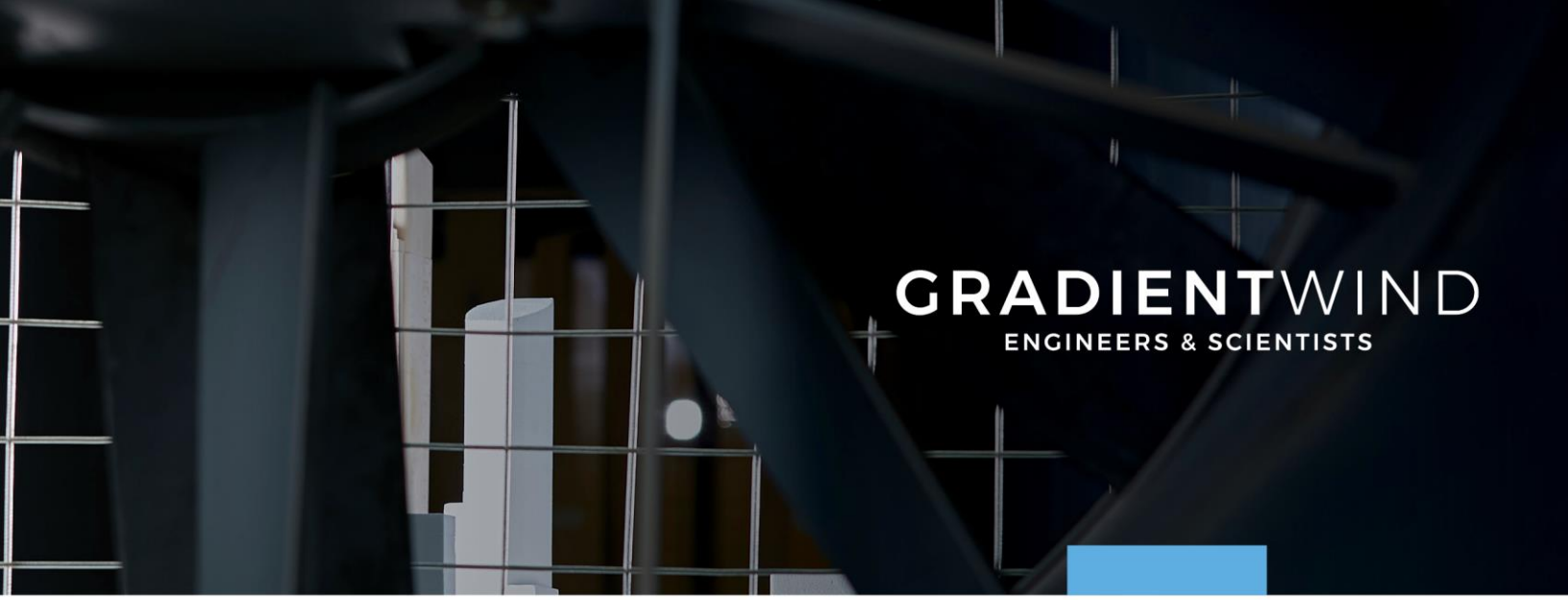

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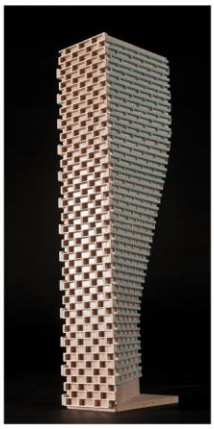
ROADWAY TRAFFIC NOISE ASSESSMENT

50 The Driveway
Ottawa, Ontario

REPORT: GW21-200 – Traffic Noise



January 12, 2023

PREPARED FOR

Canadian Nurses Association
50 The Driveway
Ottawa, ON
K2P 1E2

PREPARED BY

Essraa Alqassab, BASc., Junior Environmental Scientist
Joshua Foster, P.Eng., Lead Engineer

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EXECUTIVE SUMMARY

This report describes a traffic noise assessment undertaken in support of concurrent Official Plan Amendment (OPA), Zoning By-law Amendment (ZBA) and Site Plan Control (SPC) applications for a proposed residential development located at 50 The Driveway in Ottawa, Ontario. The proposed development is a nine-storey residential development for the Canadian Nurses Association. For the purposes of this study, the elevation facing Queen Elizabeth Driveway will be referred to as the north elevation. The major sources of traffic noise are Queen Elizabeth Driveway, Colonel By Drive, Nicholas Street, and the LRT Confederation Line. Figure 1 illustrates a complete site plan with 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; and (iv) architectural drawings prepared by Hobin Architecture Incorporated dated January 5th, 2023.

