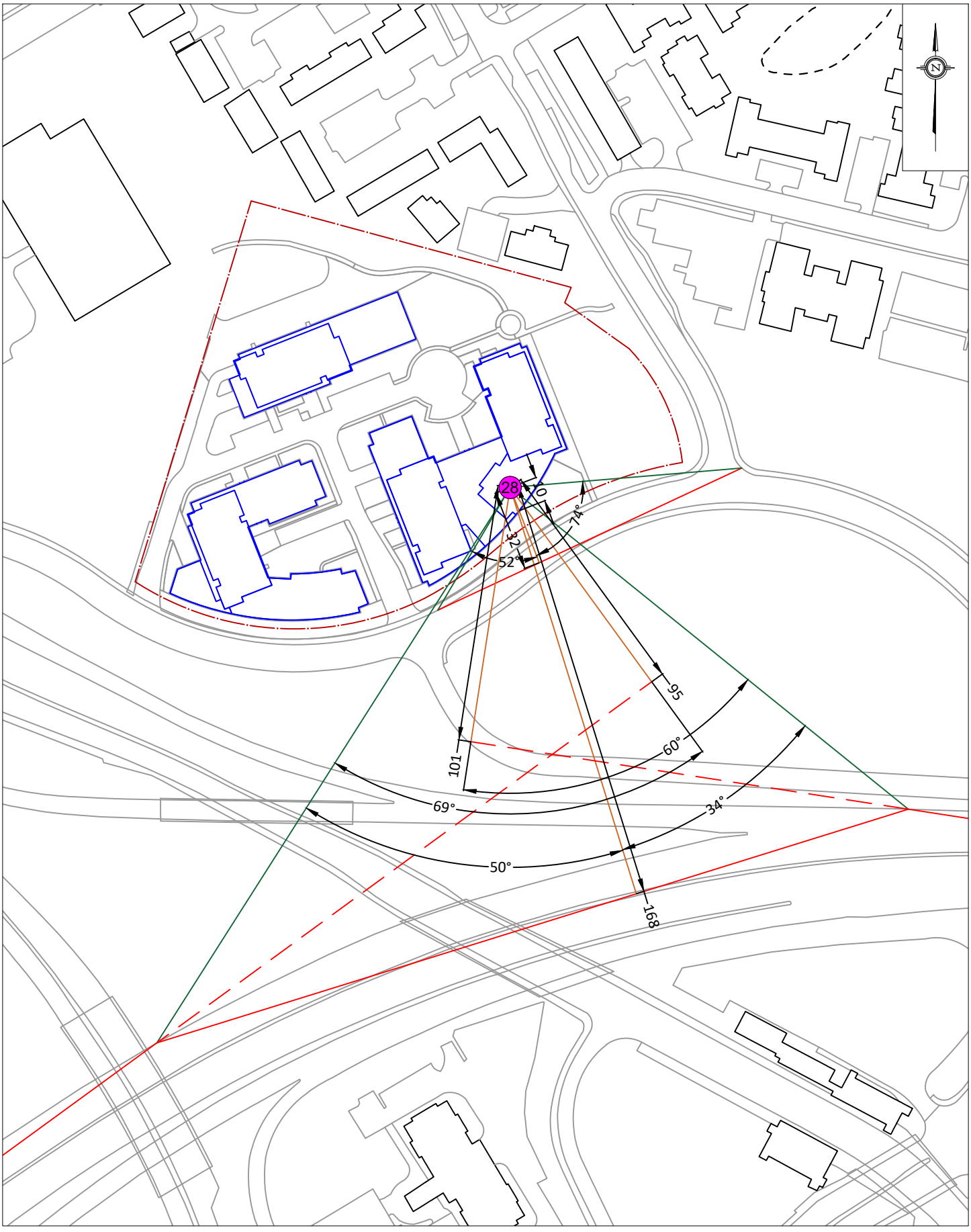
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-27A
DATE	JULY 6, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 27A:
STAMSON INPUT PARAMETERS - RECEPTOR 27



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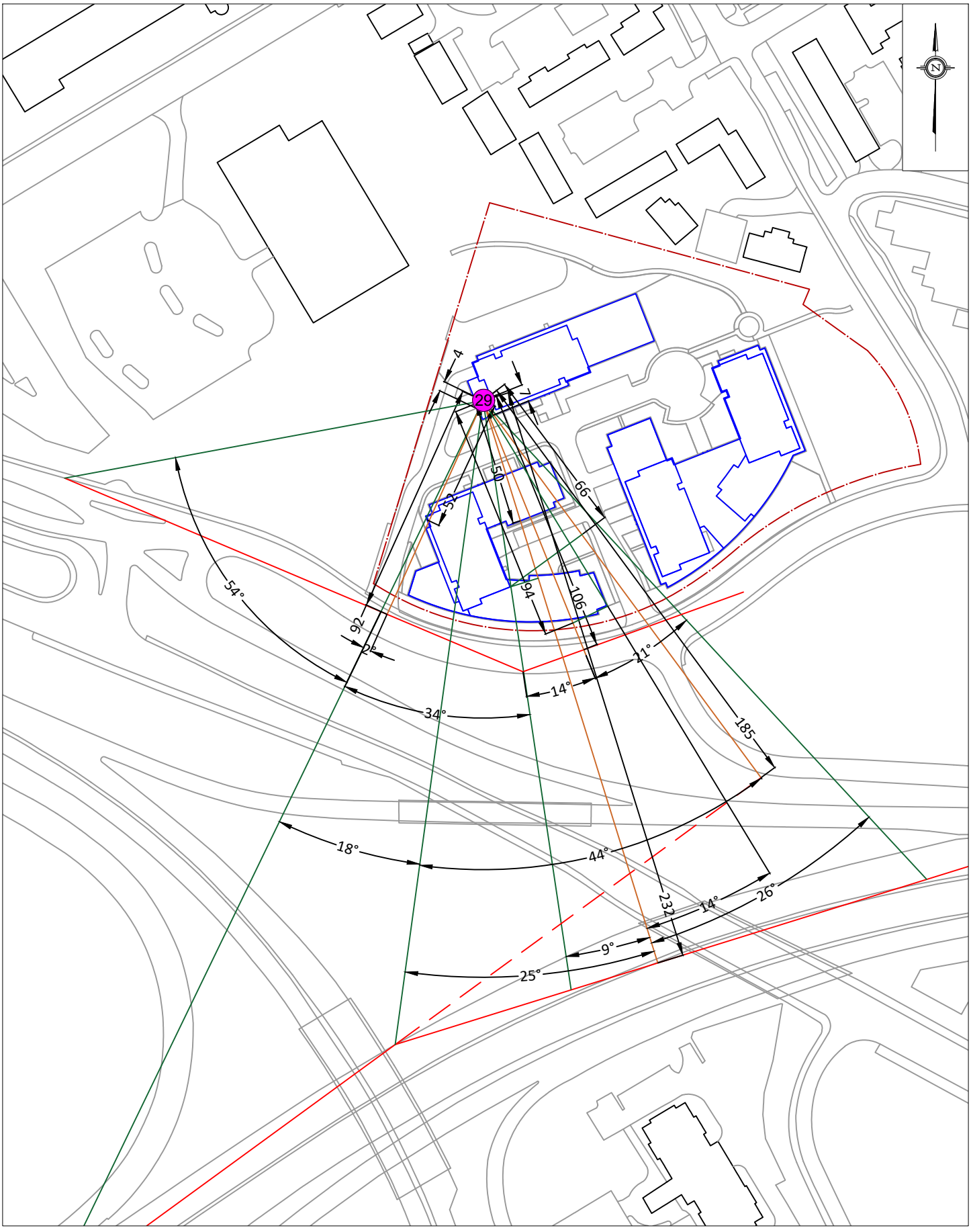
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-28A
DATE	JULY 6, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 28A:
STAMSON INPUT PARAMETERS - RECEPTOR 28



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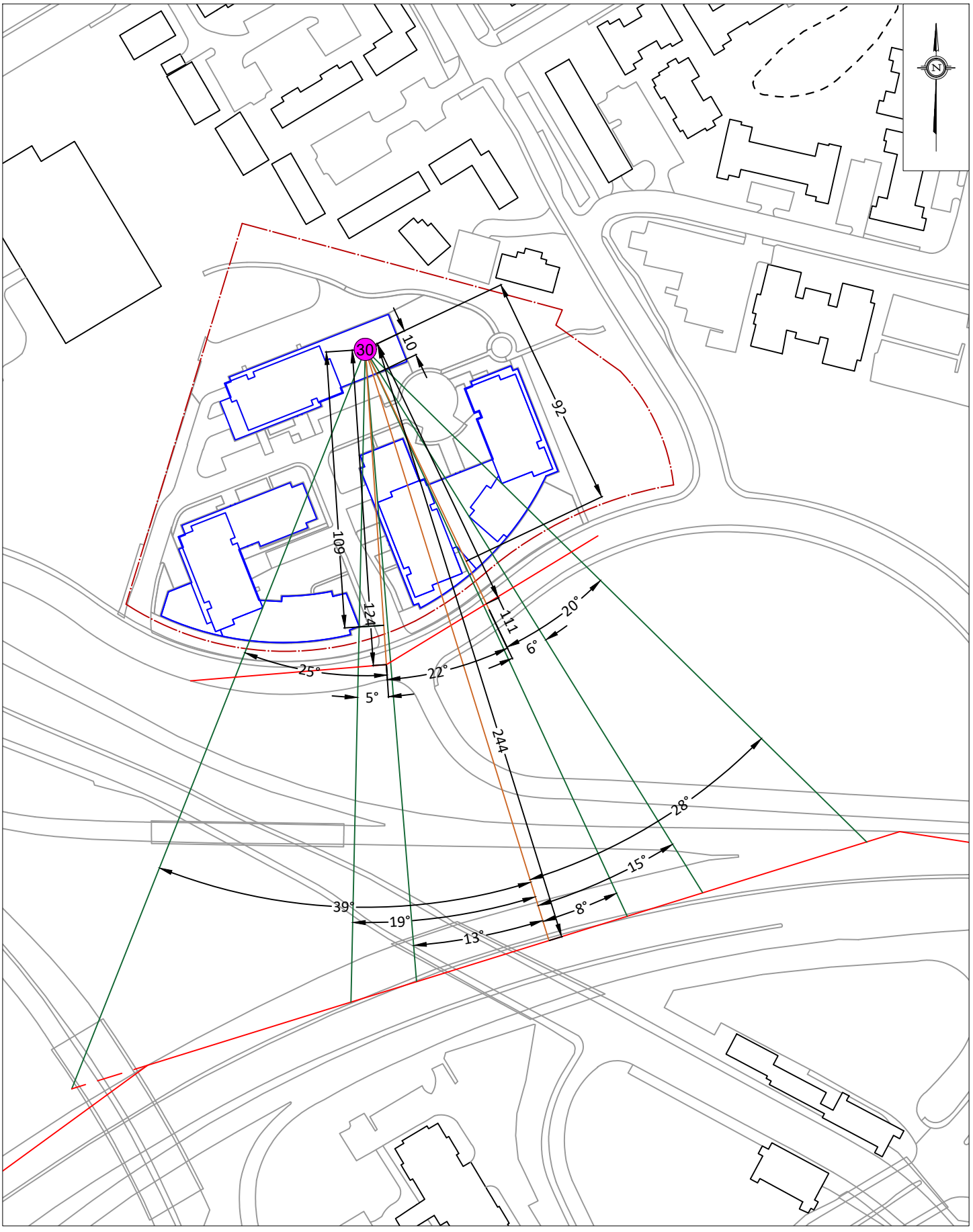
PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-29A
DATE	JULY 6, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 29A:
STAMSON INPUT PARAMETERS - RECEPTOR 29



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PROJECT	2 ROBINSON AVENUE, OTTAWA TRANSPORTATION NOISE AND GROUND VIBRATION ASSESSMENT
SCALE	1:2000 (APPROX.)
DRAWING NO.	GW20-219-30A
DATE	JULY 6, 2021
DRAWN BY	T.M.F.

DESCRIPTION

FIGURE 30A:
STAMSON INPUT PARAMETERS - RECEPTOR 30

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 16:10:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -47.00 deg   82.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  18.00 / 18.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  -4.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 160.00 / 160.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  44.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 126.00 / 126.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.24 + 0.00) = 66.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -47     82   0.00  68.48   0.00  -0.79  -1.45   0.00   0.00   0.00  66.24
-------------------------------------------------------------------------------

Segment Leq : 66.24 dBA

Results segment # 2: Hwy 417 1 (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.20 + 0.00) = 66.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     25   0.00  84.41   0.00 -10.28  -7.93   0.00   0.00   0.00  66.20
-------------------------------------------------------------------------------

Segment Leq : 66.20 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.99 + 0.00) = 67.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     90   0.00  83.16   0.00  -9.24  -5.93   0.00   0.00   0.00  67.99
-------------------------------------------------------------------------------

Segment Leq : 67.99 dBA

Total Leq All Segments: 71.66 dBA

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

Source height = 1.50 m

ROAD (0.00 + 58.64 + 0.00) = 58.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -47     82   0.00  60.88   0.00  -0.79  -1.45   0.00   0.00   0.00  58.64
-------------------------------------------------------------------------------

Segment Leq : 58.64 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.60 + 0.00) = 58.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     25   0.00  76.81   0.00 -10.28  -7.93   0.00   0.00   0.00  58.60
-------------------------------------------------------------------------------

Segment Leq : 58.60 dBA

Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.39 + 0.00) = 60.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     90   0.00  75.56   0.00  -9.24  -5.93   0.00   0.00   0.00  60.39
-------------------------------------------------------------------------------

Segment Leq : 60.39 dBA

Total Leq All Segments: 64.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.66
                           (NIGHT): 64.06
```

```
STAMSON 5.0        NORMAL REPORT        Date: 25-06-2021 16:39:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Lees 1 (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -42.00 deg   43.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  19.00 / 19.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   -8.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  26.00 / 26.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  46.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 121.00 / 121.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
---------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -56.00 deg   28.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 155.00 / 155.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 64.19 + 0.00) = 64.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -42     43   0.00  68.48   0.00  -1.03  -3.26   0.00   0.00   0.00  64.19
-------------------------------------------------------------------------------

Segment Leq : 64.19 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 62.68 + 0.00) = 62.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -8   0.00  68.48   0.00  -2.39  -3.41   0.00   0.00   0.00  62.68
-------------------------------------------------------------------------------

Segment Leq : 62.68 dBA

Results segment # 3: Hwy 417 1 (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.97 + 0.00) = 67.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    46     90   0.00  83.16   0.00  -9.07  -6.12   0.00   0.00   0.00  67.97
-------------------------------------------------------------------------------

Segment Leq : 67.97 dBA
```

```
Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 70.95 + 0.00) = 70.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56     28   0.00  84.41   0.00 -10.14  -3.31   0.00   0.00   0.00  70.95
-------------------------------------------------------------------------------

Segment Leq : 70.95 dBA

Total Leq All Segments: 73.65 dBA

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

Source height = 1.50 m

ROAD (0.00 + 56.60 + 0.00) = 56.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -42     43   0.00  60.88   0.00  -1.03  -3.26   0.00   0.00   0.00  56.60
-------------------------------------------------------------------------------

Segment Leq : 56.60 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 55.08 + 0.00) = 55.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -8   0.00  60.88   0.00  -2.39  -3.41   0.00   0.00   0.00  55.08
-------------------------------------------------------------------------------

Segment Leq : 55.08 dBA

Results segment # 3: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.38 + 0.00) = 60.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    46     90   0.00  75.56   0.00  -9.07  -6.12   0.00   0.00   0.00  60.38
-------------------------------------------------------------------------------

Segment Leq : 60.38 dBA
```

```
Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.36 + 0.00) = 63.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56     28   0.00  76.81   0.00 -10.14  -3.31   0.00   0.00   0.00  63.36
-------------------------------------------------------------------------------

Segment Leq : 63.36 dBA

Total Leq All Segments: 66.06 dBA

RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    70 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   43.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  70.00 / 70.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: LRT (day)
------------------------------

Source height = 0.50 m

RT/Custom (0.00 + 55.43 + 0.00) = 55.43 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     43   0.00  63.44  -6.69  -1.31   0.00   0.00   0.00  55.43
-------------------------------------------------------------------------

Segment Leq : 55.43 dBA

Total Leq All Segments: 55.43 dBA

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

Source height = 0.50 m

RT/Custom (0.00 + 48.90 + 0.00) = 48.90 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     43   0.00  56.91  -6.69  -1.31   0.00   0.00   0.00  48.90
-------------------------------------------------------------------------

Segment Leq : 48.90 dBA

Total Leq All Segments: 48.90 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.72
                           (NIGHT): 66.14
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 16:01:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -56.00 deg   -26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  30.00 / 30.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   -20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  51.00 / 51.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -59.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  32.00 / 32.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -53.00 deg   -4.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 162.00 / 162.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
---------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -79.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 57.69 + 0.00) = 57.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56    -26   0.00  68.48   0.00  -3.01  -7.78   0.00   0.00   0.00  57.69
-------------------------------------------------------------------------------

Segment Leq : 57.69 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       32.05 !        32.05

ROAD (0.00 + 36.43 + 56.52) = 56.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -59   0.00  68.48   0.00  -5.31  -7.64   0.00   0.00 -19.10  36.43
-------------------------------------------------------------------------------
   -59    -20   0.00  68.48   0.00  -5.31  -6.64   0.00   0.00   0.00  56.52
-------------------------------------------------------------------------------

Segment Leq : 56.57 dBA
```

```
Results segment # 3: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.42 + 0.00) = 68.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53     -4   0.00  84.41   0.00 -10.33  -5.65   0.00   0.00   0.00  68.42
-------------------------------------------------------------------------------

Segment Leq : 68.42 dBA

Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.87 + 0.00) = 66.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -79   0.00  84.41   0.00  -5.40 -12.14   0.00   0.00   0.00  66.87
-------------------------------------------------------------------------------

Segment Leq : 66.87 dBA

Total Leq All Segments: 71.09 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 50.09 + 0.00) = 50.09 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -56    -26   0.00  60.88   0.00  -3.01  -7.78   0.00   0.00   0.00  50.09
-------------------------------------------------------------------------------

Segment Leq : 50.09 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       32.05 !        32.05

ROAD (0.00 + 28.83 + 48.93) = 48.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -59   0.00  60.88   0.00  -5.31  -7.64   0.00   0.00 -19.10  28.83
-------------------------------------------------------------------------------
   -59    -20   0.00  60.88   0.00  -5.31  -6.64   0.00   0.00   0.00  48.93
-------------------------------------------------------------------------------

Segment Leq : 48.97 dBA
```

```
Results segment # 3: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.83 + 0.00) = 60.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53     -4   0.00  76.81   0.00 -10.33  -5.65   0.00   0.00   0.00  60.83
-------------------------------------------------------------------------------

Segment Leq : 60.83 dBA

Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.27 + 0.00) = 59.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -79   0.00  76.81   0.00  -5.40 -12.14   0.00   0.00   0.00  59.27
-------------------------------------------------------------------------------

Segment Leq : 59.27 dBA

Total Leq All Segments: 63.50 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.09
                           (NIGHT): 63.50
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 16:13:07
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -17.00 deg   70.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  31.00 / 31.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :  31.00 deg   60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  78.00 / 78.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  43.00 deg   Angle2 : 60.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  58.00 / 58.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  -4.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  65.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  91.00 / 91.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.17 + 0.00) = 62.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -17     70   0.00  68.48   0.00  -3.15  -3.16   0.00   0.00   0.00  62.17
-------------------------------------------------------------------------------

Segment Leq : 62.17 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       26.11 !        26.11

ROAD (49.56 + 31.07 + 0.00) = 49.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    31     43   0.00  68.48   0.00  -7.16 -11.76   0.00   0.00   0.00  49.56
-------------------------------------------------------------------------------
    43     60   0.00  68.48   0.00  -7.16 -10.25   0.00   0.00 -20.00  31.07
-------------------------------------------------------------------------------

Segment Leq : 49.62 dBA
```

```
Results segment # 3: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.87 + 0.00) = 68.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     46   0.00  84.41   0.00  -9.97  -5.56   0.00   0.00   0.00  68.87
-------------------------------------------------------------------------------

Segment Leq : 68.87 dBA

Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.75 + 0.00) = 66.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    65     90   0.00  83.16   0.00  -7.83  -8.57   0.00   0.00   0.00  66.75
-------------------------------------------------------------------------------

Segment Leq : 66.75 dBA

Total Leq All Segments: 71.52 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 54.57 + 0.00) = 54.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -17     70   0.00  60.88   0.00  -3.15  -3.16   0.00   0.00   0.00  54.57
-------------------------------------------------------------------------------

Segment Leq : 54.57 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       26.11 !        26.11

ROAD (41.96 + 23.48 + 0.00) = 42.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    31     43   0.00  60.88   0.00  -7.16 -11.76   0.00   0.00   0.00  41.96
-------------------------------------------------------------------------------
    43     60   0.00  60.88   0.00  -7.16 -10.25   0.00   0.00 -20.00  23.48
-------------------------------------------------------------------------------

Segment Leq : 42.02 dBA
```

```
Results segment # 3: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.28 + 0.00) = 61.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     46   0.00  76.81   0.00  -9.97  -5.56   0.00   0.00   0.00  61.28
-------------------------------------------------------------------------------

Segment Leq : 61.28 dBA

Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.16 + 0.00) = 59.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    65     90   0.00  75.56   0.00  -7.83  -8.57   0.00   0.00   0.00  59.16
-------------------------------------------------------------------------------

Segment Leq : 59.16 dBA

Total Leq All Segments: 63.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.52
                           (NIGHT): 63.93
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 11:18:16
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           :  35.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  52.00 / 52.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  15.00 / 15.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
-----------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  67.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  86.00 / 86.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -46.00 deg   48.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 145.00 / 145.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -72.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  64.00 / 64.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.83 + 0.00) = 52.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    35     52   0.00  68.48   0.00  -5.40 -10.25   0.00   0.00   0.00  52.83
-------------------------------------------------------------------------------

Segment Leq : 52.83 dBA

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

Source height = 1.50 m

ROAD (0.00 + 68.08 + 0.00) = 68.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     74   0.00  68.48   0.00   0.00  -0.40   0.00   0.00   0.00  68.08
-------------------------------------------------------------------------------

Segment Leq : 68.08 dBA
```

```
Results segment # 3: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.64 + 0.00) = 66.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    67     90   0.00  83.16   0.00  -7.58  -8.94   0.00   0.00   0.00  66.64
-------------------------------------------------------------------------------

Segment Leq : 66.64 dBA

Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 71.73 + 0.00) = 71.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -46     48   0.00  84.41   0.00  -9.85  -2.82   0.00   0.00   0.00  71.73
-------------------------------------------------------------------------------

Segment Leq : 71.73 dBA
```

```
Results segment # 5: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.11 + 0.00) = 68.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -72   0.00  84.41   0.00  -6.30 -10.00   0.00   0.00   0.00  68.11
-------------------------------------------------------------------------------

Segment Leq : 68.11 dBA

Total Leq All Segments: 75.13 dBA

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

Source height = 1.50 m

ROAD (0.00 + 45.24 + 0.00) = 45.24 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    35     52   0.00  60.88   0.00  -5.40 -10.25   0.00   0.00   0.00  45.24
-------------------------------------------------------------------------------

Segment Leq : 45.24 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.48 + 0.00) = 60.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     74   0.00  60.88   0.00   0.00  -0.40   0.00   0.00   0.00  60.48
-------------------------------------------------------------------------------

Segment Leq : 60.48 dBA

Results segment # 3: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.04 + 0.00) = 59.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    67     90   0.00  75.56   0.00  -7.58  -8.94   0.00   0.00   0.00  59.04
-------------------------------------------------------------------------------

Segment Leq : 59.04 dBA
```

```
Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.14 + 0.00) = 64.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -46     48   0.00  76.81   0.00  -9.85  -2.82   0.00   0.00   0.00  64.14
-------------------------------------------------------------------------------

Segment Leq : 64.14 dBA

Results segment # 5: Hwy 417 3 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.51 + 0.00) = 60.51 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -72   0.00  76.81   0.00  -6.30 -10.00   0.00   0.00   0.00  60.51
-------------------------------------------------------------------------------

Segment Leq : 60.51 dBA

Total Leq All Segments: 67.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 75.13
                           (NIGHT): 67.54
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 11:30:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -76.00 deg   8.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -41.00 deg   -4.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 153.00 / 153.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -66.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  78.00 / 78.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.55 + 0.00) = 64.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -76      8   0.00  69.11   0.00  -1.25  -3.31   0.00   0.00   0.00  64.55
-------------------------------------------------------------------------------

Segment Leq : 64.55 dBA

Results segment # 2: Hwy 417 1 (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.45 + 0.00) = 67.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -41     -4   0.00  84.41   0.00 -10.09  -6.87   0.00   0.00   0.00  67.45
-------------------------------------------------------------------------------

Segment Leq : 67.45 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.50 + 0.00) = 68.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -66   0.00  84.41   0.00  -7.16  -8.75   0.00   0.00   0.00  68.50
-------------------------------------------------------------------------------

Segment Leq : 68.50 dBA

Total Leq All Segments: 71.90 dBA
Results segment # 1: Lees (night)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.95 + 0.00) = 56.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -76      8   0.00  61.51   0.00  -1.25  -3.31   0.00   0.00   0.00  56.95
-------------------------------------------------------------------------------

Segment Leq : 56.95 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.85 + 0.00) = 59.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -41     -4   0.00  76.81   0.00 -10.09  -6.87   0.00   0.00   0.00  59.85
-------------------------------------------------------------------------------

Segment Leq : 59.85 dBA

Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.90 + 0.00) = 60.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -66   0.00  76.81   0.00  -7.16  -8.75   0.00   0.00   0.00  60.90
-------------------------------------------------------------------------------

Segment Leq : 60.90 dBA

Total Leq All Segments: 64.30 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.90
                           (NIGHT): 64.30
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 12:08:42
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r7.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           :  16.00 deg   51.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  98.00 / 98.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  16.00 deg   Angle2 : 51.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  42.00 / 42.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :   6.00 deg   63.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  47.00 / 47.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  47.00 deg   Angle2 : 63.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  29.00 / 29.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  67.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 107.00 / 107.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  67.00 deg   Angle2 : 90.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  27.00 / 27.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  -4.00 deg   48.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 182.00 / 182.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  36.00 deg   Angle2 : 48.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  29.00 / 29.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       56.36 !        56.36

ROAD (0.00 + 33.84 + 0.00) = 33.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    16     51   0.00  69.11   0.00  -8.15  -7.11   0.00   0.00 -20.00  33.84
-------------------------------------------------------------------------------

Segment Leq : 33.84 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       38.26 !        38.26

ROAD (57.10 + 33.01 + 0.00) = 57.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     6     47   0.00  68.48   0.00  -4.96  -6.42   0.00   0.00   0.00  57.10
-------------------------------------------------------------------------------
    47     63   0.00  68.48   0.00  -4.96 -10.51   0.00   0.00 -20.00  33.01
-------------------------------------------------------------------------------

Segment Leq : 57.11 dBA

Results segment # 3: Hwy 417 1 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       73.27 !        73.27

ROAD (0.00 + 49.12 + 0.00) = 49.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    67     90   0.00  83.16   0.00  -8.53  -8.94   0.00   0.00 -16.57  49.12
-------------------------------------------------------------------------------

Segment Leq : 49.12 dBA
```

```
Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       82.20 !        82.20

ROAD (67.04 + 41.81 + 0.00) = 67.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     36   0.00  84.41   0.00 -10.84  -6.53   0.00   0.00   0.00  67.04
-------------------------------------------------------------------------------
    36     48   0.00  84.41   0.00 -10.84 -11.76   0.00   0.00 -20.00  41.81
-------------------------------------------------------------------------------

Segment Leq : 67.05 dBA

Total Leq All Segments: 67.53 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       56.36 !        56.36

ROAD (0.00 + 26.25 + 0.00) = 26.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    16     51   0.00  61.51   0.00  -8.15  -7.11   0.00   0.00 -20.00  26.25
-------------------------------------------------------------------------------

Segment Leq : 26.25 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       38.26 !        38.26

ROAD (49.50 + 25.41 + 0.00) = 49.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     6     47   0.00  60.88   0.00  -4.96  -6.42   0.00   0.00   0.00  49.50
-------------------------------------------------------------------------------
    47     63   0.00  60.88   0.00  -4.96 -10.51   0.00   0.00 -20.00  25.41
-------------------------------------------------------------------------------

Segment Leq : 49.52 dBA

Results segment # 3: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       73.27 !        73.27

ROAD (0.00 + 41.52 + 0.00) = 41.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    67     90   0.00  75.56   0.00  -8.53  -8.94   0.00   0.00 -16.57  41.52
-------------------------------------------------------------------------------

Segment Leq : 41.52 dBA
```

```
Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       97.50 !       82.20 !        82.20

ROAD (59.44 + 34.21 + 0.00) = 59.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     36   0.00  76.81   0.00 -10.84  -6.53   0.00   0.00   0.00  59.44
-------------------------------------------------------------------------------
    36     48   0.00  76.81   0.00 -10.84 -11.76   0.00   0.00 -20.00  34.21
-------------------------------------------------------------------------------

Segment Leq : 59.45 dBA

Total Leq All Segments: 59.94 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.53
                           (NIGHT): 59.94
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 13:15:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r8.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -64.00 deg   69.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  36.00 / 36.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -28.00 deg   51.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 177.00 / 177.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
---------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 118.00 / 118.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
--------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.99 + 0.00) = 63.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -64     69   0.00  69.11   0.00  -3.80  -1.31   0.00   0.00   0.00  63.99
-------------------------------------------------------------------------------

Segment Leq : 63.99 dBA

Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 70.11 + 0.00) = 70.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28     51   0.00  84.41   0.00 -10.72  -3.58   0.00   0.00   0.00  70.11
-------------------------------------------------------------------------------

Segment Leq : 70.11 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.46 + 0.00) = 68.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -54   0.00  84.41   0.00  -8.96  -6.99   0.00   0.00   0.00  68.46
-------------------------------------------------------------------------------

Segment Leq : 68.46 dBA

Total Leq All Segments: 72.96 dBA

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

Source height = 1.50 m

ROAD (0.00 + 56.39 + 0.00) = 56.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -64     69   0.00  61.51   0.00  -3.80  -1.31   0.00   0.00   0.00  56.39
-------------------------------------------------------------------------------

Segment Leq : 56.39 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.52 + 0.00) = 62.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28     51   0.00  76.81   0.00 -10.72  -3.58   0.00   0.00   0.00  62.52
-------------------------------------------------------------------------------

Segment Leq : 62.52 dBA

Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.86 + 0.00) = 60.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -54   0.00  76.81   0.00  -8.96  -6.99   0.00   0.00   0.00  60.86
-------------------------------------------------------------------------------

Segment Leq : 60.86 dBA

Total Leq All Segments: 65.37 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.96
                           (NIGHT): 65.37
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 13:30:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r9.te                Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -75.00 deg   -17.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  29.00 / 29.00  m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417_1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417_1 (day/night)
-------------------------------------------
Angle1   Angle2           : -26.00 deg   -4.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 182.00 / 182.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417_2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417_2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 124.00 / 124.00 m
Receiver height           :  97.50 / 97.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
--------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.33 + 0.00) = 61.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -75    -17   0.00  69.11   0.00  -2.86  -4.92   0.00   0.00   0.00  61.33
-------------------------------------------------------------------------------

Segment Leq : 61.33 dBA

Results segment # 2: Hwy 417_1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.44 + 0.00) = 64.44 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26     -4   0.00  84.41   0.00 -10.84  -9.13   0.00   0.00   0.00  64.44
-------------------------------------------------------------------------------

Segment Leq : 64.44 dBA
```

```
Results segment # 3: Hwy 417_2 (day)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 68.48 + 0.00) = 68.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -52   0.00  84.41   0.00  -9.17  -6.75   0.00   0.00   0.00  68.48
-------------------------------------------------------------------------------

Segment Leq : 68.48 dBA

Total Leq All Segments: 70.49 dBA

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

Source height = 1.50 m

ROAD (0.00 + 53.73 + 0.00) = 53.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -75    -17   0.00  61.51   0.00  -2.86  -4.92   0.00   0.00   0.00  53.73
-------------------------------------------------------------------------------

Segment Leq : 53.73 dBA
```

```
Results segment # 2: Hwy 417_1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.84 + 0.00) = 56.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26     -4   0.00  76.81   0.00 -10.84  -9.13   0.00   0.00   0.00  56.84
-------------------------------------------------------------------------------

Segment Leq : 56.84 dBA

Results segment # 3: Hwy 417_2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.88 + 0.00) = 60.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -52   0.00  76.81   0.00  -9.17  -6.75   0.00   0.00   0.00  60.88
-------------------------------------------------------------------------------

Segment Leq : 60.88 dBA

Total Leq All Segments: 62.89 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 70.49
                           (NIGHT): 62.89
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 13:50:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r10.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -42.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  94.00 / 94.00  m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -27.00 deg   Angle2 : 9.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy_417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy_417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  45.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 183.00 / 183.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  45.00 deg   Angle2 : 66.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  -4.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 231.00 / 231.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  12.00 deg   Angle2 : 26.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  72.00 / 72.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       38.14 !        38.14

ROAD (50.34 + 34.15 + 57.67) = 58.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -42    -27   0.00  69.11   0.00  -7.97 -10.79   0.00   0.00   0.00  50.34
-------------------------------------------------------------------------------
   -27      9   0.00  69.11   0.00  -7.97  -6.99   0.00   0.00 -20.00  34.15
-------------------------------------------------------------------------------
     9     90   0.00  69.11   0.00  -7.97  -3.47   0.00   0.00   0.00  57.67
-------------------------------------------------------------------------------

Segment Leq : 58.42 dBA

Results segment # 2: Hwy_417 1 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       60.20 !        60.20

ROAD (0.00 + 37.57 + 58.15) = 58.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    45     66   0.00  77.76   0.00 -10.86  -9.33   0.00   0.00 -20.00  37.57
-------------------------------------------------------------------------------
    66     90   0.00  77.76   0.00 -10.86  -8.75   0.00   0.00   0.00  58.15
-------------------------------------------------------------------------------

Segment Leq : 58.18 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       57.94 !        57.94

ROAD (62.02 + 41.44 + 0.00) = 62.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     12   0.00  84.41   0.00 -11.88 -10.51   0.00   0.00   0.00  62.02
-------------------------------------------------------------------------------
    12     26   0.00  84.41   0.00 -11.88 -11.09   0.00   0.00 -20.00  41.44
-------------------------------------------------------------------------------

Segment Leq : 62.06 dBA

Total Leq All Segments: 64.71 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       38.14 !        38.14

ROAD (42.75 + 26.55 + 50.07) = 50.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -42    -27   0.00  61.51   0.00  -7.97 -10.79   0.00   0.00   0.00  42.75
-------------------------------------------------------------------------------
   -27      9   0.00  61.51   0.00  -7.97  -6.99   0.00   0.00 -20.00  26.55
-------------------------------------------------------------------------------
     9     90   0.00  61.51   0.00  -7.97  -3.47   0.00   0.00   0.00  50.07
-------------------------------------------------------------------------------

Segment Leq : 50.83 dBA
```

```
Results segment # 2: Hwy_417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       60.20 !         60.20

ROAD (0.00 + 29.97 + 50.55) = 50.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    45     66   0.00  70.16   0.00 -10.86  -9.33   0.00   0.00 -20.00  29.97
-------------------------------------------------------------------------------
    66     90   0.00  70.16   0.00 -10.86  -8.75   0.00   0.00   0.00  50.55
-------------------------------------------------------------------------------

Segment Leq : 50.59 dBA
```

```
Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       57.94 !        57.94

ROAD (54.42 + 33.84 + 0.00) = 54.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     12   0.00  76.81   0.00 -11.88 -10.51   0.00   0.00   0.00  54.42
-------------------------------------------------------------------------------
    12     26   0.00  76.81   0.00 -11.88 -11.09   0.00   0.00 -20.00  33.84
-------------------------------------------------------------------------------

Segment Leq : 54.46 dBA

Total Leq All Segments: 57.12 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.71
                           (NIGHT): 57.12
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 14:24:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r11.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -34.00 deg   27.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 100.00 / 100.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : -15.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  85.00 / 85.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 0 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 0 (day/night)
-------------------------------------------
Angle1   Angle2           :  48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 174.00 / 174.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  48.00 deg   Angle2 : 90.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  75.00 / 75.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -38.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 228.00 / 228.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -38.00 deg   Angle2 : -15.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  85.00 / 85.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -81.00 deg   -72.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 126.00 / 126.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       13.80 !        13.80

ROAD (0.00 + 31.10 + 54.55) = 54.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34    -15   0.00  69.11   0.00  -8.24  -9.77   0.00   0.00 -20.00  31.10
-------------------------------------------------------------------------------
   -15     27   0.00  69.11   0.00  -8.24  -6.32   0.00   0.00   0.00  54.55
-------------------------------------------------------------------------------

Segment Leq : 54.57 dBA

Results segment # 2: Hwy 417 0 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       48.15 !        48.15

ROAD (0.00 + 42.71 + 0.00) = 42.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    48     90   0.00  77.76   0.00 -10.64  -6.32   0.00   0.00 -18.08  42.71
-------------------------------------------------------------------------------

Segment Leq : 42.71 dBA
```

```
Results segment # 3: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       52.93 !        52.93

ROAD (0.00 + 43.65 + 66.57) = 66.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -38    -15   0.00  84.41   0.00 -11.82  -8.94   0.00   0.00 -20.00  43.65
-------------------------------------------------------------------------------
   -15     30   0.00  84.41   0.00 -11.82  -6.02   0.00   0.00   0.00  66.57
-------------------------------------------------------------------------------

Segment Leq : 66.59 dBA

Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.15 + 0.00) = 62.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -81    -72   0.00  84.41   0.00  -9.24 -13.01   0.00   0.00   0.00  62.15
-------------------------------------------------------------------------------

Segment Leq : 62.15 dBA

Total Leq All Segments: 68.13 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       13.80 !        13.80

ROAD (0.00 + 23.51 + 46.95) = 46.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34    -15   0.00  61.51   0.00  -8.24  -9.77   0.00   0.00 -20.00  23.51
-------------------------------------------------------------------------------
   -15     27   0.00  61.51   0.00  -8.24  -6.32   0.00   0.00   0.00  46.95
-------------------------------------------------------------------------------

Segment Leq : 46.97 dBA

Results segment # 2: Hwy 417 0 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       48.15 !        48.15

ROAD (0.00 + 35.12 + 0.00) = 35.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    48     90   0.00  70.16   0.00 -10.64  -6.32   0.00   0.00 -18.08  35.12
-------------------------------------------------------------------------------

Segment Leq : 35.12 dBA
```

```
Results segment # 3: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       52.93 !        52.93

ROAD (0.00 + 36.06 + 58.97) = 58.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -38    -15   0.00  76.81   0.00 -11.82  -8.94   0.00   0.00 -20.00  36.06
-------------------------------------------------------------------------------
   -15     30   0.00  76.81   0.00 -11.82  -6.02   0.00   0.00   0.00  58.97
-------------------------------------------------------------------------------

Segment Leq : 58.99 dBA

Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 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
-------------------------------------------------------------------------------
   -81    -72   0.00  76.81   0.00  -9.24 -13.01   0.00   0.00   0.00  54.56
-------------------------------------------------------------------------------

Segment Leq : 54.56 dBA

Total Leq All Segments: 60.54 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.13
                           (NIGHT): 60.54
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 15:05:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r12.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -26.00 deg   -10.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 111.00 / 111.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 (day/night)
-----------------------------------------
Angle1   Angle2           : -34.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 234.00 / 234.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -25.00 deg   Angle2 : 0.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  49.00 / 49.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
---------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -67.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 141.00 / 141.00 m
Receiver height           :  83.50 / 83.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

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

Source height = 1.50 m

ROAD (0.00 + 49.28 + 0.00) = 49.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -10   0.00  68.48   0.00  -8.69 -10.51   0.00   0.00   0.00  49.28
-------------------------------------------------------------------------------

Segment Leq : 49.28 dBA
```

```
Results segment # 2: Hwy 417 (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       66.33 !         66.33

ROAD (59.47 + 43.90 + 0.00) = 59.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34    -25   0.00  84.41   0.00 -11.93 -13.01   0.00   0.00   0.00  59.47
-------------------------------------------------------------------------------
   -25      0   0.00  84.41   0.00 -11.93  -8.57   0.00   0.00 -20.00  43.90
-------------------------------------------------------------------------------

Segment Leq : 59.58 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.57 + 0.00) = 60.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67    -60   0.00  84.41   0.00  -9.73 -14.10   0.00   0.00   0.00  60.57
-------------------------------------------------------------------------------

Segment Leq : 60.57 dBA

Total Leq All Segments: 63.29 dBA

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

Source height = 1.50 m

ROAD (0.00 + 41.68 + 0.00) = 41.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -10   0.00  60.88   0.00  -8.69 -10.51   0.00   0.00   0.00  41.68
-------------------------------------------------------------------------------

Segment Leq : 41.68 dBA
```

```
Results segment # 2: Hwy 417 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       83.50 !       66.33 !         66.33

ROAD (51.87 + 36.31 + 0.00) = 51.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34    -25   0.00  76.81   0.00 -11.93 -13.01   0.00   0.00   0.00  51.87
-------------------------------------------------------------------------------
   -25      0   0.00  76.81   0.00 -11.93  -8.57   0.00   0.00 -20.00  36.31
-------------------------------------------------------------------------------

Segment Leq : 51.99 dBA

Results segment # 3: Hwy 417 2 (night)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.98 + 0.00) = 52.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -67    -60   0.00  76.81   0.00  -9.73 -14.10   0.00   0.00   0.00  52.98
-------------------------------------------------------------------------------

Segment Leq : 52.98 dBA

Total Leq All Segments: 55.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.29
                           (NIGHT): 55.70
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 15:17:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r13.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           :  -8.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective 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
```

```
Road data, segment # 2: HWY 417 (day/night)
-------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: HWY 417 (day/night)
-----------------------------------------
Angle1   Angle2           :  53.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 142.00 / 142.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
--------------------------------

Source height = 1.50 m

ROAD (0.00 + 65.05 + 0.00) = 65.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -8     90   0.00  68.48   0.00  -0.79  -2.64   0.00   0.00   0.00  65.05
-------------------------------------------------------------------------------

Segment Leq : 65.05 dBA

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

Source height = 1.50 m

ROAD (0.00 + 66.53 + 0.00) = 66.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    53     90   0.00  83.16   0.00  -9.76  -6.87   0.00   0.00   0.00  66.53
-------------------------------------------------------------------------------

Segment Leq : 66.53 dBA

Total Leq All Segments: 68.86 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 57.45 + 0.00) = 57.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -8     90   0.00  60.88   0.00  -0.79  -2.64   0.00   0.00   0.00  57.45
-------------------------------------------------------------------------------