The results of the current analysis indicate that Plane-of-Window noise levels will range between 63 and 68 dBA during the daytime period (07:00-23:00) and between 56 and 60 dBA during the nighttime period (23:00-07:00). The highest noise level (68 dBA) occurs at the north façade, which is nearest and most exposed to Nicholas Street, Colonel By Drive, and Queen Elizabeth Driveway. 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 the development will require central air conditioning, or a similar ventilation system, which will allow occupants to keep windows closed and maintain a comfortable living environment. A Type D Warning Clause is required on all Lease, Purchase, and Sale agreements, as summarized in Section 6.

Noise levels at the Levels 6,7, and 8 terraces exceed the 60 dBA noise requirement. As such, a 1.1 m high noise barrier will be required to reduce noise levels below the criterion. As noise levels are above 55 dBA with mitigation, a Type B Warning Clause will be required for these areas, as discussed in Section 6. Noise levels at the rooftop terrace are less then 60 dBA; therefore, a noise barrier is not required. Since noise

levels are above 55 dBA, a Type A Warning Clause will be required to be placed on all Lease, Purchase and Sale Agreements, see Section 6.

The building's proposed HVAC equipment has potential for noise impacts on surrounding buildings and the study building itself. Typically, noise levels can be controlled by judicious selection and placement of the equipment and the introduction of silencers or noise screens where needed. A stationary noise study will be performed once mechanical plans for the proposed building become available. This study will include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits. It should be noted that under NPC-300, occasional activities associated with the loading area are not considered as stationary noise.

The surrounding area was evaluated for sources of stationary noise impacting the proposed development. Rooftop air handling equipment atop the Embassy of Germany is expected to have minimal impact. Given the setback distance of approximately 35 metres and an enclosure surrounding the equipment, noise levels will be dominated by roadway traffic noise. No other stationary noise sources were identified, therefore, stationary noise impacts on the proposed development are expected to be insignificant.

TABLE OF CONTENTS

1. INTRODUCTION

Gradient Wind Engineering Inc. (Gradient Wind) was retained by the Canadian Nurses Association to undertake a roadway traffic noise assessment in support of Official Plan Amendment (OPA), Zoning By-Law Amendment (ZBA), and Site Plan Control (SPC) applications for a proposed residential development at 50 The Driveway in Ottawa, Ontario. This report summarizes the methodology, results, and recommendations related to the assessment of exterior and interior noise levels generated by local roadway traffic.

Our work is based on theoretical noise calculation methods conforming to the City of Ottawa Environmental Noise Control Guidelines (ENCG)[1] and Ministry of the Environment, Conservation and Parks (MECP)[2] guidelines. Noise calculations were based on architectural drawings prepared by Hobin Architecture Incorporated dated January 5th, 2023, with future traffic volumes corresponding to the City of Ottawa's Official Plan (OP) roadway classifications.

2. TERMS OF REFERENCE

The focus of this traffic noise assessment is a proposed development at 50 The Driveway in Ottawa, Ontario. The study site is located in the middle of a parcel of land bounded by Lewis Street to the west, Queen Elizabeth Driveway to the north, and existing low-rise dwellings to the south and east.