Segment Leq : 57.45 dBA

Results segment # 2: HWY 417 (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.93 + 0.00) = 58.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    53     90   0.00  75.56   0.00  -9.76  -6.87   0.00   0.00   0.00  58.93
-------------------------------------------------------------------------------

Segment Leq : 58.93 dBA

Total Leq All Segments: 61.26 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.86
                           (NIGHT): 61.26
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 15:42:06
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r14_x.te             Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -15.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  20.00 / 20.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -71.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  18.00 / 18.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           :  89.90 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :  17.50 / 17.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  59.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  94.00 / 94.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -54.00 deg   40.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 139.00 / 139.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 6: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -80.00 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           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.82 + 0.00) = 63.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     67   0.00  68.48   0.00  -1.25  -3.41   0.00   0.00   0.00  63.82
-------------------------------------------------------------------------------

Segment Leq : 63.82 dBA

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

Source height = 1.50 m

ROAD (0.00 + 65.18 + 0.00) = 65.18 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -71     30   0.00  68.48   0.00  -0.79  -2.51   0.00   0.00   0.00  65.18
-------------------------------------------------------------------------------

Segment Leq : 65.18 dBA
```

Results segment # 3: Lees 3 (day)

Source height = 1.50 m

ROAD (0.00 + 26.98 + 0.00) = 26.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
90	90	0.18	69.11	0.00	-3.88	-38.24	0.00	0.00	0.00	26.98

Segment Leq : 26.98 dBA

Results segment # 4: Hwy 417 1 (day)

Source height = 1.50 m

ROAD (0.00 + 66.21 + 0.00) = 66.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
59	90	0.09	83.16	0.00	-8.69	-8.26	0.00	0.00	0.00	66.21

Segment Leq : 66.21 dBA

```
Results segment # 5: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 71.92 + 0.00) = 71.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -54     40   0.00  84.41   0.00  -9.67  -2.82   0.00   0.00   0.00  71.92
-------------------------------------------------------------------------------

Segment Leq : 71.92 dBA

Results segment # 6: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.15 + 0.00) = 66.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -80   0.09  84.41   0.00  -4.64 -13.61   0.00   0.00   0.00  66.15
-------------------------------------------------------------------------------

Segment Leq : 66.15 dBA

Total Leq All Segments: 74.71 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 56.22 + 0.00) = 56.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     67   0.00  60.88   0.00  -1.25  -3.41   0.00   0.00   0.00  56.22
-------------------------------------------------------------------------------

Segment Leq : 56.22 dBA

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

Source height = 1.50 m

ROAD (0.00 + 57.58 + 0.00) = 57.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -71     30   0.00  60.88   0.00  -0.79  -2.51   0.00   0.00   0.00  57.58
-------------------------------------------------------------------------------

Segment Leq : 57.58 dBA
```

Results segment # 3: Lees 3 (night)

Source height = 1.50 m

ROAD (0.00 + 19.39 + 0.00) = 19.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
90	90	0.18	61.51	0.00	-3.88	-38.24	0.00	0.00	0.00	19.39

Segment Leq : 19.39 dBA

Results segment # 4: Hwy 417 1 (night)

Source height = 1.50 m

ROAD (0.00 + 58.61 + 0.00) = 58.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
59	90	0.09	75.56	0.00	-8.69	-8.26	0.00	0.00	0.00	58.61

Segment Leq : 58.61 dBA

```
Results segment # 5: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.32 + 0.00) = 64.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -54     40   0.00  76.81   0.00  -9.67  -2.82   0.00   0.00   0.00  64.32
-------------------------------------------------------------------------------

Segment Leq : 64.32 dBA

Results segment # 6: Hwy 417 3 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.56 + 0.00) = 58.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -80   0.09  76.81   0.00  -4.64 -13.61   0.00   0.00   0.00  58.56
-------------------------------------------------------------------------------

Segment Leq : 58.56 dBA

Total Leq All Segments: 67.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 74.71
                           (NIGHT): 67.11
```

```
STAMSON 5.0        NORMAL REPORT        Date: 29-06-2021 15:59:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r15.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -89.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  17.00 / 17.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   -89.90 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 499.00 / 499.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -51.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 143.00 / 143.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -77.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  50.00 / 50.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
---------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.88 + 0.00) = 64.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -89      0   0.00  68.48   0.00  -0.54  -3.06   0.00   0.00   0.00  64.88
-------------------------------------------------------------------------------

Segment Leq : 64.88 dBA

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

Source height = 1.50 m

ROAD (0.00 + 20.71 + 0.00) = 20.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -90   0.00  68.48   0.00 -15.22 -32.55   0.00   0.00   0.00  20.71
-------------------------------------------------------------------------------

Segment Leq : 20.71 dBA
```

```
Results segment # 3: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 69.14 + 0.00) = 69.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -51      0   0.00  84.41   0.00  -9.79  -5.48   0.00   0.00   0.00  69.14
-------------------------------------------------------------------------------

Segment Leq : 69.14 dBA

Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.77 + 0.00) = 67.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -77   0.00  84.41   0.00  -5.23 -11.41   0.00   0.00   0.00  67.77
-------------------------------------------------------------------------------

Segment Leq : 67.77 dBA

Total Leq All Segments: 72.37 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 57.28 + 0.00) = 57.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -89      0   0.00  60.88   0.00  -0.54  -3.06   0.00   0.00   0.00  57.28
-------------------------------------------------------------------------------

Segment Leq : 57.28 dBA

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

Source height = 1.50 m

ROAD (0.00 + 13.11 + 0.00) = 13.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -90   0.00  60.88   0.00 -15.22 -32.55   0.00   0.00   0.00  13.11
-------------------------------------------------------------------------------

Segment Leq : 13.11 dBA
```

```
Results segment # 3: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.54 + 0.00) = 61.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -51      0   0.00  76.81   0.00  -9.79  -5.48   0.00   0.00   0.00  61.54
-------------------------------------------------------------------------------

Segment Leq : 61.54 dBA

Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.17 + 0.00) = 60.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -77   0.00  76.81   0.00  -5.23 -11.41   0.00   0.00   0.00  60.17
-------------------------------------------------------------------------------

Segment Leq : 60.17 dBA

Total Leq All Segments: 64.77 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 72.37
                           (NIGHT): 64.77
```

```
STAMSON 5.0        NORMAL REPORT        Date: 30-06-2021 10:17:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r16.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -49.00 deg   37.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  54.00 / 54.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -27.00 deg   Angle2 : 37.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  44.00 / 44.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  52.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 135.00 / 135.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  52.00 deg   Angle2 : 90.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  16.00 / 16.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: hWY 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: hWY 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -46.00 deg   33.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 183.00 / 183.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -21.00 deg   Angle2 : 33.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  44.00 / 44.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: hWY 417 3 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: hWY 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -72.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  81.00 / 81.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -72.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  19.00 / 19.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Results segment # 1: Lees (day)
-------------------------------
Source height = 1.50 m
Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        5.01 !         5.01

ROAD (53.79 + 38.43 + 0.00) = 53.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49    -27   0.00  68.48   0.00  -5.56  -9.13   0.00   0.00   0.00  53.79
-------------------------------------------------------------------------------
   -27     37   0.00  68.48   0.00  -5.56  -4.49   0.00   0.00 -20.00  38.43
-------------------------------------------------------------------------------

Segment Leq : 53.91 dBA
```

```
Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       18.25 !        18.25

ROAD (0.00 + 47.27 + 0.00) = 47.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    52     90   0.00  83.16   0.00  -9.54  -6.75   0.00   0.00 -19.59  47.27
-------------------------------------------------------------------------------

Segment Leq : 47.27 dBA

Results segment # 3: hWY 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       15.93 !        15.93

ROAD (64.97 + 53.48 + 0.00) = 65.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -46    -21   0.00  84.41   0.00 -10.86  -8.57   0.00   0.00   0.00  64.97
-------------------------------------------------------------------------------
   -21     33   0.00  84.41   0.00 -10.86  -5.23   0.00   0.00 -14.84  53.48
-------------------------------------------------------------------------------

Segment Leq : 65.27 dBA
```

```
Results segment # 4: hWY 417 3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       16.04 !        16.04

ROAD (0.00 + 47.64 + 0.00) = 47.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -72   0.00  84.41   0.00  -7.32 -10.00   0.00   0.00 -19.44  47.64
-------------------------------------------------------------------------------

Segment Leq : 47.64 dBA

Total Leq All Segments: 65.71 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        5.01 !         5.01

ROAD (46.19 + 30.83 + 0.00) = 46.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49    -27   0.00  60.88   0.00  -5.56  -9.13   0.00   0.00   0.00  46.19
-------------------------------------------------------------------------------
   -27     37   0.00  60.88   0.00  -5.56  -4.49   0.00   0.00 -20.00  30.83
-------------------------------------------------------------------------------

Segment Leq : 46.32 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       18.25 !        18.25

ROAD (0.00 + 39.67 + 0.00) = 39.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    52     90   0.00  75.56   0.00  -9.54  -6.75   0.00   0.00 -19.59  39.67
-------------------------------------------------------------------------------

Segment Leq : 39.67 dBA

Results segment # 3: hWY 417 2 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       15.93 !        15.93

ROAD (57.37 + 45.88 + 0.00) = 57.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -46    -21   0.00  76.81   0.00 -10.86  -8.57   0.00   0.00   0.00  57.37
-------------------------------------------------------------------------------
   -21     33   0.00  76.81   0.00 -10.86  -5.23   0.00   0.00 -14.84  45.88
-------------------------------------------------------------------------------

Segment Leq : 57.67 dBA
```

```
Results segment # 4: hWY 417 3 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       16.04 !        16.04

ROAD (0.00 + 40.05 + 0.00) = 40.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -72   0.00  76.81   0.00  -7.32 -10.00   0.00   0.00 -19.44  40.05
-------------------------------------------------------------------------------

Segment Leq : 40.05 dBA

Total Leq All Segments: 58.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.71
                           (NIGHT): 58.11
```

```
STAMSON 5.0        NORMAL REPORT        Date: 30-06-2021 10:15:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r17.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -16.00 deg   48.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  10.00 deg   Angle2 : 48.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 (day/night)
-----------------------------------------
Angle1   Angle2           :  -4.00 deg   38.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 190.00 / 190.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  21.00 deg   Angle2 : 38.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  49.00 / 49.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: HWy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: HWy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  57.00 deg   79.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 131.00 / 131.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  57.00 deg   Angle2 : 79.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  23.00 / 23.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        5.75 !         5.75

ROAD (53.58 + 35.23 + 0.00) = 53.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -16     10   0.00  68.48   0.00  -6.50  -8.40   0.00   0.00   0.00  53.58
-------------------------------------------------------------------------------
    10     48   0.00  68.48   0.00  -6.50  -6.75   0.00   0.00 -20.00  35.23
-------------------------------------------------------------------------------

Segment Leq : 53.64 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       15.60 !        15.60

ROAD (64.81 + 48.62 + 0.00) = 64.91 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     21   0.00  84.41   0.00 -11.03  -8.57   0.00   0.00   0.00  64.81
-------------------------------------------------------------------------------
    21     38   0.00  84.41   0.00 -11.03 -10.25   0.00   0.00 -14.51  48.62
-------------------------------------------------------------------------------

Segment Leq : 64.91 dBA
```

```
Results segment # 3: HWy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       17.16 !        17.16

ROAD (0.00 + 53.40 + 0.00) = 53.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    57     79   0.00  83.16   0.00  -9.41  -9.13   0.00   0.00 -11.22  53.40
-------------------------------------------------------------------------------

Segment Leq : 53.40 dBA

Total Leq All Segments: 65.50 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        5.75 !         5.75

ROAD (45.98 + 27.63 + 0.00) = 46.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -16     10   0.00  60.88   0.00  -6.50  -8.40   0.00   0.00   0.00  45.98
-------------------------------------------------------------------------------
    10     48   0.00  60.88   0.00  -6.50  -6.75   0.00   0.00 -20.00  27.63
-------------------------------------------------------------------------------

Segment Leq : 46.04 dBA
```

```
Results segment # 2: Hwy 417 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       15.60 !         15.60

ROAD (57.21 + 41.03 + 0.00) = 57.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -4     21   0.00  76.81   0.00 -11.03  -8.57   0.00   0.00   0.00  57.21
-------------------------------------------------------------------------------
    21     38   0.00  76.81   0.00 -11.03 -10.25   0.00   0.00 -14.51  41.03
-------------------------------------------------------------------------------

Segment Leq : 57.31 dBA
```

```
Results segment # 3: HWy 417 2 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       17.16 !        17.16

ROAD (0.00 + 45.80 + 0.00) = 45.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    57     79   0.00  75.56   0.00  -9.41  -9.13   0.00   0.00 -11.22  45.80
-------------------------------------------------------------------------------

Segment Leq : 45.80 dBA

Total Leq All Segments: 57.90 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.50
                           (NIGHT): 57.90
```

```
STAMSON 5.0        NORMAL REPORT        Date: 02-07-2021 09:04:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r18.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -23.00 deg   61.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 (day/night)
-----------------------------------------
Angle1   Angle2           : -31.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 160.00 / 160.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
--------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.13 + 0.00) = 64.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -23     61   0.00  69.11   0.00  -1.66  -3.31   0.00   0.00   0.00  64.13
-------------------------------------------------------------------------------

Segment Leq : 64.13 dBA

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

Source height = 1.50 m

ROAD (0.00 + 71.21 + 0.00) = 71.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -31     52   0.00  84.85   0.00 -10.28  -3.36   0.00   0.00   0.00  71.21
-------------------------------------------------------------------------------

Segment Leq : 71.21 dBA

Total Leq All Segments: 71.99 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 56.54 + 0.00) = 56.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -23     61   0.00  61.51   0.00  -1.66  -3.31   0.00   0.00   0.00  56.54
-------------------------------------------------------------------------------

Segment Leq : 56.54 dBA

Results segment # 2: Hwy 417 (night)
------------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.61 + 0.00) = 63.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -31     52   0.00  77.25   0.00 -10.28  -3.36   0.00   0.00   0.00  63.61
-------------------------------------------------------------------------------

Segment Leq : 63.61 dBA

Total Leq All Segments: 64.39 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.99
                           (NIGHT): 64.39
```

```
STAMSON 5.0        NORMAL REPORT        Date: 02-07-2021 09:31:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r19.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -78.00 deg   72.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  24.00 / 24.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  70.00 deg   85.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  86.00 / 86.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -38.00 deg   48.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 159.00 / 159.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -61.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  95.00 / 95.00  m
Receiver height           :  20.50 / 20.50  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
--------------------------------

Source height = 1.50 m

ROAD (0.00 + 66.27 + 0.00) = 66.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -78     72   0.00  69.11   0.00  -2.04  -0.79   0.00   0.00   0.00  66.27
-------------------------------------------------------------------------------

Segment Leq : 66.27 dBA

Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 64.78 + 0.00) = 64.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    70     85   0.00  83.16   0.00  -7.58 -10.79   0.00   0.00   0.00  64.78
-------------------------------------------------------------------------------

Segment Leq : 64.78 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 70.95 + 0.00) = 70.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -38     48   0.00  84.41   0.00 -10.25  -3.21   0.00   0.00   0.00  70.95
-------------------------------------------------------------------------------

Segment Leq : 70.95 dBA

Results segment # 4: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 67.09 + 0.00) = 67.09 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -61   0.09  84.41   0.00  -8.74  -8.58   0.00   0.00   0.00  67.09
-------------------------------------------------------------------------------

Segment Leq : 67.09 dBA

Total Leq All Segments: 73.95 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 58.68 + 0.00) = 58.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -78     72   0.00  61.51   0.00  -2.04  -0.79   0.00   0.00   0.00  58.68
-------------------------------------------------------------------------------

Segment Leq : 58.68 dBA

Results segment # 2: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 57.19 + 0.00) = 57.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    70     85   0.00  75.56   0.00  -7.58 -10.79   0.00   0.00   0.00  57.19
-------------------------------------------------------------------------------

Segment Leq : 57.19 dBA
```

```
Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.35 + 0.00) = 63.35 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -38     48   0.00  76.81   0.00 -10.25  -3.21   0.00   0.00   0.00  63.35
-------------------------------------------------------------------------------

Segment Leq : 63.35 dBA

Results segment # 4: Hwy 417 3 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.50 + 0.00) = 59.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -61   0.09  76.81   0.00  -8.74  -8.58   0.00   0.00   0.00  59.50
-------------------------------------------------------------------------------

Segment Leq : 59.50 dBA

Total Leq All Segments: 66.35 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.95
                           (NIGHT): 66.35
```

```
STAMSON 5.0        NORMAL REPORT        Date: 02-07-2021 09:59:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r20.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
----------------------------------------
Angle1   Angle2           : -17.00 deg   7.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 101.00 / 101.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -17.00 deg   Angle2 : -1.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  56.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 165.00 / 165.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  56.00 deg   Angle2 : 90.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  77.00 / 77.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  26.00 deg   37.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 234.00 / 234.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  26.00 deg   Angle2 : 37.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  77.00 / 77.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 234.00 / 234.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 26.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  77.00 / 77.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy417 4 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy417 4 (day/night)
-----------------------------------------
Angle1   Angle2           : -24.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 234.00 / 234.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -24.00 deg   Angle2 : -7.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  77.00 / 77.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Hwy417 5 (day/night)
----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Hwy417 5 (day/night)
----------------------------------------
Angle1   Angle2           : -90.00 deg   -50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 152.00 / 152.00 m
Receiver height           :  20.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -50.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  40.00 / 40.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        8.08 !         8.08

ROAD (0.00 + 30.31 + 47.30) = 47.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -17     -1   0.00  69.11   0.00  -8.28 -10.51   0.00   0.00 -20.00  30.31
-------------------------------------------------------------------------------
    -1      7   0.00  69.11   0.00  -8.28 -13.52   0.00   0.00   0.00  47.30
-------------------------------------------------------------------------------

Segment Leq : 47.39 dBA

Results segment # 2: Hwy 417 1 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       11.63 !        11.63

ROAD (0.00 + 53.96 + 0.00) = 53.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    56     90   0.00  83.16   0.00 -10.41  -7.24   0.00   0.00 -11.55  53.96
-------------------------------------------------------------------------------

Segment Leq : 53.96 dBA
```

```
Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       14.25 !        14.25

ROAD (0.00 + 45.75 + 0.00) = 45.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    26     37   0.00  84.41   0.00 -11.93 -12.14   0.00   0.00 -14.58  45.75
-------------------------------------------------------------------------------

Segment Leq : 45.75 dBA

Results segment # 4: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       14.25 !        14.25

ROAD (0.00 + 44.07 + 0.00) = 44.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     26   0.00  84.41   0.00 -11.93  -8.40   0.00   0.00 -20.00  44.07
-------------------------------------------------------------------------------

Segment Leq : 44.07 dBA
```

```
Results segment # 5: Hwy417 4 (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       14.25 !        14.25

ROAD (0.00 + 47.13 + 58.37) = 58.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -24     -7   0.00  84.41   0.00 -11.93 -10.25   0.00   0.00 -15.09  47.13
-------------------------------------------------------------------------------
    -7      0   0.00  84.41   0.00 -11.93 -14.10   0.00   0.00   0.00  58.37
-------------------------------------------------------------------------------

Segment Leq : 58.69 dBA

Results segment # 6: Hwy417 5 (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       15.50 !        15.50

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    -50   0.00  84.41   0.00 -10.06  -6.53   0.00   0.00 -19.65  48.17
-------------------------------------------------------------------------------

Segment Leq : 48.17 dBA

Total Leq All Segments: 60.69 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        8.08 !         8.08

ROAD (0.00 + 22.72 + 39.71) = 39.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -17     -1   0.00  61.51   0.00  -8.28 -10.51   0.00   0.00 -20.00  22.72
-------------------------------------------------------------------------------
    -1      7   0.00  61.51   0.00  -8.28 -13.52   0.00   0.00   0.00  39.71
-------------------------------------------------------------------------------

Segment Leq : 39.79 dBA

Results segment # 2: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       11.63 !        11.63

ROAD (0.00 + 46.36 + 0.00) = 46.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    56     90   0.00  75.56   0.00 -10.41  -7.24   0.00   0.00 -11.55  46.36
-------------------------------------------------------------------------------

Segment Leq : 46.36 dBA
```

```
Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       14.25 !        14.25

ROAD (0.00 + 38.16 + 0.00) = 38.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    26     37   0.00  76.81   0.00 -11.93 -12.14   0.00   0.00 -14.58  38.16
-------------------------------------------------------------------------------

Segment Leq : 38.16 dBA

Results segment # 4: Hwy 417 3 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       14.25 !        14.25

ROAD (0.00 + 36.48 + 0.00) = 36.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     26   0.00  76.81   0.00 -11.93  -8.40   0.00   0.00 -20.00  36.48
-------------------------------------------------------------------------------

Segment Leq : 36.48 dBA
```

```
Results segment # 5: Hwy417 4 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       14.25 !        14.25

ROAD (0.00 + 39.54 + 50.78) = 51.09 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -24     -7   0.00  76.81   0.00 -11.93 -10.25   0.00   0.00 -15.09  39.54
-------------------------------------------------------------------------------
    -7      0   0.00  76.81   0.00 -11.93 -14.10   0.00   0.00   0.00  50.78
-------------------------------------------------------------------------------

Segment Leq : 51.09 dBA

Results segment # 6: Hwy417 5 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       15.50 !        15.50

ROAD (0.00 + 40.57 + 0.00) = 40.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -50   0.00  76.81   0.00 -10.06  -6.53   0.00   0.00 -19.65  40.57
-------------------------------------------------------------------------------