The proposed development comprises a 9-storey residential building rising approximately 30.5 meters (m) above the ground floor to the top of the main roof slab serving the mechanical penthouse. Above two levels of underground parking, the ground floor comprises a main residential entrance served by a vestibule at the northwest corner of building, which provides access to an interior lobby lounge, among other building services. Private residential suites are located along the south and east elevations, as well as within the northwest corner of the floorplate, while an interior amenity area is provided at the north elevation. An exterior lobby lounge is also provided at the north elevation, flanked by the main residential entrance to the west and the interior amenity area to the east. The parking entrance is provided at the

[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

southwest corner of the proposed development, providing access to two above grade parking levels. At Level 3, the building steps back from the northeast corner and rises with a uniform floorplate to Level 5. At Levels 6 and 8, the floorplates step back from the east elevation to accommodate private terraces. A total of three penthouse suites are provided at Level 9, complete with balconies and terraces. Balconies or terraces that extend less than 4 metres from the façade do not require consideration as outdoor living areas (OLA) in this study. The areas considered as OLAs in this study are the Levels 6-8 and rooftop terraces.

The site is surrounded by low-rise dwellings with isolated mid-rise buildings from southeast clockwise to west-southwest, the dense downtown core consisting of mid-rise and high-rise buildings from the west-southwest clockwise to west-northwest, a mix of mid-rise and high-rise buildings from the west-northwest clockwise to north-northwest, and low-rise dwellings for the remaining compass directions. The subject site is situated approximately 62 m south of the Rideau Canal, which extends nominally east-to-west in the vicinity of the proposed development with a return to the south along the east side of the subject site.

The major sources of transportation noise are Queen Elizabeth Driveway, Colonel By Drive, Nicholas Street, and the LRT Confederation Line. Collector and Arterial roadways beyond 200 metres of the study site are not included as sources influencing the study site as per ENCG Section 2.1. 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 traffic, and (ii) 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 Roadway and LRT Traffic Noise

4.2.1 Criteria for Roadway and LRT Traffic Noise

For surface roadway 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, 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 45 and 40 dBA for living rooms and sleeping quarters respectively for roadway as listed in Table 1.

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

Type of Space	Time Period	Leq (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

[3] Adapted from ENCG 2016 – Tables 2.2b and 2.2c

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 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 Theoretical Roadway and LRT 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.

Roadway traffic noise calculations were performed by treating each roadway 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 reflective due to the presence of hard paved ground or absorptive to account for soft (landscaped) ground.
- Topography was assumed to be a flat/gentle slope surrounding the study building.
- The LRT Confederation Line was modelled as a 4-car SRT type in STAMSON.

[4] Burberry, P.B. (2014). Mitchell's Environment and Services. Routledge, Page 125
[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

- LRT speed was taken to be 50km/h for trains approaching/leaving the University of Ottawa station.
- Noise receptors were strategically placed at 5 locations around the study area (see Figure 2).
- Receptor distances and exposure angles are illustrated in Appendix A Figures A1-A5.

4.2.3 Roadway Traffic Volumes

The ENCG dictates that noise calculations should consider future sound levels based on a roadway's classification at the mature state of development. Therefore, traffic volumes 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. LRT Traffic volumes are based on Gradient Wind's previous work. Table 2 (below) summarizes the AADT values used for each roadway included in this assessment.

TABLE 2: ROADWAY TRAFFIC DATA

Segment	Roadway Traffic Data	Speed Limit (km/h)	Traffic Volumes
Queen Elizabeth Driveway	2-Lane Urban Collector (2-UCU)	40	**8,000**
Colonel By Drive	2-Lane Urban Collector (2-UCU)	40	**8,000**
Nicholas Street	4-Lane Urban Arterial Divided (4-UAD)	60	**35,000**
Confederation Line	LRT	50	**540/60***

*Daytime/Nighttime volumes

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

[7] City of Ottawa Transportation Master Plan, November 2013

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 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 varies 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 site plan approval, 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).

[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

5. RESULTS AND DISCUSSION

5.1 Roadway Traffic Noise Levels

The results of the roadway traffic 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 ROAD TRAFFIC

Receptor Number	Receptor Height Above Grade (m)	Receptor Location	STAMSON 5.04 Noise Level (dBA)	
			Day	Night
1	28.6	POW – 9th Floor – East Façade	65	58
2	28.6	POW – 9th Floor – North Façade	68	60
3	28.6	POW – 9th Floor – West Façade	63	56
4	18.6	OLA – Level 6 Terrace	62	N/A*
5	21.9	OLA – Level 7 Terrace	63	N/A*
6	25.3	OLA – Level 8 Terrace	63	N/A*
7	32.0	OLA – Rooftop Terraces	58	N/A*

*OLA noise levels are not considered during the nighttime, as per the ENCG.

The results of the current analysis indicate that Plane-of-Window (POW) noise levels will range between 63 and 68 dBA during the daytime period (07:00-23:00) and between 56 and 60 dBA during the nighttime period (23:00-07:00). The highest noise level (68 dBA) occurs at the north façade, which is nearest and most exposed to Nicholas Street.

5.1.1 Noise Control Measures

The noise level on select facades predicted due to traffic noise exceeds the criteria listed in Section 4.2 for building components for the development. As discussed in Section 4.2, the anticipated STC requirements for windows have been estimated based on the overall noise reduction required for each intended use of space (STC = outdoor noise level – targeted indoor noise levels). As per NPC-300 requirements, detailed STC calculations will be required to be completed prior to building permit application for each unit type. The STC requirements for the windows are summarized below for various units within the development (see Figure 3).

TABLE 4: NOISE CONTROL REQUIREMENTS

Façade	Window STC (Bedroom/Living Room)	Exterior Wall STC
North	31/26	45

The results of the calculations also indicate that the development should be designed with central air conditioning or a similar system, which will allow occupants to keep windows closed and maintain a comfortable living environment. A Type D Warning Clause should be used in all Lease, Purchase and Sale Agreements of the building's units, as summarized in section 6.

5.1.2 Noise Barrier Investigation

Noise level at the Levels 6, 7, and 8 terraces exceed the 60 dBA criterion. If these areas are to be used as outdoor living areas, noise control measures are required to reduce noise levels as close as possible to 55 dBA where technically and architecturally feasible. Results indicate that, with a 1.1 m high barrier, noise levels drop down to below 60 dBA. A Type B Warning Clause will be required for the areas below, as discussed in Section 6.

TABLE 4: RESULTS OF NOISE BARRIER INVESTIGATION

Receptor ID	Receptor Location	Receptor Height Above Grade (m)	Daytime L_{eq} Noise Levels (dBA)	
			Without a Barrier	With 1.1m Barrier
R4	Level 6 Terrace	18.6	62	59
R5	Level 7 Terrace	21.9	63	58
R6	Level 8 terrace	25.3	63	58

6. CONCLUSIONS AND RECOMMENDATIONS

The results of the current analysis indicate that Plane-of-Window noise levels will range between 63 and 68 dBA during the daytime period (07:00-23:00) and between 56 and 60 dBA during the nighttime period (23:00-07:00). The highest noise level (68 dBA) occurs at the north façade, which is nearest and most exposed to Nicholas Street, Colonel By Drive, and Queen Elizabeth Driveway. 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 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 will also be required to be placed on all Lease, Purchase and Sale Agreements, as summarized below:

Type D:

> *"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment."*

Noise levels at the rooftop terrace are less then 60 dBA; therefore, a noise barrier is not required. Since noise levels are above 55 dBA, a Type A Warning Clause will be required to be placed on all Lease, Purchase and Sale Agreements, as summarized below:

Type A:

> *"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."*

Noise levels at the Levels 6-8 terraces exceed the 60 dBA OLA criteria without a noise barrier. As such, a 1.1 m high noise barrier will be required, as illustrated in Figure 4. This mitigation measure will reduce noise levels to below 60 dBA. As noise levels are above 55 dBA, a Type B Warning Clause will be required:

Type B:

> *"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment."*

The building's proposed HVAC equipment has potential for noise impacts on surrounding buildings and the study building itself. Typically, noise levels can be controlled by judicious selection and placement of the equipment and the introduction of silencers or noise screens where needed. A stationary noise study will be performed once mechanical plans for the proposed building become available. This study will include recommendations for any noise control measures that may be necessary to ensure noise levels fall below ENCG limits. It should be noted that under NPC-300 occasional activities associated with the loading area are not considered as stationary noise.

The surrounding area was evaluated for sources of stationary noise impacting the proposed development. Rooftop air handling equipment atop the Embassy of Germany is expected to have minimal impact. Given the setback distance of approximately 35 metres and an enclosure surrounding the equipment, noise levels will be dominated by roadway traffic noise. No other stationary noise sources were identified, therefore, stationary noise impacts on the proposed development are expected to be insignificant.