Segment Leq : 40.57 dBA

Total Leq All Segments: 53.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.69
                           (NIGHT): 53.09
```

```
STAMSON 5.0        NORMAL REPORT        Date: 02-07-2021 10:55:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r21.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -59.00 deg   68.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  40.00 / 40.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -42.00 deg   Angle2 : 68.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  13.00 / 13.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -49.00 deg   35.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 167.00 / 167.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -42.00 deg   Angle2 : 35.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  28.00 / 28.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  66.00 / 66.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -85.00 deg
Barrier height            : 100.00 m
Barrier receiver distance :  23.00 / 23.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           :  54.00 deg   87.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 120.00 / 120.00 m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  54.00 deg   Angle2 : 87.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  28.00 / 28.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

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

ROAD (54.60 + 42.71 + 0.00) = 54.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -59    -42   0.00  69.11   0.00  -4.26 -10.25   0.00   0.00   0.00  54.60
-------------------------------------------------------------------------------
   -42     68   0.00  69.11   0.00  -4.26  -2.14   0.00   0.00 -20.00  42.71
-------------------------------------------------------------------------------

Segment Leq : 54.87 dBA
```

```
Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

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

ROAD (51.91 + 50.25 + 0.00) = 54.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49    -42   0.66  84.41   0.00 -17.37 -15.12   0.00   0.00   0.00  51.91
-------------------------------------------------------------------------------
   -42     35   0.00  84.41   0.00 -10.47  -3.69   0.00   0.00 -20.00  50.25
-------------------------------------------------------------------------------

Segment Leq : 54.17 dBA

Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 43.86 + 56.11) = 56.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -85   0.00  84.41   0.00  -6.43 -15.56   0.00   0.00 -18.55  43.86
-------------------------------------------------------------------------------
   -85    -75   0.66  84.41   0.00 -10.68 -17.62   0.00   0.00   0.00  56.11
-------------------------------------------------------------------------------

Segment Leq : 56.36 dBA
```

```
Results segment # 4: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 48.77 + 0.00) = 48.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    54     87   0.00  84.41   0.00  -9.03  -7.37   0.00   0.00 -19.24  48.77
-------------------------------------------------------------------------------

Segment Leq : 48.77 dBA

Total Leq All Segments: 60.32 dBA

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

Source height = 1.50 m

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

ROAD (47.00 + 35.11 + 0.00) = 47.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -59    -42   0.00  61.51   0.00  -4.26 -10.25   0.00   0.00   0.00  47.00
-------------------------------------------------------------------------------
   -42     68   0.00  61.51   0.00  -4.26  -2.14   0.00   0.00 -20.00  35.11
-------------------------------------------------------------------------------

Segment Leq : 47.27 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
-------------------------------------

Source height = 1.50 m

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

ROAD (44.31 + 42.66 + 0.00) = 46.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -49    -42   0.66  76.81   0.00 -17.37 -15.12   0.00   0.00   0.00  44.31
-------------------------------------------------------------------------------
   -42     35   0.00  76.81   0.00 -10.47  -3.69   0.00   0.00 -20.00  42.66
-------------------------------------------------------------------------------

Segment Leq : 46.57 dBA

Results segment # 3: Hwy 417 2 (night)
-------------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 36.27 + 48.51) = 48.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -85   0.00  76.81   0.00  -6.43 -15.56   0.00   0.00 -18.55  36.27
-------------------------------------------------------------------------------
   -85    -75   0.66  76.81   0.00 -10.68 -17.62   0.00   0.00   0.00  48.51
-------------------------------------------------------------------------------

Segment Leq : 48.76 dBA
```

```
Results segment # 4: Hwy 417 3 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        3.80 !         3.80

ROAD (0.00 + 41.56 + 0.00) = 41.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    54     87   0.00  76.81   0.00  -9.03  -7.37   0.00   0.00 -18.85  41.56
-------------------------------------------------------------------------------

Segment Leq : 41.56 dBA

Total Leq All Segments: 52.75 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.32
                           (NIGHT): 52.75
```

```
STAMSON 5.0        NORMAL REPORT        Date: 02-07-2021 11:33:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r22.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees1 (day/night)
---------------------------------------
Angle1   Angle2           : -32.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 127.00 / 127.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -32.00 deg   Angle2 : 23.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  26.00 / 26.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees2 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees2 (day/night)
---------------------------------------
Angle1   Angle2           : -90.00 deg   19.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 133.00 / 133.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 19.00 deg
Barrier height            :  22.00 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 # 3: Hwy 417 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 (day/night)
-----------------------------------------
Angle1   Angle2           : -34.00 deg   27.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 259.00 / 259.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 27.00 deg
Barrier height            :  85.00 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
Results segment # 1: Lees1 (day)
--------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 34.68 + 47.36) = 47.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -32     23   0.00  69.11   0.00  -9.28  -5.15   0.00   0.00 -20.00  34.68
-------------------------------------------------------------------------------
    23     90   0.66  69.11   0.00 -15.40  -6.35   0.00   0.00   0.00  47.36

Segment Leq : 47.59 dBA
```

```
Results segment # 2: Lees2 (day)
---------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 37.54 + 0.00) = 37.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     19   0.00  68.48   0.00  -9.48  -2.18   0.00   0.00 -19.28  37.54
-------------------------------------------------------------------------------

Segment Leq : 37.54 dBA

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

Source height = 1.50 m

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

ROAD (0.00 + 47.34 + 0.00) = 47.34 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34     27   0.00  84.41   0.00 -12.37  -4.70   0.00   0.00 -20.00  47.34
-------------------------------------------------------------------------------

Segment Leq : 47.34 dBA

Total Leq All Segments: 50.69 dBA
```

```
Results segment # 1: Lees1 (night)
----------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 27.08 + 39.77) = 39.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -32     23   0.00  61.51   0.00  -9.28  -5.15   0.00   0.00 -20.00  27.08
-------------------------------------------------------------------------------
    23     90   0.66  61.51   0.00 -15.40  -6.35   0.00   0.00   0.00  39.77
-------------------------------------------------------------------------------

Segment Leq : 39.99 dBA

Results segment # 2: Lees2 (night)
----------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 29.94 + 0.00) = 29.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     19   0.00  60.88   0.00  -9.48  -2.18   0.00   0.00 -19.28  29.94
-------------------------------------------------------------------------------

Segment Leq : 29.94 dBA

Results segment # 3: Hwy 417 (night)
------------------------------------

Source height = 1.50 m

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

```
ROAD (0.00 + 39.74 + 0.00) = 39.74 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34     27   0.00  76.81   0.00 -12.37  -4.70   0.00   0.00 -20.00  39.74
-------------------------------------------------------------------------------

Segment Leq : 39.74 dBA

Total Leq All Segments: 43.09 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 50.69
                           (NIGHT): 43.09
```

```
STAMSON 5.0        NORMAL REPORT        Date: 05-07-2021 14:18:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r23.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
--------------------------------------
Angle1   Angle2           : -76.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  16.00 / 16.00  m
Receiver height           :   8.00 / 8.00   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -76.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.50 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 2: Hwy 417 1 (day/night)
---------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
```

```
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -36.00 deg   22.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 167.00 / 167.00 m
Receiver height           :   8.00 / 8.00   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -36.00 deg   Angle2 : 22.00 deg
Barrier height            :   6.50 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           :  41.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 136.00 / 136.00 m
Receiver height           :   8.00 / 8.00   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  41.00 deg   Angle2 : 90.00 deg
Barrier height            :   6.50 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        8.00 !        5.56 !         5.56

ROAD (0.00 + 60.32 + 0.00) = 60.32 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -76     90   0.00  68.48   0.00  -0.28  -0.35   0.00   0.00  -7.53  60.32
-------------------------------------------------------------------------------

Segment Leq : 60.32 dBA
```

```
Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        8.00 !        7.77 !         7.77

ROAD (0.00 + 69.02 + 0.00) = 69.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -36     22   0.00  84.41   0.00 -10.47  -4.92   0.00   0.00   0.00  69.02*
   -36     22   0.00  84.41   0.00 -10.47  -4.92   0.00   0.00   0.00  69.02
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 69.02 dBA

Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        8.00 !        7.71 !         7.71

ROAD (0.00 + 67.93 + 0.00) = 67.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    41     90   0.00  83.16   0.00  -9.57  -5.65   0.00   0.00  -1.44  66.49*
    41     90   0.00  83.16   0.00  -9.57  -5.65   0.00   0.00   0.00  67.93
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 67.93 dBA

Total Leq All Segments: 71.84 dBA
```

Barrier table for segment # 1: Lees (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
6.50	6.50	60.32	60.32
6.60	6.60	59.90	59.90
6.70	6.70	59.49	59.49
6.80	6.80	59.08	59.08
6.90	6.90	58.68	58.68
7.00	7.00	58.29	58.29
7.10	7.10	57.90	57.90
7.20	7.20	57.53	57.53
7.30	7.30	57.16	57.16
7.40	7.40	56.81	56.81
7.50	7.50	56.47	56.47
7.60	7.60	56.14	56.14
7.70	7.70	55.82	55.82
7.80	7.80	55.51	55.51
7.90	7.90	55.21	55.21
8.00	8.00	54.91	54.91
8.10	8.10	54.63	54.63
8.20	8.20	54.36	54.36
8.30	8.30	54.09	54.09
8.40	8.40	53.83	53.83
8.50	8.50	53.58	53.58
8.60	8.60	53.34	53.34
8.70	8.70	53.10	53.10
8.80	8.80	52.87	52.87
8.90	8.90	52.64	52.64
9.00	9.00	52.42	52.42
9.10	9.10	52.21	52.21
9.20	9.20	52.00	52.00
9.30	9.30	51.79	51.79
9.40	9.40	51.59	51.59
9.50	9.50	51.40	51.40
9.60	9.60	51.29	51.29
9.70	9.70	51.14	51.14
9.80	9.80	51.00	51.00
9.90	9.90	50.87	50.87
10.00	10.00	50.74	50.74
10.10	10.10	50.63	50.63
10.20	10.20	50.52	50.52
10.30	10.30	50.41	50.41
10.40	10.40	50.32	50.32
10.50	10.50	50.23	50.23

Barrier table for segment # 2: Hwy 417 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

6.50	6.50	69.02	69.02
6.60	6.60	69.02	69.02
6.70	6.70	69.02	69.02
6.80	6.80	69.02	69.02
6.90	6.90	69.02	69.02
7.00	7.00	69.02	69.02
7.10	7.10	69.02	69.02
7.20	7.20	69.02	69.02
7.30	7.30	69.02	69.02
7.40	7.40	69.02	69.02
7.50	7.50	69.02	69.02
7.60	7.60	69.02	69.02
7.70	7.70	69.02	69.02
7.80	7.80	64.02	64.02
7.90	7.90	63.95	63.95
8.00	8.00	63.79	63.79
8.10	8.10	63.56	63.56
8.20	8.20	63.25	63.25
8.30	8.30	62.89	62.89
8.40	8.40	62.49	62.49
8.50	8.50	62.04	62.04
8.60	8.60	61.57	61.57
8.70	8.70	61.09	61.09
8.80	8.80	60.59	60.59
8.90	8.90	60.10	60.10
9.00	9.00	59.60	59.60
9.10	9.10	59.11	59.11
9.20	9.20	58.63	58.63
9.30	9.30	58.17	58.17
9.40	9.40	57.71	57.71
9.50	9.50	57.27	57.27
9.60	9.60	56.85	56.85
9.70	9.70	56.44	56.44
9.80	9.80	56.04	56.04
9.90	9.90	55.66	55.66
10.00	10.00	55.29	55.29
10.10	10.10	54.94	54.94
10.20	10.20	54.60	54.60
10.30	10.30	54.27	54.27
10.40	10.40	53.95	53.95
10.50	10.50	53.64	53.64

Barrier table for segment # 3: Hwy 417 2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
6.50	6.50	67.93	67.93
6.60	6.60	67.93	67.93
6.70	6.70	67.93	67.93
6.80	6.80	67.93	67.93
6.90	6.90	67.93	67.93
7.00	7.00	67.93	67.93

7.10	7.10	67.93	67.93
7.20	7.20	67.93	67.93
7.30	7.30	67.93	67.93
7.40	7.40	67.93	67.93
7.50	7.50	67.93	67.93
7.60	7.60	67.93	67.93
7.70	7.70	67.93	67.93
7.80	7.80	62.92	62.92
7.90	7.90	62.87	62.87
8.00	8.00	62.78	62.78
8.10	8.10	62.66	62.66
8.20	8.20	62.52	62.52
8.30	8.30	62.34	62.34
8.40	8.40	62.15	62.15
8.50	8.50	61.94	61.94
8.60	8.60	61.71	61.71
8.70	8.70	61.47	61.47
8.80	8.80	61.23	61.23
8.90	8.90	60.98	60.98
9.00	9.00	60.72	60.72
9.10	9.10	60.47	60.47
9.20	9.20	60.22	60.22
9.30	9.30	59.97	59.97
9.40	9.40	59.72	59.72
9.50	9.50	59.47	59.47
9.60	9.60	59.23	59.23
9.70	9.70	59.00	59.00
9.80	9.80	58.77	58.77
9.90	9.90	58.54	58.54
10.00	10.00	58.32	58.32
10.10	10.10	58.11	58.11
10.20	10.20	57.90	57.90
10.30	10.30	57.69	57.69
10.40	10.40	57.49	57.49
10.50	10.50	57.30	57.30

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        8.00 !        5.56 !         5.56

ROAD (0.00 + 52.72 + 0.00) = 52.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -76     90   0.00  60.88   0.00  -0.28  -0.35   0.00   0.00  -7.53  52.72
-------------------------------------------------------------------------------

Segment Leq : 52.72 dBA

Results segment # 2: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        8.00 !        7.77 !         7.77

ROAD (0.00 + 61.43 + 0.00) = 61.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -36     22   0.00  76.81   0.00 -10.47  -4.92   0.00   0.00   0.00  61.43*
   -36     22   0.00  76.81   0.00 -10.47  -4.92   0.00   0.00   0.00  61.43
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 61.43 dBA
```

```
Results segment # 3: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
---------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        8.00 !        7.71 !         7.71

ROAD (0.00 + 60.34 + 0.00) = 60.34 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    41     90   0.00  75.56   0.00  -9.57  -5.65   0.00   0.00  -1.44  58.89*
    41     90   0.00  75.56   0.00  -9.57  -5.65   0.00   0.00   0.00  60.34
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 60.34 dBA

Total Leq All Segments: 64.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.84
                           (NIGHT): 64.25
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 13:24:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r24.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           :  -3.00 deg   19.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  41.00 / 41.00  m
Receiver height           :   9.30 / 9.30   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  -3.00 deg   Angle2 : 19.00 deg
Barrier height            :   7.80 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
```

```
Road data, segment # 2: Hwy 417 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 (day/night)
-----------------------------------------
Angle1   Angle2           : -20.00 deg   2.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 176.00 / 176.00 m
Receiver height           :   9.30 / 9.30   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -20.00 deg   Angle2 : 2.00 deg
Barrier height            :   7.80 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: Lees (day)
-------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        9.30 !        4.54 !         4.54

ROAD (0.00 + 40.97 + 0.00) = 40.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -3     19   0.00  69.11   0.00  -4.37  -9.13   0.00   0.00 -14.64  40.97
-------------------------------------------------------------------------------

Segment Leq : 40.97 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        9.30 !        8.19 !         8.19

ROAD (0.00 + 64.58 + 0.00) = 64.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -20      2   0.00  84.41   0.00 -10.69  -9.13   0.00   0.00  -4.81  59.77*
   -20      2   0.00  84.41   0.00 -10.69  -9.13   0.00   0.00   0.00  64.58
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 64.58 dBA

Total Leq All Segments: 64.60 dBA
```

Barrier table for segment # 1: Lees (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
7.80	7.80	40.97	40.97
7.90	7.90	40.72	40.72
8.00	8.00	40.47	40.47
8.10	8.10	40.23	40.23
8.20	8.20	40.00	40.00
8.30	8.30	39.77	39.77
8.40	8.40	39.55	39.55
8.50	8.50	39.33	39.33
8.60	8.60	39.12	39.12
8.70	8.70	38.92	38.92
8.80	8.80	38.72	38.72
8.90	8.90	38.52	38.52
9.00	9.00	38.33	38.33
9.10	9.10	38.14	38.14
9.20	9.20	37.95	37.95
9.30	9.30	37.77	37.77
9.40	9.40	37.60	37.60
9.50	9.50	37.43	37.43
9.60	9.60	37.26	37.26
9.70	9.70	37.09	37.09
9.80	9.80	36.93	36.93
9.90	9.90	36.77	36.77
10.00	10.00	36.61	36.61
10.10	10.10	36.46	36.46
10.20	10.20	36.31	36.31
10.30	10.30	36.16	36.16
10.40	10.40	36.02	36.02
10.50	10.50	35.87	35.87
10.60	10.60	35.73	35.73
10.70	10.70	35.64	35.64
10.80	10.80	35.61	35.61
10.90	10.90	35.61	35.61
11.00	11.00	35.61	35.61
11.10	11.10	35.61	35.61
11.20	11.20	35.61	35.61
11.30	11.30	35.61	35.61
11.40	11.40	35.61	35.61
11.50	11.50	35.61	35.61
11.60	11.60	35.61	35.61
11.70	11.70	35.61	35.61
11.80	11.80	35.61	35.61

Barrier table for segment # 2: Hwy 417 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

7.80	7.80	64.58	64.58
7.90	7.90	64.58	64.58
8.00	8.00	64.58	64.58
8.10	8.10	64.58	64.58
8.20	8.20	59.58	59.58
8.30	8.30	59.57	59.57
8.40	8.40	59.53	59.53
8.50	8.50	59.47	59.47
8.60	8.60	59.39	59.39
8.70	8.70	59.28	59.28
8.80	8.80	59.15	59.15
8.90	8.90	59.00	59.00
9.00	9.00	58.84	58.84
9.10	9.10	58.66	58.66
9.20	9.20	58.46	58.46
9.30	9.30	58.25	58.25
9.40	9.40	58.03	58.03
9.50	9.50	57.80	57.80
9.60	9.60	57.56	57.56
9.70	9.70	57.31	57.31
9.80	9.80	57.06	57.06
9.90	9.90	56.80	56.80
10.00	10.00	56.54	56.54
10.10	10.10	56.28	56.28
10.20	10.20	56.02	56.02
10.30	10.30	55.75	55.75
10.40	10.40	55.49	55.49
10.50	10.50	55.22	55.22
10.60	10.60	54.96	54.96
10.70	10.70	54.70	54.70
10.80	10.80	54.45	54.45
10.90	10.90	54.19	54.19
11.00	11.00	53.94	53.94
11.10	11.10	53.69	53.69
11.20	11.20	53.45	53.45
11.30	11.30	53.21	53.21
11.40	11.40	52.97	52.97
11.50	11.50	52.74	52.74
11.60	11.60	52.51	52.51
11.70	11.70	52.28	52.28
11.80	11.80	52.06	52.06

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        9.30 !        4.54 !          4.54

ROAD (0.00 + 33.37 + 0.00) = 33.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -3     19   0.00  61.51   0.00  -4.37  -9.13   0.00   0.00 -14.64  33.37
-------------------------------------------------------------------------------

Segment Leq : 33.37 dBA
```

```
Results segment # 2: Hwy 417 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        9.30 !        8.19 !         8.19

ROAD (0.00 + 56.99 + 0.00) = 56.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -20      2   0.00  76.81   0.00 -10.69  -9.13   0.00   0.00  -4.81  52.18*
   -20      2   0.00  76.81   0.00 -10.69  -9.13   0.00   0.00   0.00  56.99
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 56.99 dBA

Total Leq All Segments: 57.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.60
                           (NIGHT): 57.01
```

```
STAMSON 5.0        NORMAL REPORT        Date: 05-07-2021 15:36:08
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r25.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -22.00 deg   63.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  27.00 / 27.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -22.00 deg   Angle2 : 63.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -75.00 deg   23.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  27.00 / 27.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -75.00 deg   Angle2 : 23.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy417 3 (day/night)
-------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy417 3 (day/night)
------------------------------------------
Angle1   Angle2           : -90.00 deg   -79.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  47.00 / 47.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -79.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  55.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 106.00 / 106.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  55.00 deg   Angle2 : 90.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -53.00 deg   36.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -53.00 deg   Angle2 : 36.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   6.00 / 6.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       18.61 !        18.61

ROAD (0.00 + 47.42 + 0.00) = 47.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -22     63   0.00  68.48   0.00  -2.55  -3.26   0.00   0.00 -15.25  47.42
-------------------------------------------------------------------------------

Segment Leq : 47.42 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       18.61 !        18.61

ROAD (0.00 + 48.63 + 0.00) = 48.63 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -75     23   0.00  68.48   0.00  -2.55  -2.64   0.00   0.00 -14.65  48.63
-------------------------------------------------------------------------------

Segment Leq : 48.63 dBA
```

```
Results segment # 3: Hwy417 3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       20.69 !        20.69

ROAD (0.00 + 62.15 + 0.00) = 62.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -79   0.00  84.85   0.00  -4.96 -12.14   0.00   0.00  -5.60  62.15
-------------------------------------------------------------------------------

Segment Leq : 62.15 dBA
```

```
Results segment # 4: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.25 !        22.25

ROAD (0.00 + 67.55 + 0.00) = 67.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    55     90   0.00  83.16   0.00  -8.49  -7.11   0.00   0.00  -4.92  62.64*
    55     90   0.00  83.16   0.00  -8.49  -7.11   0.00   0.00   0.00  67.55
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 67.55 dBA
```

```
Results segment # 5: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.61 !        22.61

ROAD (0.00 + 71.38 + 0.00) = 71.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53     36   0.00  84.41   0.00  -9.97  -3.06   0.00   0.00  -3.31  68.07*
   -53     36   0.00  84.41   0.00  -9.97  -3.06   0.00   0.00   0.00  71.38
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 71.38 dBA

Total Leq All Segments: 73.26 dBA
```