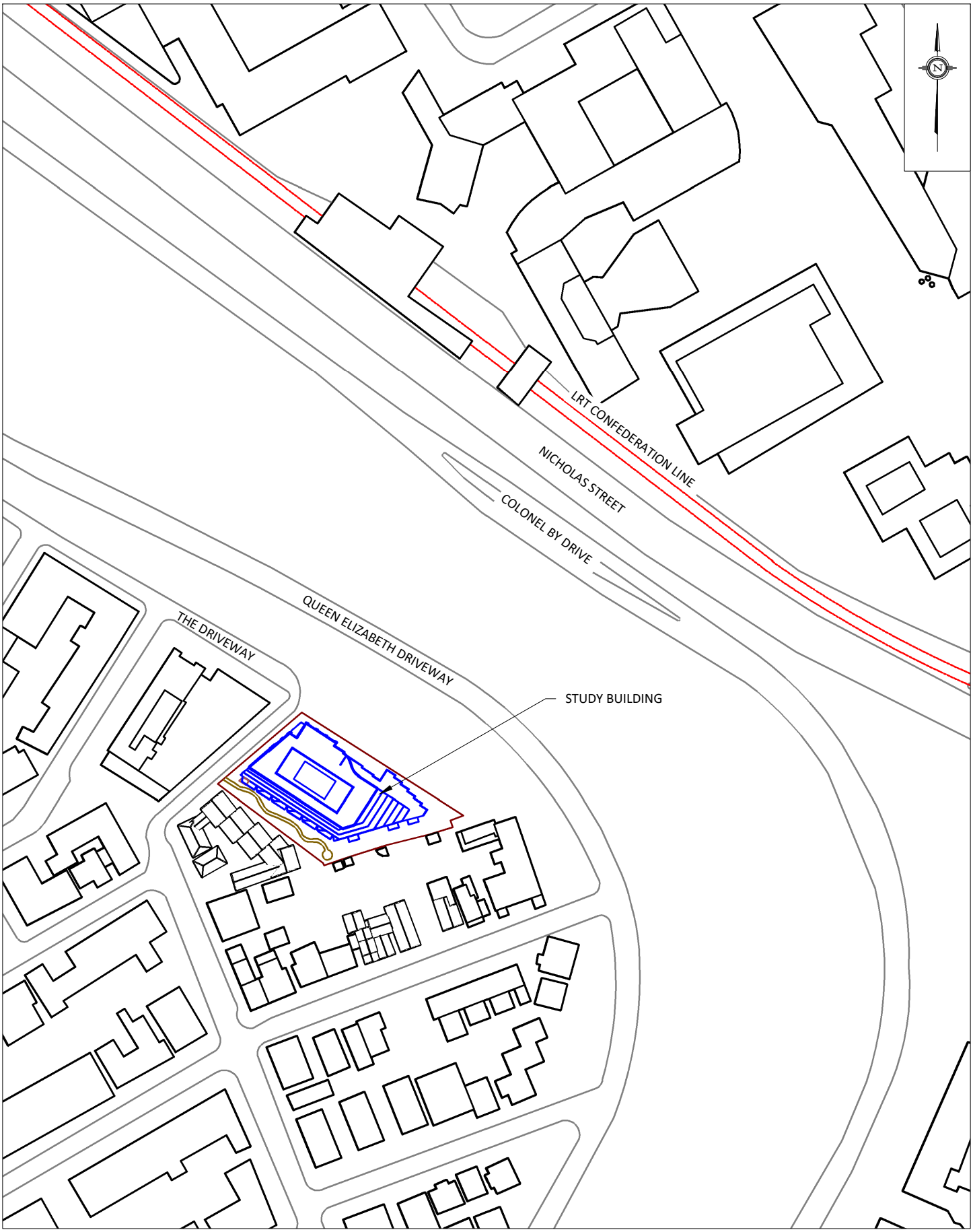
This concludes our traffic noise assessment and report. If you have any questions or wish to discuss our findings, please advise us. In the interim, we thank you for the opportunity to be of service.

Sincerely,

Gradient Wind Engineering Inc.