Barrier table for segment # 1: Lees 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	47.42	47.42
22.10	22.10	47.15	47.15
22.20	22.20	46.88	46.88
22.30	22.30	46.62	46.62
22.40	22.40	46.37	46.37
22.50	22.50	46.12	46.12
22.60	22.60	45.88	45.88
22.70	22.70	45.64	45.64
22.80	22.80	45.41	45.41
22.90	22.90	45.19	45.19
23.00	23.00	44.96	44.96
23.10	23.10	44.75	44.75
23.20	23.20	44.54	44.54
23.30	23.30	44.33	44.33
23.40	23.40	44.12	44.12
23.50	23.50	43.92	43.92
23.60	23.60	43.73	43.73
23.70	23.70	43.54	43.54
23.80	23.80	43.40	43.40
23.90	23.90	43.29	43.29
24.00	24.00	43.20	43.20
24.10	24.10	43.12	43.12
24.20	24.20	43.05	43.05
24.30	24.30	42.99	42.99
24.40	24.40	42.94	42.94
24.50	24.50	42.89	42.89
24.60	24.60	42.85	42.85
24.70	24.70	42.82	42.82
24.80	24.80	42.79	42.79
24.90	24.90	42.76	42.76
25.00	25.00	42.74	42.74
25.10	25.10	42.72	42.72
25.20	25.20	42.71	42.71
25.30	25.30	42.70	42.70
25.40	25.40	42.69	42.69
25.50	25.50	42.68	42.68
25.60	25.60	42.67	42.67
25.70	25.70	42.67	42.67
25.80	25.80	42.67	42.67
25.90	25.90	42.67	42.67
26.00	26.00	42.67	42.67
26.10	26.10	42.67	42.67
26.20	26.20	42.67	42.67
26.30	26.30	42.67	42.67
26.40	26.40	42.67	42.67
26.50	26.50	42.67	42.67

Barrier table for segment # 2: Lees 2 (day)

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

Barrier ! Elev of !  Road   ! Tot Leq !
Height  ! Barr Top!  dBA    !   dBA   !
--------+---------+---------+---------+
  22.00 !   22.00 !   48.63 !   48.63 !
  22.10 !   22.10 !   48.37 !   48.37 !
  22.20 !   22.20 !   48.11 !   48.11 !
  22.30 !   22.30 !   47.86 !   47.86 !
  22.40 !   22.40 !   47.61 !   47.61 !
  22.50 !   22.50 !   47.36 !   47.36 !
  22.60 !   22.60 !   47.13 !   47.13 !
  22.70 !   22.70 !   46.89 !   46.89 !
  22.80 !   22.80 !   46.66 !   46.66 !
  22.90 !   22.90 !   46.44 !   46.44 !
  23.00 !   23.00 !   46.22 !   46.22 !
  23.10 !   23.10 !   46.01 !   46.01 !
  23.20 !   23.20 !   45.80 !   45.80 !
  23.30 !   23.30 !   45.59 !   45.59 !
  23.40 !   23.40 !   45.39 !   45.39 !
  23.50 !   23.50 !   45.19 !   45.19 !
  23.60 !   23.60 !   44.99 !   44.99 !
  23.70 !   23.70 !   44.80 !   44.80 !
  23.80 !   23.80 !   44.65 !   44.65 !
  23.90 !   23.90 !   44.53 !   44.53 !
  24.00 !   24.00 !   44.42 !   44.42 !
  24.10 !   24.10 !   44.31 !   44.31 !
  24.20 !   24.20 !   44.22 !   44.22 !
  24.30 !   24.30 !   44.14 !   44.14 !
  24.40 !   24.40 !   44.06 !   44.06 !
  24.50 !   24.50 !   43.99 !   43.99 !
  24.60 !   24.60 !   43.92 !   43.92 !
  24.70 !   24.70 !   43.86 !   43.86 !
  24.80 !   24.80 !   43.81 !   43.81 !
  24.90 !   24.90 !   43.76 !   43.76 !
  25.00 !   25.00 !   43.71 !   43.71 !
  25.10 !   25.10 !   43.67 !   43.67 !
  25.20 !   25.20 !   43.63 !   43.63 !
  25.30 !   25.30 !   43.60 !   43.60 !
  25.40 !   25.40 !   43.56 !   43.56 !
  25.50 !   25.50 !   43.53 !   43.53 !
  25.60 !   25.60 !   43.51 !   43.51 !
  25.70 !   25.70 !   43.48 !   43.48 !
  25.80 !   25.80 !   43.46 !   43.46 !
  25.90 !   25.90 !   43.44 !   43.44 !
  26.00 !   26.00 !   43.42 !   43.42 !
  26.10 !   26.10 !   43.41 !   43.41 !
  26.20 !   26.20 !   43.39 !   43.39 !
  26.30 !   26.30 !   43.38 !   43.38 !
  26.40 !   26.40 !   43.36 !   43.36 !
  26.50 !   26.50 !   43.35 !   43.35 !

Barrier table for segment # 3: Hwy417 3 (day)
-------------------------------------------
```

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	62.15	62.15
22.10	22.10	62.06	62.06
22.20	22.20	61.96	61.96
22.30	22.30	61.86	61.86
22.40	22.40	61.76	61.76
22.50	22.50	61.65	61.65
22.60	22.60	61.55	61.55
22.70	22.70	61.43	61.43
22.80	22.80	61.32	61.32
22.90	22.90	61.20	61.20
23.00	23.00	61.09	61.09
23.10	23.10	60.97	60.97
23.20	23.20	60.84	60.84
23.30	23.30	60.72	60.72
23.40	23.40	60.60	60.60
23.50	23.50	60.48	60.48
23.60	23.60	60.35	60.35
23.70	23.70	60.23	60.23
23.80	23.80	60.11	60.11
23.90	23.90	59.98	59.98
24.00	24.00	59.86	59.86
24.10	24.10	59.74	59.74
24.20	24.20	59.62	59.62
24.30	24.30	59.49	59.49
24.40	24.40	59.37	59.37
24.50	24.50	59.25	59.25
24.60	24.60	59.14	59.14
24.70	24.70	59.02	59.02
24.80	24.80	58.90	58.90
24.90	24.90	58.79	58.79
25.00	25.00	58.67	58.67
25.10	25.10	58.56	58.56
25.20	25.20	58.45	58.45
25.30	25.30	58.34	58.34
25.40	25.40	58.23	58.23
25.50	25.50	58.12	58.12
25.60	25.60	58.01	58.01
25.70	25.70	57.91	57.91
25.80	25.80	57.80	57.80
25.90	25.90	57.70	57.70
26.00	26.00	57.60	57.60
26.10	26.10	57.50	57.50
26.20	26.20	57.40	57.40
26.30	26.30	57.30	57.30
26.40	26.40	57.21	57.21
26.50	26.50	57.11	57.11

Barrier table for segment # 4: Hwy 417 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	67.55	67.55
22.10	22.10	67.55	67.55
22.20	22.20	67.55	67.55
22.30	22.30	62.55	62.55
22.40	22.40	62.53	62.53
22.50	22.50	62.48	62.48
22.60	22.60	62.40	62.40
22.70	22.70	62.30	62.30
22.80	22.80	62.18	62.18
22.90	22.90	62.04	62.04
23.00	23.00	61.88	61.88
23.10	23.10	61.71	61.71
23.20	23.20	61.53	61.53
23.30	23.30	61.33	61.33
23.40	23.40	61.13	61.13
23.50	23.50	60.92	60.92
23.60	23.60	60.71	60.71
23.70	23.70	60.49	60.49
23.80	23.80	60.28	60.28
23.90	23.90	60.06	60.06
24.00	24.00	59.84	59.84
24.10	24.10	59.62	59.62
24.20	24.20	59.41	59.41
24.30	24.30	59.20	59.20
24.40	24.40	58.99	58.99
24.50	24.50	58.78	58.78
24.60	24.60	58.58	58.58
24.70	24.70	58.38	58.38
24.80	24.80	58.18	58.18
24.90	24.90	57.99	57.99
25.00	25.00	57.80	57.80
25.10	25.10	57.62	57.62
25.20	25.20	57.43	57.43
25.30	25.30	57.26	57.26
25.40	25.40	57.08	57.08
25.50	25.50	56.91	56.91
25.60	25.60	56.75	56.75
25.70	25.70	56.58	56.58
25.80	25.80	56.42	56.42
25.90	25.90	56.27	56.27
26.00	26.00	56.11	56.11
26.10	26.10	55.96	55.96
26.20	26.20	55.82	55.82
26.30	26.30	55.67	55.67
26.40	26.40	55.53	55.53
26.50	26.50	55.40	55.40

Barrier table for segment # 5: Hwy 417 2 (day)

Barrier	Elev of	Road	Tot Leq

Height	Barr Top	dBA	dBA
22.00	22.00	71.38	71.38
22.10	22.10	71.38	71.38
22.20	22.20	71.38	71.38
22.30	22.30	71.38	71.38
22.40	22.40	71.38	71.38
22.50	22.50	71.38	71.38
22.60	22.60	71.38	71.38
22.70	22.70	66.35	66.35
22.80	22.80	66.24	66.24
22.90	22.90	66.06	66.06
23.00	23.00	65.81	65.81
23.10	23.10	65.50	65.50
23.20	23.20	65.13	65.13
23.30	23.30	64.73	64.73
23.40	23.40	64.30	64.30
23.50	23.50	63.84	63.84
23.60	23.60	63.37	63.37
23.70	23.70	62.89	62.89
23.80	23.80	62.41	62.41
23.90	23.90	61.93	61.93
24.00	24.00	61.46	61.46
24.10	24.10	60.99	60.99
24.20	24.20	60.54	60.54
24.30	24.30	60.10	60.10
24.40	24.40	59.67	59.67
24.50	24.50	59.25	59.25
24.60	24.60	58.85	58.85
24.70	24.70	58.46	58.46
24.80	24.80	58.08	58.08
24.90	24.90	57.72	57.72
25.00	25.00	57.36	57.36
25.10	25.10	57.03	57.03
25.20	25.20	56.70	56.70
25.30	25.30	56.38	56.38
25.40	25.40	56.08	56.08
25.50	25.50	55.78	55.78
25.60	25.60	55.50	55.50
25.70	25.70	55.22	55.22
25.80	25.80	54.96	54.96
25.90	25.90	54.70	54.70
26.00	26.00	54.45	54.45
26.10	26.10	54.20	54.20
26.20	26.20	53.97	53.97
26.30	26.30	53.74	53.74
26.40	26.40	53.52	53.52
26.50	26.50	53.30	53.30

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       18.61 !        18.61

ROAD (0.00 + 39.82 + 0.00) = 39.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -22     63   0.00  60.88   0.00  -2.55  -3.26   0.00   0.00 -15.25  39.82
-------------------------------------------------------------------------------

Segment Leq : 39.82 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       18.61 !        18.61

ROAD (0.00 + 41.04 + 0.00) = 41.04 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -75     23   0.00  60.88   0.00  -2.55  -2.64   0.00   0.00 -14.65  41.04
-------------------------------------------------------------------------------

Segment Leq : 41.04 dBA
```

```
Results segment # 3: Hwy417 3 (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       20.69 !        20.69

ROAD (0.00 + 54.55 + 0.00) = 54.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -79   0.00  77.25   0.00  -4.96 -12.14   0.00   0.00  -5.60  54.55
-------------------------------------------------------------------------------

Segment Leq : 54.55 dBA

Results segment # 4: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.25 !        22.25

ROAD (0.00 + 59.96 + 0.00) = 59.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    55     90   0.00  75.56   0.00  -8.49  -7.11   0.00   0.00  -4.92  55.04*
    55     90   0.00  75.56   0.00  -8.49  -7.11   0.00   0.00   0.00  59.96
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 59.96 dBA
```

```
Results segment # 5: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.61 !        22.61

ROAD (0.00 + 63.78 + 0.00) = 63.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -53     36   0.00  76.81   0.00  -9.97  -3.06   0.00   0.00  -3.31  60.47*
   -53     36   0.00  76.81   0.00  -9.97  -3.06   0.00   0.00   0.00  63.78
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 63.78 dBA

Total Leq All Segments: 65.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 73.26
                           (NIGHT): 65.67
```

```
STAMSON 5.0        NORMAL REPORT        Date: 05-07-2021 17:46:34
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r26.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -45.00 deg   -28.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  66.00 / 66.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -45.00 deg   Angle2 : -28.00 deg
Barrier height            :  22.00 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: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     2 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -28.00 deg   21.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 192.00 / 192.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -28.00 deg   Angle2 : 21.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -42.00 deg   -26.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 192.00 / 192.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -42.00 deg   Angle2 : -26.00 deg
Barrier height            :  23.10 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 # 4: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -26.00 deg   24.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 192.00 / 192.00 m
Receiver height           :   1.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -26.00 deg   Angle2 : 24.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees (day)
-------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       20.17 !        20.17

ROAD (0.00 + 42.61 + 0.00) = 42.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45    -28   0.00  69.11   0.00  -6.43 -10.25   0.00   0.00  -9.81  42.61
-------------------------------------------------------------------------------

Segment Leq : 42.61 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.54 !        17.54

ROAD (0.00 + 40.54 + 0.00) = 40.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28     21   0.00  69.11   0.00 -11.07  -5.65   0.00   0.00 -11.85  40.54
-------------------------------------------------------------------------------

Segment Leq : 40.54 dBA
```

```
Results segment # 3: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.35 !        22.35

ROAD (0.00 + 56.67 + 0.00) = 56.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -42    -26   0.00  84.41   0.00 -11.07 -10.51   0.00   0.00  -6.15  56.67
-------------------------------------------------------------------------------

Segment Leq : 56.67 dBA

Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

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

ROAD (0.00 + 47.77 + 0.00) = 47.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26     24   0.00  84.41   0.00 -11.07  -5.56   0.00   0.00 -20.00  47.77
-------------------------------------------------------------------------------

Segment Leq : 47.77 dBA

Total Leq All Segments: 57.43 dBA
```

Barrier table for segment # 1: Lees (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	42.61	42.61
22.10	22.10	42.26	42.26
22.20	22.20	41.91	41.91
22.30	22.30	41.56	41.56
22.40	22.40	41.23	41.23
22.50	22.50	40.89	40.89
22.60	22.60	40.57	40.57
22.70	22.70	40.25	40.25
22.80	22.80	39.94	39.94
22.90	22.90	39.64	39.64
23.00	23.00	39.34	39.34
23.10	23.10	39.06	39.06
23.20	23.20	38.78	38.78
23.30	23.30	38.50	38.50
23.40	23.40	38.23	38.23
23.50	23.50	37.97	37.97
23.60	23.60	37.72	37.72
23.70	23.70	37.47	37.47
23.80	23.80	37.23	37.23
23.90	23.90	36.99	36.99
24.00	24.00	36.76	36.76
24.10	24.10	36.54	36.54
24.20	24.20	36.32	36.32
24.30	24.30	36.10	36.10
24.40	24.40	35.89	35.89
24.50	24.50	35.69	35.69
24.60	24.60	35.49	35.49
24.70	24.70	35.29	35.29
24.80	24.80	35.10	35.10
24.90	24.90	34.91	34.91
25.00	25.00	34.73	34.73
25.10	25.10	34.55	34.55
25.20	25.20	34.37	34.37
25.30	25.30	34.20	34.20
25.40	25.40	34.03	34.03
25.50	25.50	33.86	33.86
25.60	25.60	33.70	33.70
25.70	25.70	33.54	33.54
25.80	25.80	33.38	33.38
25.90	25.90	33.23	33.23
26.00	26.00	33.08	33.08

Barrier table for segment # 2: Lees 2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

22.00	22.00	40.54	40.54
22.10	22.10	40.37	40.37
22.20	22.20	40.20	40.20
22.30	22.30	40.03	40.03
22.40	22.40	39.87	39.87
22.50	22.50	39.70	39.70
22.60	22.60	39.54	39.54
22.70	22.70	39.39	39.39
22.80	22.80	39.23	39.23
22.90	22.90	39.08	39.08
23.00	23.00	38.93	38.93
23.10	23.10	38.78	38.78
23.20	23.20	38.63	38.63
23.30	23.30	38.48	38.48
23.40	23.40	38.34	38.34
23.50	23.50	38.20	38.20
23.60	23.60	38.06	38.06
23.70	23.70	37.92	37.92
23.80	23.80	37.79	37.79
23.90	23.90	37.65	37.65
24.00	24.00	37.52	37.52
24.10	24.10	37.39	37.39
24.20	24.20	37.26	37.26
24.30	24.30	37.13	37.13
24.40	24.40	37.01	37.01
24.50	24.50	36.88	36.88
24.60	24.60	36.76	36.76
24.70	24.70	36.64	36.64
24.80	24.80	36.52	36.52
24.90	24.90	36.41	36.41
25.00	25.00	36.29	36.29
25.10	25.10	36.18	36.18
25.20	25.20	36.06	36.06
25.30	25.30	35.95	35.95
25.40	25.40	35.84	35.84
25.50	25.50	35.73	35.73
25.60	25.60	35.62	35.62
25.70	25.70	35.52	35.52
25.80	25.80	35.41	35.41
25.90	25.90	35.31	35.31
26.00	26.00	35.20	35.20

Barrier table for segment # 3: Hwy 417 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
23.10	23.10	56.67	56.67
23.20	23.20	56.38	56.38
23.30	23.30	56.06	56.06
23.40	23.40	55.73	55.73
23.50	23.50	55.39	55.39
23.60	23.60	55.03	55.03

23.70	23.70	54.68	54.68
23.80	23.80	54.31	54.31
23.90	23.90	53.95	53.95
24.00	24.00	53.58	53.58
24.10	24.10	53.22	53.22
24.20	24.20	52.87	52.87
24.30	24.30	52.52	52.52
24.40	24.40	52.17	52.17
24.50	24.50	51.83	51.83
24.60	24.60	51.50	51.50
24.70	24.70	51.17	51.17
24.80	24.80	50.85	50.85
24.90	24.90	50.54	50.54
25.00	25.00	50.24	50.24
25.10	25.10	49.94	49.94
25.20	25.20	49.65	49.65
25.30	25.30	49.37	49.37
25.40	25.40	49.10	49.10
25.50	25.50	48.83	48.83
25.60	25.60	48.57	48.57
25.70	25.70	48.32	48.32
25.80	25.80	48.07	48.07
25.90	25.90	47.83	47.83
26.00	26.00	47.60	47.60
26.10	26.10	47.37	47.37
26.20	26.20	47.15	47.15
26.30	26.30	46.93	46.93
26.40	26.40	46.72	46.72
26.50	26.50	46.52	46.52
26.60	26.60	46.31	46.31
26.70	26.70	46.12	46.12
26.80	26.80	45.93	45.93
26.90	26.90	45.74	45.74
27.00	27.00	45.55	45.55
27.10	27.10	45.37	45.37

Barrier table for segment # 4: Hwy 417 2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	47.77	47.77
22.10	22.10	47.77	47.77
22.20	22.20	47.77	47.77
22.30	22.30	47.77	47.77
22.40	22.40	47.77	47.77
22.50	22.50	47.77	47.77
22.60	22.60	47.77	47.77
22.70	22.70	47.77	47.77
22.80	22.80	47.77	47.77
22.90	22.90	47.77	47.77
23.00	23.00	47.77	47.77
23.10	23.10	47.77	47.77

```
  23.20 !   23.20 !   47.77 !   47.77 !
  23.30 !   23.30 !   47.77 !   47.77 !
  23.40 !   23.40 !   47.77 !   47.77 !
  23.50 !   23.50 !   47.77 !   47.77 !
  23.60 !   23.60 !   47.77 !   47.77 !
  23.70 !   23.70 !   47.77 !   47.77 !
  23.80 !   23.80 !   47.77 !   47.77 !
  23.90 !   23.90 !   47.77 !   47.77 !
  24.00 !   24.00 !   47.77 !   47.77 !
  24.10 !   24.10 !   47.77 !   47.77 !
  24.20 !   24.20 !   47.77 !   47.77 !
  24.30 !   24.30 !   47.77 !   47.77 !
  24.40 !   24.40 !   47.77 !   47.77 !
  24.50 !   24.50 !   47.77 !   47.77 !
  24.60 !   24.60 !   47.77 !   47.77 !
  24.70 !   24.70 !   47.77 !   47.77 !
  24.80 !   24.80 !   47.77 !   47.77 !
  24.90 !   24.90 !   47.77 !   47.77 !
  25.00 !   25.00 !   47.77 !   47.77 !
  25.10 !   25.10 !   47.77 !   47.77 !
  25.20 !   25.20 !   47.77 !   47.77 !
  25.30 !   25.30 !   47.77 !   47.77 !
  25.40 !   25.40 !   47.77 !   47.77 !
  25.50 !   25.50 !   47.77 !   47.77 !
  25.60 !   25.60 !   47.77 !   47.77 !
  25.70 !   25.70 !   47.77 !   47.77 !
  25.80 !   25.80 !   47.77 !   47.77 !
  25.90 !   25.90 !   47.77 !   47.77 !
  26.00 !   26.00 !   47.77 !   47.77 !

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       20.17 !        20.17

ROAD (0.00 + 35.01 + 0.00) = 35.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45    -28   0.00  61.51   0.00  -6.43 -10.25   0.00   0.00  -9.81  35.01
-------------------------------------------------------------------------------

Segment Leq : 35.01 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.54 !        17.54

ROAD (0.00 + 32.94 + 0.00) = 32.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28     21   0.00  61.51   0.00 -11.07  -5.65   0.00   0.00 -11.85  32.94
-------------------------------------------------------------------------------

Segment Leq : 32.94 dBA

Results segment # 3: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.35 !        22.35

ROAD (0.00 + 49.07 + 0.00) = 49.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -42    -26   0.00  76.81   0.00 -11.07 -10.51   0.00   0.00  -6.15  49.07
-------------------------------------------------------------------------------

Segment Leq : 49.07 dBA
```

```
Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.54 !        17.54

ROAD (0.00 + 48.33 + 0.00) = 48.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26     24   0.00  76.81   0.00 -11.07  -5.56   0.00   0.00 -11.85  48.33
-------------------------------------------------------------------------------

Segment Leq : 48.33 dBA

Total Leq All Segments: 51.87 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.43
                           (NIGHT): 51.87
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 09:06:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r27.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -15.00 deg   74.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -15.00 deg   Angle2 : 74.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   2.00 / 2.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           : -81.00 deg   9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  22.00 / 22.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -81.00 deg   Angle2 : 9.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   2.00 / 2.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 89054/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 109998
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           :  68.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  84.00 / 84.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  68.00 deg   Angle2 : 90.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   2.00 / 2.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -45.00 deg   49.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 145.00 / 145.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -45.00 deg   Angle2 : 49.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   2.00 / 2.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -71.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  67.00 / 67.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -71.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   2.00 / 2.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.50 !        21.50

ROAD (0.00 + 57.73 + 0.00) = 57.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     74   0.00  68.48   0.00  -1.66  -3.06   0.00   0.00  -6.03  57.73
-------------------------------------------------------------------------------

Segment Leq : 57.73 dBA
```

Results segment # 2: Lees 2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	23.50	21.50	21.50

ROAD (0.00 + 57.85 + 0.00) = 57.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-81	9	0.00	68.48	0.00	-1.66	-3.01	0.00	0.00	-5.95	57.85

Segment Leq : 57.85 dBA

Results segment # 3: Hwy 417 1 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	23.50	22.98	22.98

ROAD (0.00 + 66.55 + 0.00) = 66.55 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
68	90	0.00	83.16	0.00	-7.48	-9.13	0.00	0.00	-2.27	64.28*
68	90	0.00	83.16	0.00	-7.48	-9.13	0.00	0.00	0.00	66.55

* Bright Zone !