Essraa Alqassab, BASc
Junior Environmental Scientist

Joshua Foster, P.Eng.
Lead Engineer



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DATE	JANUARY 9 2023
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DESCRIPTION

FIGURE 1:
SITE PLAN AND SURROUNDING CONTEXT

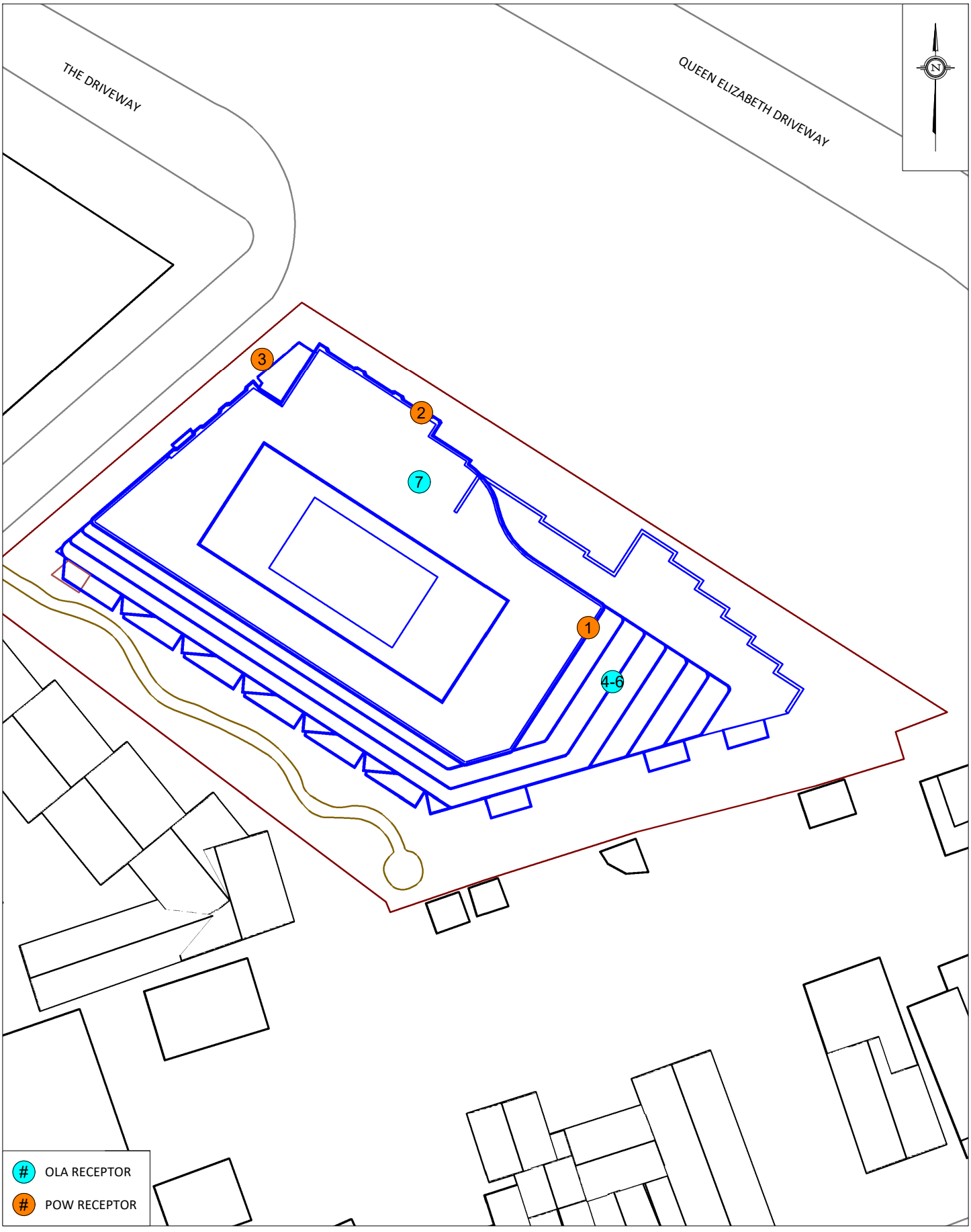