Segment Leq : 66.55 dBA

```
Results segment # 4: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.20 !        23.20

ROAD (0.00 + 71.73 + 0.00) = 71.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45     49   0.00  84.41   0.00  -9.85  -2.82   0.00   0.00   0.00  71.73*
   -45     49   0.00  84.41   0.00  -9.85  -2.82   0.00   0.00   0.00  71.73
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 71.73 dBA
Results segment # 5: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.84 !        22.84

ROAD (0.00 + 68.14 + 0.00) = 68.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -71   0.00  84.41   0.00  -6.50  -9.77   0.00   0.00  -3.54  64.60*
   -90    -71   0.00  84.41   0.00  -6.50  -9.77   0.00   0.00   0.00  68.14
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 68.14 dBA

Total Leq All Segments: 74.33 dBA
```

Barrier table for segment # 1: Lees 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	57.73	57.73
22.10	22.10	57.30	57.30
22.20	22.20	56.83	56.83
22.30	22.30	56.31	56.31
22.40	22.40	55.76	55.76
22.50	22.50	55.19	55.19
22.60	22.60	54.61	54.61
22.70	22.70	54.03	54.03
22.80	22.80	53.45	53.45
22.90	22.90	52.87	52.87
23.00	23.00	52.30	52.30
23.10	23.10	51.74	51.74
23.20	23.20	51.19	51.19
23.30	23.30	50.66	50.66
23.40	23.40	50.15	50.15
23.50	23.50	49.65	49.65
23.60	23.60	49.18	49.18
23.70	23.70	48.72	48.72
23.80	23.80	48.27	48.27
23.90	23.90	47.85	47.85
24.00	24.00	47.44	47.44
24.10	24.10	47.05	47.05
24.20	24.20	46.67	46.67
24.30	24.30	46.31	46.31
24.40	24.40	45.97	45.97
24.50	24.50	45.64	45.64
24.60	24.60	45.32	45.32
24.70	24.70	45.08	45.08
24.80	24.80	44.89	44.89
24.90	24.90	44.73	44.73
25.00	25.00	44.59	44.59
25.10	25.10	44.47	44.47
25.20	25.20	44.37	44.37
25.30	25.30	44.28	44.28
25.40	25.40	44.20	44.20
25.50	25.50	44.13	44.13
25.60	25.60	44.08	44.08
25.70	25.70	44.03	44.03
25.80	25.80	43.98	43.98
25.90	25.90	43.95	43.95
26.00	26.00	43.91	43.91
26.10	26.10	43.89	43.89
26.20	26.20	43.86	43.86
26.30	26.30	43.84	43.84
26.40	26.40	43.83	43.83
26.50	26.50	43.81	43.81

Barrier table for segment # 2: Lees 2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	57.85	57.85
22.10	22.10	57.46	57.46
22.20	22.20	57.02	57.02
22.30	22.30	56.54	56.54
22.40	22.40	56.04	56.04
22.50	22.50	55.52	55.52
22.60	22.60	54.98	54.98
22.70	22.70	54.44	54.44
22.80	22.80	53.90	53.90
22.90	22.90	53.36	53.36
23.00	23.00	52.83	52.83
23.10	23.10	52.31	52.31
23.20	23.20	51.80	51.80
23.30	23.30	51.30	51.30
23.40	23.40	50.82	50.82
23.50	23.50	50.35	50.35
23.60	23.60	49.89	49.89
23.70	23.70	49.45	49.45
23.80	23.80	49.02	49.02
23.90	23.90	48.61	48.61
24.00	24.00	48.21	48.21
24.10	24.10	47.83	47.83
24.20	24.20	47.46	47.46
24.30	24.30	47.11	47.11
24.40	24.40	46.77	46.77
24.50	24.50	46.45	46.45
24.60	24.60	46.13	46.13
24.70	24.70	45.88	45.88
24.80	24.80	45.66	45.66
24.90	24.90	45.47	45.47
25.00	25.00	45.30	45.30
25.10	25.10	45.15	45.15
25.20	25.20	45.02	45.02
25.30	25.30	44.90	44.90
25.40	25.40	44.79	44.79
25.50	25.50	44.69	44.69
25.60	25.60	44.60	44.60
25.70	25.70	44.53	44.53
25.80	25.80	44.46	44.46
25.90	25.90	44.39	44.39
26.00	26.00	44.34	44.34
26.10	26.10	44.28	44.28
26.20	26.20	44.24	44.24
26.30	26.30	44.20	44.20
26.40	26.40	44.16	44.16
26.50	26.50	44.12	44.12

Barrier table for segment # 3: Hwy 417 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	66.55	66.55
22.10	22.10	66.55	66.55
22.20	22.20	66.55	66.55
22.30	22.30	66.55	66.55
22.40	22.40	66.55	66.55
22.50	22.50	66.55	66.55
22.60	22.60	66.55	66.55
22.70	22.70	66.55	66.55
22.80	22.80	66.55	66.55
22.90	22.90	66.55	66.55
23.00	23.00	61.55	61.55
23.10	23.10	61.51	61.51
23.20	23.20	61.43	61.43
23.30	23.30	61.30	61.30
23.40	23.40	61.14	61.14
23.50	23.50	60.93	60.93
23.60	23.60	60.70	60.70
23.70	23.70	60.45	60.45
23.80	23.80	60.18	60.18
23.90	23.90	59.89	59.89
24.00	24.00	59.61	59.61
24.10	24.10	59.32	59.32
24.20	24.20	59.03	59.03
24.30	24.30	58.74	58.74
24.40	24.40	58.46	58.46
24.50	24.50	58.19	58.19
24.60	24.60	57.92	57.92
24.70	24.70	57.66	57.66
24.80	24.80	57.41	57.41
24.90	24.90	57.17	57.17
25.00	25.00	56.94	56.94
25.10	25.10	56.71	56.71
25.20	25.20	56.49	56.49
25.30	25.30	56.29	56.29
25.40	25.40	56.08	56.08
25.50	25.50	55.89	55.89
25.60	25.60	55.70	55.70
25.70	25.70	55.52	55.52
25.80	25.80	55.35	55.35
25.90	25.90	55.18	55.18
26.00	26.00	55.02	55.02
26.10	26.10	54.86	54.86
26.20	26.20	54.71	54.71
26.30	26.30	54.56	54.56
26.40	26.40	54.42	54.42
26.50	26.50	54.28	54.28

Barrier table for segment # 4: Hwy 417 2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	71.73	71.73
22.10	22.10	71.73	71.73
22.20	22.20	71.73	71.73
22.30	22.30	71.73	71.73
22.40	22.40	71.73	71.73
22.50	22.50	71.73	71.73
22.60	22.60	71.73	71.73
22.70	22.70	71.73	71.73
22.80	22.80	71.73	71.73
22.90	22.90	71.73	71.73
23.00	23.00	71.73	71.73
23.10	23.10	71.73	71.73
23.20	23.20	66.73	66.73
23.30	23.30	66.61	66.61
23.40	23.40	66.27	66.27
23.50	23.50	65.74	65.74
23.60	23.60	65.07	65.07
23.70	23.70	64.31	64.31
23.80	23.80	63.50	63.50
23.90	23.90	62.68	62.68
24.00	24.00	61.88	61.88
24.10	24.10	61.10	61.10
24.20	24.20	60.36	60.36
24.30	24.30	59.66	59.66
24.40	24.40	59.00	59.00
24.50	24.50	58.38	58.38
24.60	24.60	57.81	57.81
24.70	24.70	57.27	57.27
24.80	24.80	56.76	56.76
24.90	24.90	56.29	56.29
25.00	25.00	55.84	55.84
25.10	25.10	55.43	55.43
25.20	25.20	55.03	55.03
25.30	25.30	54.66	54.66
25.40	25.40	54.31	54.31
25.50	25.50	53.98	53.98
25.60	25.60	53.67	53.67
25.70	25.70	53.37	53.37
25.80	25.80	53.08	53.08
25.90	25.90	52.81	52.81
26.00	26.00	52.55	52.55
26.10	26.10	52.30	52.30
26.20	26.20	52.12	52.12
26.30	26.30	51.99	51.99
26.40	26.40	51.90	51.90
26.50	26.50	51.83	51.83

Barrier table for segment # 5: Hwy 417 3 (day)

Barrier	Elev of	Road	Tot Leq

Height	Barr Top	dBA	dBA
22.00	22.00	68.14	68.14
22.10	22.10	68.14	68.14
22.20	22.20	68.14	68.14
22.30	22.30	68.14	68.14
22.40	22.40	68.14	68.14
22.50	22.50	68.14	68.14
22.60	22.60	68.14	68.14
22.70	22.70	68.14	68.14
22.80	22.80	68.14	68.14
22.90	22.90	63.14	63.14
23.00	23.00	63.09	63.09
23.10	23.10	63.01	63.01
23.20	23.20	62.89	62.89
23.30	23.30	62.74	62.74
23.40	23.40	62.56	62.56
23.50	23.50	62.35	62.35
23.60	23.60	62.12	62.12
23.70	23.70	61.87	61.87
23.80	23.80	61.61	61.61
23.90	23.90	61.34	61.34
24.00	24.00	61.07	61.07
24.10	24.10	60.80	60.80
24.20	24.20	60.53	60.53
24.30	24.30	60.26	60.26
24.40	24.40	60.00	60.00
24.50	24.50	59.75	59.75
24.60	24.60	59.50	59.50
24.70	24.70	59.26	59.26
24.80	24.80	59.02	59.02
24.90	24.90	58.80	58.80
25.00	25.00	58.58	58.58
25.10	25.10	58.36	58.36
25.20	25.20	58.16	58.16
25.30	25.30	57.96	57.96
25.40	25.40	57.77	57.77
25.50	25.50	57.59	57.59
25.60	25.60	57.41	57.41
25.70	25.70	57.24	57.24
25.80	25.80	57.07	57.07
25.90	25.90	56.91	56.91
26.00	26.00	56.76	56.76
26.10	26.10	56.61	56.61
26.20	26.20	56.46	56.46
26.30	26.30	56.32	56.32
26.40	26.40	56.18	56.18
26.50	26.50	56.05	56.05

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.50 !        21.50

ROAD (0.00 + 50.13 + 0.00) = 50.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     74   0.00  60.88   0.00  -1.66  -3.06   0.00   0.00  -6.03  50.13
-------------------------------------------------------------------------------

Segment Leq : 50.13 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.50 !        21.50

ROAD (0.00 + 50.26 + 0.00) = 50.26 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -81      9   0.00  60.88   0.00  -1.66  -3.01   0.00   0.00  -5.95  50.26
-------------------------------------------------------------------------------

Segment Leq : 50.26 dBA
```

```
Results segment # 3: Hwy 417 1 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
---------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.98 !        22.98

ROAD (0.00 + 58.95 + 0.00) = 58.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    68     90   0.00  75.56   0.00  -7.48  -9.13   0.00   0.00  -2.27  56.68*
    68     90   0.00  75.56   0.00  -7.48  -9.13   0.00   0.00   0.00  58.95
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 58.95 dBA

Results segment # 4: Hwy 417 2 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
---------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.20 !        23.20

ROAD (0.00 + 64.14 + 0.00) = 64.14 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45     49   0.00  76.81   0.00  -9.85  -2.82   0.00   0.00   0.00  64.14*
   -45     49   0.00  76.81   0.00  -9.85  -2.82   0.00   0.00   0.00  64.14
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 64.14 dBA
```

```
Results segment # 5: Hwy 417 3 (night)
---------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.84 !        22.84

ROAD (0.00 + 60.54 + 0.00) = 60.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -71   0.00  76.81   0.00  -6.50  -9.77   0.00   0.00  -3.54  57.00*
   -90    -71   0.00  76.81   0.00  -6.50  -9.77   0.00   0.00   0.00  60.54
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 60.54 dBA

Total Leq All Segments: 66.74 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 74.33
                           (NIGHT): 66.74
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 09:49:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r28.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     3 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees (day/night)
---------------------------------------
Angle1   Angle2           : -74.00 deg   52.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  32.00 / 32.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -74.00 deg   Angle2 : 52.00 deg
Barrier height            :  22.00 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: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -34.00 deg   50.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 168.00 / 168.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 50.00 deg
Barrier height            :  22.00 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 # 3: Hwy 417 2 (day/night)
---------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   -60.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 101.00 / 101.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : -60.00 deg
Barrier height            :  22.00 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

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       16.62 !        16.62

ROAD (0.00 + 46.71 + 0.00) = 46.71 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -74     52   0.00  69.11   0.00  -3.29  -1.55   0.00   0.00 -17.55  46.71
-------------------------------------------------------------------------------

Segment Leq : 46.71 dBA
```

```
Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.19 !        22.19

ROAD (0.00 + 70.61 + 0.00) = 70.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34     50   0.00  84.41   0.00 -10.49  -3.31   0.00   0.00  -4.91  65.70*
   -34     50   0.00  84.41   0.00 -10.49  -3.31   0.00   0.00   0.00  70.61
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 70.61 dBA

Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.32 !        21.32

ROAD (0.00 + 63.03 + 0.00) = 63.03 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -60   0.00  84.41   0.00  -8.28  -7.78   0.00   0.00  -5.31  63.03
-------------------------------------------------------------------------------

Segment Leq : 63.03 dBA

Total Leq All Segments: 71.32 dBA
```

Barrier table for segment # 1: Lees (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	46.71	46.71
22.10	22.10	46.54	46.54
22.20	22.20	46.38	46.38
22.30	22.30	46.22	46.22
22.40	22.40	46.06	46.06
22.50	22.50	45.90	45.90
22.60	22.60	45.74	45.74
22.70	22.70	45.59	45.59
22.80	22.80	45.47	45.47
22.90	22.90	45.36	45.36
23.00	23.00	45.26	45.26
23.10	23.10	45.17	45.17
23.20	23.20	45.09	45.09
23.30	23.30	45.01	45.01
23.40	23.40	44.94	44.94
23.50	23.50	44.88	44.88
23.60	23.60	44.83	44.83
23.70	23.70	44.77	44.77
23.80	23.80	44.73	44.73
23.90	23.90	44.69	44.69
24.00	24.00	44.65	44.65
24.10	24.10	44.62	44.62
24.20	24.20	44.59	44.59
24.30	24.30	44.56	44.56
24.40	24.40	44.53	44.53
24.50	24.50	44.51	44.51
24.60	24.60	44.49	44.49
24.70	24.70	44.47	44.47
24.80	24.80	44.45	44.45
24.90	24.90	44.43	44.43
25.00	25.00	44.42	44.42
25.10	25.10	44.40	44.40
25.20	25.20	44.39	44.39
25.30	25.30	44.38	44.38
25.40	25.40	44.36	44.36
25.50	25.50	44.35	44.35
25.60	25.60	44.34	44.34
25.70	25.70	44.33	44.33
25.80	25.80	44.33	44.33
25.90	25.90	44.32	44.32
26.00	26.00	44.31	44.31

Barrier table for segment # 2: Hwy 417 1 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA

22.00	22.00	70.61	70.61
22.10	22.10	70.61	70.61
22.20	22.20	65.60	65.60
22.30	22.30	65.58	65.58
22.40	22.40	65.50	65.50
22.50	22.50	65.37	65.37
22.60	22.60	65.20	65.20
22.70	22.70	64.99	64.99
22.80	22.80	64.74	64.74
22.90	22.90	64.46	64.46
23.00	23.00	64.15	64.15
23.10	23.10	63.82	63.82
23.20	23.20	63.48	63.48
23.30	23.30	63.12	63.12
23.40	23.40	62.75	62.75
23.50	23.50	62.37	62.37
23.60	23.60	61.99	61.99
23.70	23.70	61.61	61.61
23.80	23.80	61.24	61.24
23.90	23.90	60.86	60.86
24.00	24.00	60.49	60.49
24.10	24.10	60.12	60.12
24.20	24.20	59.77	59.77
24.30	24.30	59.42	59.42
24.40	24.40	59.07	59.07
24.50	24.50	58.74	58.74
24.60	24.60	58.41	58.41
24.70	24.70	58.09	58.09
24.80	24.80	57.78	57.78
24.90	24.90	57.48	57.48
25.00	25.00	57.18	57.18
25.10	25.10	56.90	56.90
25.20	25.20	56.62	56.62
25.30	25.30	56.35	56.35
25.40	25.40	56.08	56.08
25.50	25.50	55.82	55.82
25.60	25.60	55.57	55.57
25.70	25.70	55.33	55.33
25.80	25.80	55.09	55.09
25.90	25.90	54.86	54.86
26.00	26.00	54.64	54.64

Barrier table for segment # 3: Hwy 417 2 (day)

Barrier Height	Elev of Barr Top	Road dBA	Tot Leq dBA
22.00	22.00	63.03	63.03
22.10	22.10	62.94	62.94
22.20	22.20	62.83	62.83
22.30	22.30	62.72	62.72
22.40	22.40	62.60	62.60
22.50	22.50	62.47	62.47

22.60 !	22.60 !	62.33 !	62.33 !
22.70 !	22.70 !	62.19 !	62.19 !
22.80 !	22.80 !	62.05 !	62.05 !
22.90 !	22.90 !	61.90 !	61.90 !
23.00 !	23.00 !	61.74 !	61.74 !
23.10 !	23.10 !	61.59 !	61.59 !
23.20 !	23.20 !	61.43 !	61.43 !
23.30 !	23.30 !	61.27 !	61.27 !
23.40 !	23.40 !	61.12 !	61.12 !
23.50 !	23.50 !	60.96 !	60.96 !
23.60 !	23.60 !	60.80 !	60.80 !
23.70 !	23.70 !	60.64 !	60.64 !
23.80 !	23.80 !	60.48 !	60.48 !
23.90 !	23.90 !	60.32 !	60.32 !
24.00 !	24.00 !	60.16 !	60.16 !
24.10 !	24.10 !	60.01 !	60.01 !
24.20 !	24.20 !	59.85 !	59.85 !
24.30 !	24.30 !	59.70 !	59.70 !
24.40 !	24.40 !	59.55 !	59.55 !
24.50 !	24.50 !	59.40 !	59.40 !
24.60 !	24.60 !	59.25 !	59.25 !
24.70 !	24.70 !	59.11 !	59.11 !
24.80 !	24.80 !	58.96 !	58.96 !
24.90 !	24.90 !	58.82 !	58.82 !
25.00 !	25.00 !	58.68 !	58.68 !
25.10 !	25.10 !	58.54 !	58.54 !
25.20 !	25.20 !	58.40 !	58.40 !
25.30 !	25.30 !	58.27 !	58.27 !
25.40 !	25.40 !	58.14 !	58.14 !
25.50 !	25.50 !	58.01 !	58.01 !
25.60 !	25.60 !	57.88 !	57.88 !
25.70 !	25.70 !	57.75 !	57.75 !
25.80 !	25.80 !	57.63 !	57.63 !
25.90 !	25.90 !	57.50 !	57.50 !
26.00 !	26.00 !	57.38 !	57.38 !

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       16.62 !        16.62

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
-------------------------------------------------------------------------------
   -74     52   0.00  61.51   0.00  -3.29  -1.55   0.00   0.00 -17.55  39.12
-------------------------------------------------------------------------------

Segment Leq : 39.12 dBA

Results segment # 2: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.19 !        22.19

ROAD (0.00 + 63.01 + 0.00) = 63.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34     50   0.00  76.81   0.00 -10.49  -3.31   0.00   0.00  -4.91  58.10*
   -34     50   0.00  76.81   0.00 -10.49  -3.31   0.00   0.00   0.00  63.01
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 63.01 dBA
```

```
Results segment # 3: Hwy 417 2 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.32 !        21.32

ROAD (0.00 + 55.43 + 0.00) = 55.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -60   0.00  76.81   0.00  -8.28  -7.78   0.00   0.00  -5.31  55.43
-------------------------------------------------------------------------------

Segment Leq : 55.43 dBA

Total Leq All Segments: 63.72 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.32
                           (NIGHT): 63.72
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 11:06:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r29.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -34.00 deg   2.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 2.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :   2.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   2.00 deg   Angle2 : 54.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           : -21.00 deg   14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 106.00 / 106.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -21.00 deg   Angle2 : 14.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  50.00 / 50.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 1 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 1 (day/night)
---------------------------------------
Angle1   Angle2           :  44.00 deg   62.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  44.00 deg   Angle2 : 62.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 2 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 2 (day/night)
---------------------------------------
Angle1   Angle2           :  62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  62.00 deg   Angle2 : 90.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Hwy 3 (day/night)
----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Hwy 3 (day/night)
---------------------------------------
Angle1   Angle2           : -26.00 deg   -14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -26.00 deg   Angle2 : -14.00 deg
Barrier height            :  22.00 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 # 7: Hwy 4 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Hwy 4 (day/night)
---------------------------------------
Angle1   Angle2           : -14.00 deg   9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -14.00 deg   Angle2 : 9.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  94.00 / 94.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 8: Hwy 5 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: Hwy 5 (day/night)
---------------------------------------
Angle1   Angle2           :   9.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   9.00 deg   Angle2 : 25.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 33.61 + 0.00) = 33.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  68.48   0.00  -7.88  -6.99   0.00   0.00 -20.00  33.61
-------------------------------------------------------------------------------

Segment Leq : 33.61 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

ROAD (0.00 + 55.21 + 0.00) = 55.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     2     54   0.00  68.48   0.00  -7.88  -5.39   0.00   0.00  -3.20  52.01*
     2     54   0.00  68.48   0.00  -7.88  -5.39   0.00   0.00   0.00  55.21
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 55.21 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 33.87 + 0.00) = 33.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  68.48   0.00  -8.49  -7.11   0.00   0.00 -19.01  33.87
-------------------------------------------------------------------------------

Segment Leq : 33.87 dBA
```

```
Results segment # 4: Hwy 1 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 42.25 + 0.00) = 42.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  83.16   0.00 -10.91 -10.00   0.00   0.00 -20.00  42.25
-------------------------------------------------------------------------------

Segment Leq : 42.25 dBA

Results segment # 5: Hwy 2 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 64.16 + 0.00) = 64.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  83.16   0.00 -10.91  -8.08   0.00   0.00  -2.87  61.30*
    62     90   0.00  83.16   0.00 -10.91  -8.08   0.00   0.00   0.00  64.16
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 64.16 dBA
```

```
Results segment # 6: Hwy 3 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 60.75 + 0.00) = 60.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  84.41   0.00 -11.89 -11.76   0.00   0.00  -4.17  56.58*
   -26    -14   0.00  84.41   0.00 -11.90 -11.76   0.00   0.00   0.00  60.75
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 60.75 dBA

Results segment # 7: Hwy 4 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 49.07 + 0.00) = 49.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  84.41   0.00 -11.89  -8.94   0.00   0.00 -14.50  49.07
-------------------------------------------------------------------------------

Segment Leq : 49.07 dBA
```

```
Results segment # 8: Hwy 5 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 42.00 + 0.00) = 42.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  84.41   0.00 -11.89 -10.51   0.00   0.00 -20.00  42.00
-------------------------------------------------------------------------------

Segment Leq : 42.00 dBA

Total Leq All Segments: 66.28 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 26.02 + 0.00) = 26.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  60.88   0.00  -7.88  -6.99   0.00   0.00 -20.00  26.02
-------------------------------------------------------------------------------

Segment Leq : 26.02 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

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
-------------------------------------------------------------------------------
     2     54   0.00  60.88   0.00  -7.88  -5.39   0.00   0.00  -3.20  44.41*
     2     54   0.00  60.88   0.00  -7.88  -5.39   0.00   0.00   0.00  47.61
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 47.61 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 26.27 + 0.00) = 26.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  60.88   0.00  -8.49  -7.11   0.00   0.00 -19.01  26.27
-------------------------------------------------------------------------------

Segment Leq : 26.27 dBA
```

```
Results segment # 4: Hwy 1 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 34.65 + 0.00) = 34.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  75.56   0.00 -10.91 -10.00   0.00   0.00 -20.00  34.65
-------------------------------------------------------------------------------

Segment Leq : 34.65 dBA

Results segment # 5: Hwy 2 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 56.57 + 0.00) = 56.57 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  75.56   0.00 -10.91  -8.08   0.00   0.00  -2.87  53.70*
    62     90   0.00  75.56   0.00 -10.91  -8.08   0.00   0.00   0.00  56.57
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 56.57 dBA
```

```
Results segment # 6: Hwy 3 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 53.15 + 0.00) = 53.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  76.81   0.00 -11.89 -11.76   0.00   0.00  -4.17  48.98*
   -26    -14   0.00  76.81   0.00 -11.90 -11.76   0.00   0.00   0.00  53.15
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 53.15 dBA

Results segment # 7: Hwy 4 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 41.48 + 0.00) = 41.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  76.81   0.00 -11.89  -8.94   0.00   0.00 -14.50  41.48
-------------------------------------------------------------------------------

Segment Leq : 41.48 dBA
```

```
Results segment # 8: Hwy 5 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 34.41 + 0.00) = 34.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  76.81   0.00 -11.89 -10.51   0.00   0.00 -20.00  34.41
-------------------------------------------------------------------------------

Segment Leq : 34.41 dBA

Total Leq All Segments: 58.68 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.28
                           (NIGHT): 58.68
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 11:09:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r29b.te              Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -34.00 deg   2.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 2.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :   2.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   2.00 deg   Angle2 : 54.00 deg
Barrier height            :  23.10 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           : -21.00 deg   14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 106.00 / 106.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -21.00 deg   Angle2 : 14.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  50.00 / 50.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 1 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 1 (day/night)
---------------------------------------
Angle1   Angle2           :  44.00 deg   62.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  44.00 deg   Angle2 : 62.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 2 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 2 (day/night)
---------------------------------------
Angle1   Angle2           :  62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  62.00 deg   Angle2 : 90.00 deg
Barrier height            :  23.10 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Hwy 3 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Hwy 3 (day/night)
---------------------------------------
Angle1   Angle2           : -26.00 deg   -14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -26.00 deg   Angle2 : -14.00 deg
Barrier height            :  23.10 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 # 7: Hwy 4 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Hwy 4 (day/night)
---------------------------------------
Angle1   Angle2           : -14.00 deg   9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -14.00 deg   Angle2 : 9.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  94.00 / 94.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 8: Hwy 5 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: Hwy 5 (day/night)
---------------------------------------
Angle1   Angle2           :   9.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   9.00 deg   Angle2 : 25.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 33.61 + 0.00) = 33.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  68.48   0.00  -7.88  -6.99   0.00   0.00 -20.00  33.61
-------------------------------------------------------------------------------

Segment Leq : 33.61 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

ROAD (0.00 + 48.69 + 0.00) = 48.69 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     2     54   0.00  68.48   0.00  -7.88  -5.39   0.00   0.00  -6.52  48.69
-------------------------------------------------------------------------------

Segment Leq : 48.69 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 33.87 + 0.00) = 33.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  68.48   0.00  -8.49  -7.11   0.00   0.00 -19.01  33.87
-------------------------------------------------------------------------------

Segment Leq : 33.87 dBA
```

```
Results segment # 4: Hwy 1 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 42.25 + 0.00) = 42.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  83.16   0.00 -10.91 -10.00   0.00   0.00 -20.00  42.25
-------------------------------------------------------------------------------

Segment Leq : 42.25 dBA

Results segment # 5: Hwy 2 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 59.16 + 0.00) = 59.16 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  83.16   0.00 -10.91  -8.08   0.00   0.00  -5.01  59.16
-------------------------------------------------------------------------------

Segment Leq : 59.16 dBA
```

```
Results segment # 6: Hwy 3 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 55.02 + 0.00) = 55.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  84.41   0.00 -11.89 -11.76   0.00   0.00  -5.73  55.02
-------------------------------------------------------------------------------

Segment Leq : 55.02 dBA

Results segment # 7: Hwy 4 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 49.07 + 0.00) = 49.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  84.41   0.00 -11.89  -8.94   0.00   0.00 -14.50  49.07
-------------------------------------------------------------------------------

Segment Leq : 49.07 dBA
```

```
Results segment # 8: Hwy 5 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 42.00 + 0.00) = 42.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  84.41   0.00 -11.89 -10.51   0.00   0.00 -20.00  42.00
-------------------------------------------------------------------------------

Segment Leq : 42.00 dBA

Total Leq All Segments: 61.25 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 26.02 + 0.00) = 26.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  60.88   0.00  -7.88  -6.99   0.00   0.00 -20.00  26.02
-------------------------------------------------------------------------------

Segment Leq : 26.02 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

ROAD (0.00 + 41.10 + 0.00) = 41.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     2     54   0.00  60.88   0.00  -7.88  -5.39   0.00   0.00  -6.52  41.10
-------------------------------------------------------------------------------

Segment Leq : 41.10 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 26.27 + 0.00) = 26.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  60.88   0.00  -8.49  -7.11   0.00   0.00 -19.01  26.27
-------------------------------------------------------------------------------

Segment Leq : 26.27 dBA
```

```
Results segment # 4: Hwy 1 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 34.65 + 0.00) = 34.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  75.56   0.00 -10.91 -10.00   0.00   0.00 -20.00  34.65
-------------------------------------------------------------------------------

Segment Leq : 34.65 dBA

Results segment # 5: Hwy 2 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 51.56 + 0.00) = 51.56 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  75.56   0.00 -10.91  -8.08   0.00   0.00  -5.01  51.56
-------------------------------------------------------------------------------

Segment Leq : 51.56 dBA
```

```
Results segment # 6: Hwy 3 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 47.43 + 0.00) = 47.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  76.81   0.00 -11.89 -11.76   0.00   0.00  -5.73  47.43
-------------------------------------------------------------------------------

Segment Leq : 47.43 dBA

Results segment # 7: Hwy 4 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 41.48 + 0.00) = 41.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  76.81   0.00 -11.89  -8.94   0.00   0.00 -14.50  41.48
-------------------------------------------------------------------------------

Segment Leq : 41.48 dBA
```

```
Results segment # 8: Hwy 5 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 34.41 + 0.00) = 34.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  76.81   0.00 -11.89 -10.51   0.00   0.00 -20.00  34.41
-------------------------------------------------------------------------------

Segment Leq : 34.41 dBA

Total Leq All Segments: 53.65 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.25
                           (NIGHT): 53.65
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 11:10:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r29b.te              Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -34.00 deg   2.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 2.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :   2.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   2.00 deg   Angle2 : 54.00 deg
Barrier height            :  23.50 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           : -21.00 deg   14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 106.00 / 106.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -21.00 deg   Angle2 : 14.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  50.00 / 50.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 1 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 1 (day/night)
---------------------------------------
Angle1   Angle2           :  44.00 deg   62.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  44.00 deg   Angle2 : 62.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 2 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 2 (day/night)
---------------------------------------
Angle1   Angle2           :  62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  62.00 deg   Angle2 : 90.00 deg
Barrier height            :  23.50 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Hwy 3 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Hwy 3 (day/night)
---------------------------------------
Angle1   Angle2           : -26.00 deg   -14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -26.00 deg   Angle2 : -14.00 deg
Barrier height            :  23.50 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 # 7: Hwy 4 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Hwy 4 (day/night)
---------------------------------------
Angle1   Angle2           : -14.00 deg   9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -14.00 deg   Angle2 : 9.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  94.00 / 94.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 8: Hwy 5 (day/night)
----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: Hwy 5 (day/night)
---------------------------------------
Angle1   Angle2           :   9.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   9.00 deg   Angle2 : 25.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 33.61 + 0.00) = 33.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  68.48   0.00  -7.88  -6.99   0.00   0.00 -20.00  33.61
-------------------------------------------------------------------------------

Segment Leq : 33.61 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

ROAD (0.00 + 46.52 + 0.00) = 46.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     2     54   0.00  68.48   0.00  -7.88  -5.39   0.00   0.00  -8.69  46.52
-------------------------------------------------------------------------------

Segment Leq : 46.52 dBA
```

```
Results segment # 3: Lees 3 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 33.87 + 0.00) = 33.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  68.48   0.00  -8.49  -7.11   0.00   0.00 -19.01  33.87
-------------------------------------------------------------------------------

Segment Leq : 33.87 dBA

Results segment # 4: Hwy 1 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 42.25 + 0.00) = 42.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  83.16   0.00 -10.91 -10.00   0.00   0.00 -20.00  42.25
-------------------------------------------------------------------------------

Segment Leq : 42.25 dBA
```

Results segment # 5: Hwy 2 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	23.50	23.02	23.02

ROAD (0.00 + 58.82 + 0.00) = 58.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
62	90	0.00	83.16	0.00	-10.91	-8.08	0.00	0.00	-5.35	58.82

Segment Leq : 58.82 dBA

Results segment # 6: Hwy 3 (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	23.50	22.55	22.55

ROAD (0.00 + 53.79 + 0.00) = 53.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-26	-14	0.00	84.41	0.00	-11.89	-11.76	0.00	0.00	-6.97	53.79

Segment Leq : 53.79 dBA

```
Results segment # 7: Hwy 4 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 49.07 + 0.00) = 49.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  84.41   0.00 -11.89  -8.94   0.00   0.00 -14.50  49.07
-------------------------------------------------------------------------------

Segment Leq : 49.07 dBA

Results segment # 8: Hwy 5 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 42.00 + 0.00) = 42.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  84.41   0.00 -11.89 -10.51   0.00   0.00 -20.00  42.00
-------------------------------------------------------------------------------

Segment Leq : 42.00 dBA

Total Leq All Segments: 60.66 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 26.02 + 0.00) = 26.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  60.88   0.00  -7.88  -6.99   0.00   0.00 -20.00  26.02
-------------------------------------------------------------------------------

Segment Leq : 26.02 dBA
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

ROAD (0.00 + 38.92 + 0.00) = 38.92 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     2     54   0.00  60.88   0.00  -7.88  -5.39   0.00   0.00  -8.69  38.92
-------------------------------------------------------------------------------

Segment Leq : 38.92 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 26.27 + 0.00) = 26.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  60.88   0.00  -8.49  -7.11   0.00   0.00 -19.01  26.27
-------------------------------------------------------------------------------

Segment Leq : 26.27 dBA

Results segment # 4: Hwy 1 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 34.65 + 0.00) = 34.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  75.56   0.00 -10.91 -10.00   0.00   0.00 -20.00  34.65
-------------------------------------------------------------------------------

Segment Leq : 34.65 dBA
```

```
Results segment # 5: Hwy 2 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 51.22 + 0.00) = 51.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  75.56   0.00 -10.91  -8.08   0.00   0.00  -5.35  51.22
-------------------------------------------------------------------------------

Segment Leq : 51.22 dBA
```

```
Results segment # 6: Hwy 3 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 46.19 + 0.00) = 46.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  76.81   0.00 -11.89 -11.76   0.00   0.00  -6.97  46.19
-------------------------------------------------------------------------------

Segment Leq : 46.19 dBA

Results segment # 7: Hwy 4 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 41.48 + 0.00) = 41.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  76.81   0.00 -11.89  -8.94   0.00   0.00 -14.50  41.48
-------------------------------------------------------------------------------

Segment Leq : 41.48 dBA
```

```
Results segment # 8: Hwy 5 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 34.41 + 0.00) = 34.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  76.81   0.00 -11.89 -10.51   0.00   0.00 -20.00  34.41
-------------------------------------------------------------------------------

Segment Leq : 34.41 dBA

Total Leq All Segments: 53.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 60.66
                           (NIGHT): 53.06
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 11:29:04
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r29b3.te             Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -34.00 deg   2.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -34.00 deg   Angle2 : 2.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  52.00 / 52.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :   2.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  92.00 / 92.00  m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   2.00 deg   Angle2 : 54.00 deg
Barrier height            :  24.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           : -21.00 deg   14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 106.00 / 106.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -21.00 deg   Angle2 : 14.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  50.00 / 50.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 4: Hwy 1 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 1 (day/night)
---------------------------------------
Angle1   Angle2           :  44.00 deg   62.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  44.00 deg   Angle2 : 62.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 5: Hwy 2 (day/night)
-----------------------------------------
Car traffic volume  : 89056/7744  veh/TimePeriod  *
Medium truck volume :  7084/616   veh/TimePeriod  *
Heavy truck volume  :  5060/440   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 110000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 2 (day/night)
---------------------------------------
Angle1   Angle2           :  62.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 185.00 / 185.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  62.00 deg   Angle2 : 90.00 deg
Barrier height            :  24.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Hwy 3 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Hwy 3 (day/night)
---------------------------------------
Angle1   Angle2           : -26.00 deg   -14.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -26.00 deg   Angle2 : -14.00 deg
Barrier height            :  24.00 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 # 7: Hwy 4 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Hwy 4 (day/night)
---------------------------------------
Angle1   Angle2           : -14.00 deg   9.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -14.00 deg   Angle2 : 9.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  94.00 / 94.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 8: Hwy 5 (day/night)
-----------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: Hwy 5 (day/night)
---------------------------------------
Angle1   Angle2           :   9.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 232.00 / 232.00 m
Receiver height           :  23.50 / 23.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   9.00 deg   Angle2 : 25.00 deg
Barrier height            :  85.00 m
Barrier receiver distance :  66.00 / 66.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 33.61 + 0.00) = 33.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  68.48   0.00  -7.88  -6.99   0.00   0.00 -20.00  33.61
-------------------------------------------------------------------------------

Segment Leq : 33.61 dBA
```

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

ROAD (0.00 + 43.77 + 0.00) = 43.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     2     54   0.00  68.48   0.00  -7.88  -5.39   0.00   0.00 -11.44  43.77
-------------------------------------------------------------------------------

Segment Leq : 43.77 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 33.87 + 0.00) = 33.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  68.48   0.00  -8.49  -7.11   0.00   0.00 -19.01  33.87
-------------------------------------------------------------------------------

Segment Leq : 33.87 dBA
```

```
Results segment # 4: Hwy 1 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 42.25 + 0.00) = 42.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  83.16   0.00 -10.91 -10.00   0.00   0.00 -20.00  42.25
-------------------------------------------------------------------------------

Segment Leq : 42.25 dBA

Results segment # 5: Hwy 2 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 57.90 + 0.00) = 57.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  83.16   0.00 -10.91  -8.08   0.00   0.00  -6.27  57.90
-------------------------------------------------------------------------------

Segment Leq : 57.90 dBA
```

```
Results segment # 6: Hwy 3 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 51.90 + 0.00) = 51.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  84.41   0.00 -11.89 -11.76   0.00   0.00  -8.85  51.90
-------------------------------------------------------------------------------

Segment Leq : 51.90 dBA

Results segment # 7: Hwy 4 (day)
--------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 49.07 + 0.00) = 49.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  84.41   0.00 -11.89  -8.94   0.00   0.00 -14.50  49.07
-------------------------------------------------------------------------------

Segment Leq : 49.07 dBA
```

```
Results segment # 8: Hwy 5 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 42.00 + 0.00) = 42.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  84.41   0.00 -11.89 -10.51   0.00   0.00 -20.00  42.00
-------------------------------------------------------------------------------

Segment Leq : 42.00 dBA

Total Leq All Segments: 59.61 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       11.06 !        11.06

ROAD (0.00 + 26.02 + 0.00) = 26.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -34      2   0.00  60.88   0.00  -7.88  -6.99   0.00   0.00 -20.00  26.02
-------------------------------------------------------------------------------

Segment Leq : 26.02 dBA
```

```
Results segment # 2: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.54 !        22.54

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
-------------------------------------------------------------------------------
     2     54   0.00  60.88   0.00  -7.88  -5.39   0.00   0.00 -11.44  36.17
-------------------------------------------------------------------------------

Segment Leq : 36.17 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.12 !        13.12

ROAD (0.00 + 26.27 + 0.00) = 26.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -21     14   0.00  60.88   0.00  -8.49  -7.11   0.00   0.00 -19.01  26.27
-------------------------------------------------------------------------------

Segment Leq : 26.27 dBA
```

```
Results segment # 4: Hwy 1 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.65 !        15.65

ROAD (0.00 + 34.65 + 0.00) = 34.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    44     62   0.00  75.56   0.00 -10.91 -10.00   0.00   0.00 -20.00  34.65
-------------------------------------------------------------------------------

Segment Leq : 34.65 dBA

Results segment # 5: Hwy 2 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       23.02 !        23.02

ROAD (0.00 + 50.30 + 0.00) = 50.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    62     90   0.00  75.56   0.00 -10.91  -8.08   0.00   0.00  -6.27  50.30
-------------------------------------------------------------------------------

Segment Leq : 50.30 dBA
```

```
Results segment # 6: Hwy 3 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.55 !        22.55

ROAD (0.00 + 44.30 + 0.00) = 44.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -26    -14   0.00  76.81   0.00 -11.89 -11.76   0.00   0.00  -8.85  44.30
-------------------------------------------------------------------------------

Segment Leq : 44.30 dBA

Results segment # 7: Hwy 4 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       14.58 !        14.58

ROAD (0.00 + 41.48 + 0.00) = 41.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -14      9   0.00  76.81   0.00 -11.89  -8.94   0.00   0.00 -14.50  41.48
-------------------------------------------------------------------------------

Segment Leq : 41.48 dBA
```

```
Results segment # 8: Hwy 5 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       17.24 !        17.24

ROAD (0.00 + 34.41 + 0.00) = 34.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     9     25   0.00  76.81   0.00 -11.89 -10.51   0.00   0.00 -20.00  34.41
-------------------------------------------------------------------------------

Segment Leq : 34.41 dBA

Total Leq All Segments: 52.01 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.61
                           (NIGHT): 52.01
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 12:32:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r30.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -20.00 deg   -6.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 111.00 / 111.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -20.00 deg   Angle2 : -6.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  92.00 / 92.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -28.00 deg   -15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -28.00 deg   Angle2 : -15.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  92.00 / 92.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -15.00 deg   -8.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -15.00 deg   Angle2 : -8.00 deg
Barrier height            :  22.00 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 # 4: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           :  13.00 deg   19.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  13.00 deg   Angle2 : 19.00 deg
Barrier height            :  22.00 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 # 5: Hwy 417 4 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 417 4 (day/night)
-------------------------------------------
Angle1   Angle2           :  19.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  19.00 deg   Angle2 : 39.00 deg
Barrier height            :  22.00 m
Barrier receiver distance : 109.00 / 109.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :  -6.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 111.00 / 111.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  -6.00 deg   Angle2 : 0.00 deg
Barrier height            :  22.00 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 # 7: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 124.00 / 124.00 m
Receiver height           :  23.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 5.00 deg
Barrier height            :  22.00 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 # 8: Lees 4 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: Lees 4 (day/night)
----------------------------------------
Angle1   Angle2           :   5.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 124.00 / 124.00 m
Receiver height           :  23.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   5.00 deg   Angle2 : 25.00 deg
Barrier height            :  22.00 m
Barrier receiver distance : 109.00 / 109.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Results segment # 1: Lees 1 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !        5.26 !         5.26

ROAD (0.00 + 28.70 + 0.00) = 28.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -20     -6   0.00  68.48   0.00  -8.69 -11.09   0.00   0.00 -20.00  28.70
-------------------------------------------------------------------------------

Segment Leq : 28.70 dBA

Results segment # 2: Hwy 417 1 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.20 !        15.20

ROAD (0.00 + 47.48 + 0.00) = 47.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28    -15   0.00  84.41   0.00 -12.11 -11.41   0.00   0.00 -13.41  47.48
-------------------------------------------------------------------------------

Segment Leq : 47.48 dBA

Results segment # 3: Hwy 417 2 (day)
------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.60 !        22.60

ROAD (0.00 + 58.19 + 0.00) = 58.19 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
```

```
-------------------------------------------------------------------------------
   -15      -8    0.00   84.41    0.00 -12.11 -14.10    0.00    0.00   -3.97   54.22*
   -15      -8    0.00   84.41    0.00 -12.11 -14.10    0.00    0.00    0.00   58.19
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 58.19 dBA
```

```
Results segment # 4: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.60 !        22.60

ROAD (0.00 + 57.52 + 0.00) = 57.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    13     19   0.00  84.41   0.00 -12.11 -14.77   0.00   0.00  -3.99  53.53*
    13     19   0.00  84.41   0.00 -12.11 -14.77   0.00   0.00   0.00  57.52
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 57.52 dBA

Results segment # 5: Hwy 417 4 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.67 !        13.67

ROAD (0.00 + 48.15 + 0.00) = 48.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    19     39   0.00  84.41   0.00 -12.11  -9.54   0.00   0.00 -14.60  48.15
-------------------------------------------------------------------------------

Segment Leq : 48.15 dBA
```

```
Results segment # 6: Lees 2 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.52 !        21.52

ROAD (0.00 + 39.40 + 0.00) = 39.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6      0   0.00  68.48   0.00  -8.69 -14.77   0.00   0.00  -5.61  39.40
-------------------------------------------------------------------------------

Segment Leq : 39.40 dBA

Results segment # 7: Lees 3 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.73 !        21.73

ROAD (0.00 + 38.54 + 0.00) = 38.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0      5   0.00  68.48   0.00  -9.17 -15.56   0.00   0.00  -5.20  38.54
-------------------------------------------------------------------------------

Segment Leq : 38.54 dBA
```

```
Results segment # 8: Lees 4 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !        4.16 !         4.16

ROAD (0.00 + 29.76 + 0.00) = 29.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     5     25   0.00  68.48   0.00  -9.17  -9.54   0.00   0.00 -20.00  29.76
-------------------------------------------------------------------------------

Segment Leq : 29.76 dBA

Total Leq All Segments: 61.34 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        4.75 !         4.75

ROAD (0.00 + 21.10 + 0.00) = 21.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -20     -6   0.00  60.88   0.00  -8.69 -11.09   0.00   0.00 -20.00  21.10
-------------------------------------------------------------------------------

Segment Leq : 21.10 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       13.33 !        13.33

ROAD (0.00 + 37.83 + 0.00) = 37.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28    -15   0.00  76.81   0.00 -12.11 -11.41   0.00   0.00 -15.45  37.83
-------------------------------------------------------------------------------

Segment Leq : 37.83 dBA

Results segment # 3: Hwy 417 2 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       19.72 !        19.72

ROAD (0.00 + 38.54 + 0.00) = 38.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     -8   0.00  76.81   0.00 -12.11 -14.10   0.00   0.00 -12.06  38.54
-------------------------------------------------------------------------------

Segment Leq : 38.54 dBA
```

```
Results segment # 4: Hwy 417 3 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       19.72 !        19.72

ROAD (0.00 + 37.94 + 0.00) = 37.94 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    13     19   0.00  76.81   0.00 -12.11 -14.77   0.00   0.00 -11.98  37.94
-------------------------------------------------------------------------------

Segment Leq : 37.94 dBA

Results segment # 5: Hwy 417 4 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       12.01 !        12.01

ROAD (0.00 + 39.00 + 0.00) = 39.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    19     39   0.00  76.81   0.00 -12.11  -9.54   0.00   0.00 -16.16  39.00
-------------------------------------------------------------------------------

Segment Leq : 39.00 dBA
```

```
Results segment # 6: Lees 2 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       18.79 !        18.79

ROAD (0.00 + 22.31 + 0.00) = 22.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6      0   0.00  60.88   0.00  -8.69 -14.77   0.00   0.00 -15.11  22.31
-------------------------------------------------------------------------------

Segment Leq : 22.31 dBA

Results segment # 7: Lees 3 (night)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        4.26 !         4.26

ROAD (0.00 + 16.15 + 0.00) = 16.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0      5   0.00  60.88   0.00  -9.17 -15.56   0.00   0.00 -20.00  16.15
-------------------------------------------------------------------------------

Segment Leq : 16.15 dBA
```

```
Results segment # 8: Lees 4 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.86 !         1.86

ROAD (0.00 + 22.17 + 0.00) = 22.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     5     25   0.00  60.88   0.00  -9.17  -9.54   0.00   0.00 -20.00  22.17
-------------------------------------------------------------------------------

Segment Leq : 22.17 dBA

Total Leq All Segments: 44.45 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.34
                           (NIGHT): 44.45
```

```
STAMSON 5.0        NORMAL REPORT        Date: 06-07-2021 12:33:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r30b.te              Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: Lees 1 (day/night)
-----------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 1: Lees 1 (day/night)
----------------------------------------
Angle1   Angle2           : -20.00 deg   -6.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 111.00 / 111.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -20.00 deg   Angle2 : -6.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  92.00 / 92.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 2: Hwy 417 1 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 2: Hwy 417 1 (day/night)
-------------------------------------------
Angle1   Angle2           : -28.00 deg   -15.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -28.00 deg   Angle2 : -15.00 deg
Barrier height            :  22.00 m
Barrier receiver distance :  92.00 / 92.00  m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 3: Hwy 417 2 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Hwy 417 2 (day/night)
-------------------------------------------
Angle1   Angle2           : -15.00 deg   -8.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -15.00 deg   Angle2 : -8.00 deg
Barrier height            :  23.10 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 # 4: Hwy 417 3 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Hwy 417 3 (day/night)
-------------------------------------------
Angle1   Angle2           :  13.00 deg   19.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  13.00 deg   Angle2 : 19.00 deg
Barrier height            :  23.10 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 # 5: Hwy 417 4 (day/night)
----------------------------------------------
Car traffic volume  : 118739/10325 veh/TimePeriod  *
Medium truck volume :  9445/821   veh/TimePeriod  *
Heavy truck volume  :  6747/587   veh/TimePeriod  *
Posted speed limit  :   100 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT): 146664
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Hwy 417 4 (day/night)
-------------------------------------------
Angle1   Angle2           :  19.00 deg   39.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 244.00 / 244.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  19.00 deg   Angle2 : 39.00 deg
Barrier height            :  22.00 m
Barrier receiver distance : 109.00 / 109.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00
```

```
Road data, segment # 6: Lees 2 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 6: Lees 2 (day/night)
----------------------------------------
Angle1   Angle2           :  -6.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 111.00 / 111.00 m
Receiver height           :  23.50 / 20.50  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  -6.00 deg   Angle2 : 0.00 deg
Barrier height            :  23.10 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 # 7: Lees 3 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 7: Lees 3 (day/night)
----------------------------------------
Angle1   Angle2           :   0.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 124.00 / 124.00 m
Receiver height           :  23.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   0.00 deg   Angle2 : 5.00 deg
Barrier height            :  23.10 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 # 8: Lees 4 (day/night)
------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 8: Lees 4 (day/night)
----------------------------------------
Angle1   Angle2           :   5.00 deg   25.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 124.00 / 124.00 m
Receiver height           :  23.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   5.00 deg   Angle2 : 25.00 deg
Barrier height            :  22.00 m
Barrier receiver distance : 109.00 / 109.00 m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !        5.26 !         5.26

ROAD (0.00 + 28.70 + 0.00) = 28.70 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -20     -6   0.00  68.48   0.00  -8.69 -11.09   0.00   0.00 -20.00  28.70
-------------------------------------------------------------------------------

Segment Leq : 28.70 dBA
```

```
Results segment # 2: Hwy 417 1 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       15.20 !        15.20

ROAD (0.00 + 47.48 + 0.00) = 47.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28    -15   0.00  84.41   0.00 -12.11 -11.41   0.00   0.00 -13.41  47.48
-------------------------------------------------------------------------------

Segment Leq : 47.48 dBA

Results segment # 3: Hwy 417 2 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.60 !        22.60

ROAD (0.00 + 52.55 + 0.00) = 52.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     -8   0.00  84.41   0.00 -12.11 -14.10   0.00   0.00  -5.64  52.55
-------------------------------------------------------------------------------

Segment Leq : 52.55 dBA
```

```
Results segment # 4: Hwy 417 3 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       22.60 !        22.60

ROAD (0.00 + 51.89 + 0.00) = 51.89 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    13     19   0.00  84.41   0.00 -12.11 -14.77   0.00   0.00  -5.63  51.89
-------------------------------------------------------------------------------

Segment Leq : 51.89 dBA

Results segment # 5: Hwy 417 4 (day)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       13.67 !        13.67

ROAD (0.00 + 48.15 + 0.00) = 48.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    19     39   0.00  84.41   0.00 -12.11  -9.54   0.00   0.00 -14.60  48.15
-------------------------------------------------------------------------------

Segment Leq : 48.15 dBA
```

```
Results segment # 6: Lees 2 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.52 !        21.52

ROAD (0.00 + 35.39 + 0.00) = 35.39 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6      0   0.00  68.48   0.00  -8.69 -14.77   0.00   0.00  -9.62  35.39
-------------------------------------------------------------------------------

Segment Leq : 35.39 dBA

Results segment # 7: Lees 3 (day)
---------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !       21.73 !        21.73

ROAD (0.00 + 34.96 + 0.00) = 34.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0      5   0.00  68.48   0.00  -9.17 -15.56   0.00   0.00  -8.78  34.96
-------------------------------------------------------------------------------

Segment Leq : 34.96 dBA
```

```
Results segment # 8: Lees 4 (day)
----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       23.50 !        4.16 !         4.16

ROAD (0.00 + 29.76 + 0.00) = 29.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     5     25   0.00  68.48   0.00  -9.17  -9.54   0.00   0.00 -20.00  29.76
-------------------------------------------------------------------------------

Segment Leq : 29.76 dBA

Total Leq All Segments: 56.67 dBA

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

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !        4.75 !         4.75

ROAD (0.00 + 21.10 + 0.00) = 21.10 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -20     -6   0.00  60.88   0.00  -8.69 -11.09   0.00   0.00 -20.00  21.10
-------------------------------------------------------------------------------

Segment Leq : 21.10 dBA
```

```
Results segment # 2: Hwy 417 1 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       13.33 !        13.33

ROAD (0.00 + 37.83 + 0.00) = 37.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -28    -15   0.00  76.81   0.00 -12.11 -11.41   0.00   0.00 -15.45  37.83
-------------------------------------------------------------------------------

Segment Leq : 37.83 dBA

Results segment # 3: Hwy 417 2 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       19.72 !        19.72

ROAD (0.00 + 35.33 + 0.00) = 35.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -15     -8   0.00  76.81   0.00 -12.11 -14.10   0.00   0.00 -15.26  35.33
-------------------------------------------------------------------------------

Segment Leq : 35.33 dBA
```

```
Results segment # 4: Hwy 417 3 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       19.72 !        19.72

ROAD (0.00 + 34.75 + 0.00) = 34.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    13     19   0.00  76.81   0.00 -12.11 -14.77   0.00   0.00 -15.18  34.75
-------------------------------------------------------------------------------

Segment Leq : 34.75 dBA

Results segment # 5: Hwy 417 4 (night)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       12.01 !        12.01

ROAD (0.00 + 39.00 + 0.00) = 39.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    19     39   0.00  76.81   0.00 -12.11  -9.54   0.00   0.00 -16.16  39.00
-------------------------------------------------------------------------------

Segment Leq : 39.00 dBA
```

```
Results segment # 6: Lees 2 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !       20.50 !       18.79 !        18.79

ROAD (0.00 + 19.79 + 0.00) = 19.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6      0   0.00  60.88   0.00  -8.69 -14.77   0.00   0.00 -17.63  19.79
-------------------------------------------------------------------------------

Segment Leq : 19.79 dBA

Results segment # 7: Lees 3 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        4.26 !         4.26

ROAD (0.00 + 16.15 + 0.00) = 16.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0      5   0.00  60.88   0.00  -9.17 -15.56   0.00   0.00 -20.00  16.15
-------------------------------------------------------------------------------

Segment Leq : 16.15 dBA
```

```
Results segment # 8: Lees 4 (night)
-----------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
-----------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.86 !         1.86

ROAD (0.00 + 22.17 + 0.00) = 22.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     5     25   0.00  60.88   0.00  -9.17  -9.54   0.00   0.00 -20.00  22.17
-------------------------------------------------------------------------------

Segment Leq : 22.17 dBA

Total Leq All Segments: 43.19 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.67
                           (NIGHT): 43.19
```

GRADIENTWIND
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APPENDIX B

FTA VIBRATION CALCULATIONS

127 WALGREEN ROAD, OTTAWA, ON, CANADA K0A 1L0 | 613 836 0934
GRADIENTWIND.COM

GW20-219 10-Nov-20

Possible Vibration Impacts
Predicted using FTA General Assesment

Train Speed 70 km/h 43.5 mph

	Distance from C/L	
	(m)	(ft)
LRT	64.0	210.0

		Vibration	
From FTA Manual Fig 10-1			
	Vibration Levels at distance from track	60	dBV re 1 micro in/sec
Adjustment Factors FTA Table 10-1			
	Speed reference 50 mph	-1	Speed Limit of 70 km/h (43.5 mph)
	Vehicle Parameters	0	Assume Soft primary suspension, Wheels run true
	Track Condition	0	Track not worn or corrugated
	Track Treatments	0	None
	Type of Transit Structure	0	N/A
	Efficient vibration Propagation	0	Propagation through rock
	Vibration Levels at Fdn	59	
	Coupling to Building Foundation	-10	Large masonry on piles
	Floor to Floor Attenuation	0.0	Ground Floor Occupied
	Amplification of Floor and Walls	6	
	Total Vibration Level	54.8	dBV or 0.014 mm/s
	Noise Level in dBA	19.8	dBA

Table 10-1. Adjustment Factors for Generalized Predictions of Ground-Borne Vibration and Noise

Factors Affecting Vibration Source

Source Factor	Adjustment to Propagation Curve			Comment
Speed		Reference Speed		Vibration level is approximately proportional to 20*log(speed/speed$_{ref}$). Sometimes the variation with speed has been observed to be as low as 10 to 15 log(speed/speed$_{ref}$).
	Vehicle Speed	50 mph	30 mph	
	60 mph	+1.6 dB	+6.0 dB	
	50 mph	0.0 dB	+4.4 dB	
	40 mph	-1.9 dB	+2.5 dB	
	30 mph	-4.4 dB	0.0 dB	
	20 mph	-8.0 dB	-3.5 dB	
Vehicle Parameters (not additive, apply greatest value only)				
Vehicle with stiff primary suspension	+8 dB			Transit vehicles with stiff primary suspensions have been shown to create high vibration levels. Include this adjustment when the primary suspension has a vertical resonance frequency greater than 15 Hz.
Resilient Wheels	0 dB			Resilient wheels do not generally affect ground-borne vibration except at frequencies greater than about 80 Hz.
Worn Wheels or Wheels with Flats	+10 dB			Wheel flats or wheels that are unevenly worn can cause high vibration levels. This can be prevented with wheel truing and slip-slide detectors to prevent the wheels from sliding on the track.
Track Conditions (not additive, apply greatest value only)				
Worn or Corrugated Track	+10 dB			If both the wheels and the track are worn, only one adjustment should be used. Corrugated track is a common problem. Mill scale on new rail can cause higher vibration levels until the rail has been in use for some time.
Special Trackwork	+10 dB			Wheel impacts at special trackwork will significantly increase vibration levels. The increase will be less at greater distances from the track.
Jointed Track or Uneven Road Surfaces	+5 dB			Jointed track can cause higher vibration levels than welded track. Rough roads or expansion joints are sources of increased vibration for rubber-tire transit.
Track Treatments (not additive, apply greatest value only)				
Floating Slab Trackbed	-15 dB			The reduction achieved with a floating slab trackbed is strongly dependent on the frequency characteristics of the vibration.
Ballast Mats	-10 dB			Actual reduction is strongly dependent on frequency of vibration.
High-Resilience Fasteners	-5 dB			Slab track with track fasteners that are very compliant in the vertical direction can reduce vibration at frequencies greater than 40 Hz.

Table 10-1. Adjustment Factors for Generalized Predictions of Ground-Borne Vibration and Noise (Continued)

Factors Affecting Vibration Path				
Path Factor	**Adjustment to Propagation Curve**			**Comment**
Resiliently Supported Ties			-10 dB	Resiliently supported tie systems have been found to provide very effective control of low-frequency vibration.
Track Configuration (not additive, apply greatest value only)				
Type of Transit Structure	Relative to at-grade tie & ballast: Elevated structure Open cut		-10 dB 0 dB	The general rule is the heavier the structure, the lower the vibration levels. Putting the track in cut may reduce the vibration levels slightly. Rock-based subways generate higher-frequency vibration.
	Relative to bored subway tunnel in soil: Station Cut and cover Rock-based		-5 dB -3 dB - 15 dB	
Ground-borne Propagation Effects				
Geologic conditions that promote efficient vibration propagation	Efficient propagation in soil		+10 dB	Refer to the text for guidance on identifying areas where efficient propagation is possible.
	Propagation in rock layer	**Dist.** 50 ft 100 ft 150 ft 200 ft	**Adjust.** +2 dB +4 dB +6 dB +9 dB	The positive adjustment accounts for the lower attenuation of vibration in rock compared to soil. It is generally more difficult to excite vibrations in rock than in soil at the source.
Coupling to building foundation	Wood Frame Houses 1-2 Story Masonry 3-4 Story Masonry Large Masonry on Piles Large Masonry on Spread Footings Foundation in Rock		-5 dB -7 dB -10 dB -10 dB -13 dB 0 dB	The general rule is the heavier the building construction, the greater the coupling loss.
Factors Affecting Vibration Receiver				
Receiver Factor	**Adjustment to Propagation Curve**			**Comment**
Floor-to-floor attenuation	1 to 5 floors above grade: 5 to 10 floors above grade:		-2 dB/floor -1 dB/floor	This factor accounts for dispersion and attenuation of the vibration energy as it propagates through a building.
Amplification due to resonances of floors, walls, and ceilings			+6 dB	The actual amplification will vary greatly depending on the type of construction. The amplification is lower near the wall/floor and wall/ceiling intersections.
Conversion to Ground-borne Noise				
Noise Level in dBA	Peak frequency of ground vibration: Low frequency (<30 Hz): Typical (peak 30 to 60 Hz): High frequency (>60 Hz):		 -50 dB -35 dB -20 dB	Use these adjustments to estimate the A-weighted sound level given the average vibration velocity level of the room surfaces. See text for guidelines for selecting low, typical or high frequency characteristics. Use the high-frequency adjustment for subway tunnels in rock or if the dominant frequencies of the vibration spectrum are known to be 60 Hz or greater.