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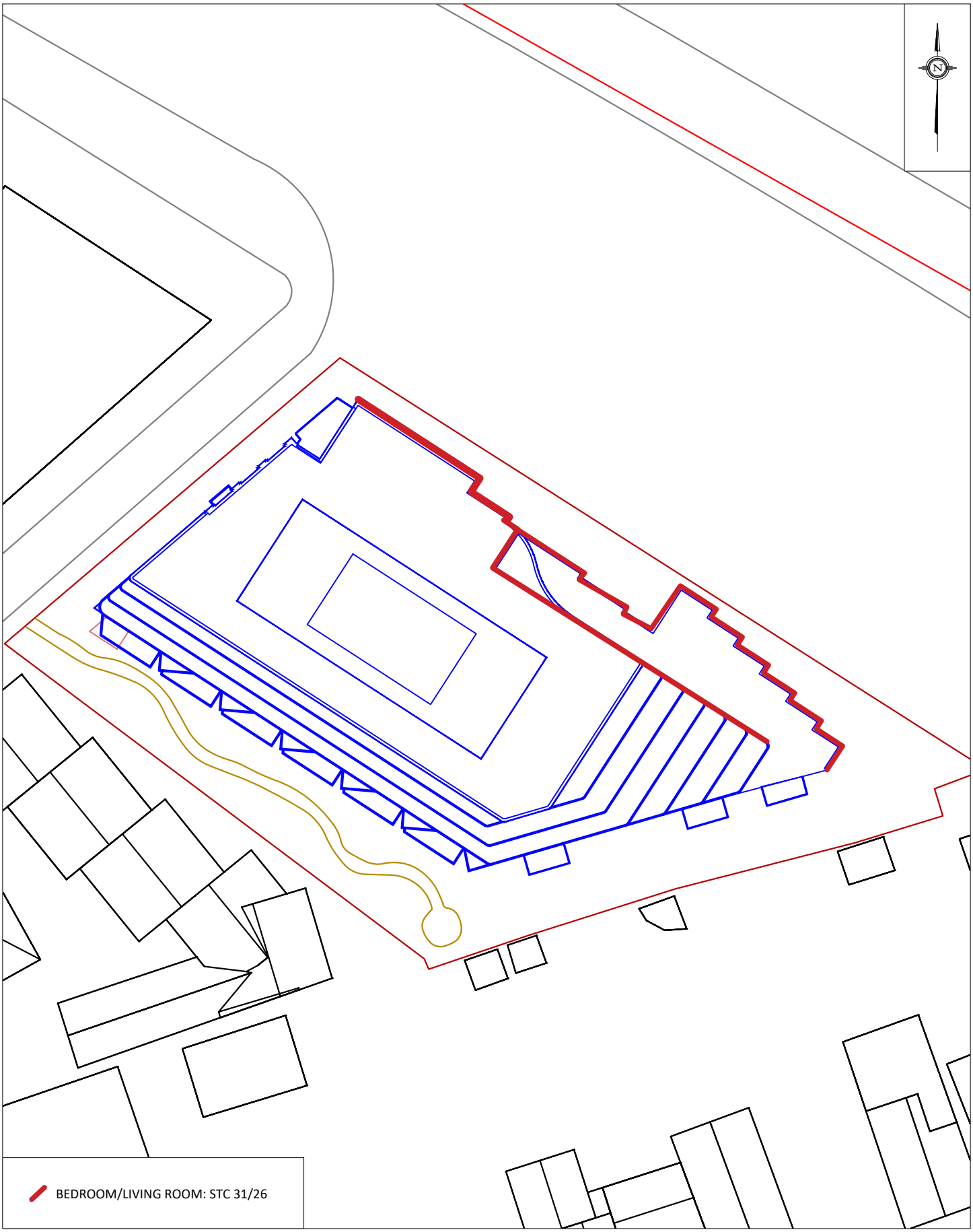
FIGURE 2:
RECEPTOR LOCATIONS



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SCALE	1:1500 (APPROX.)	DRAWING NO.	GW21-200-3
DATE	JANUARY 9 2023	DRAWN BY	E.A.

FIGURE 3:
STC RECOMMENDATIONS

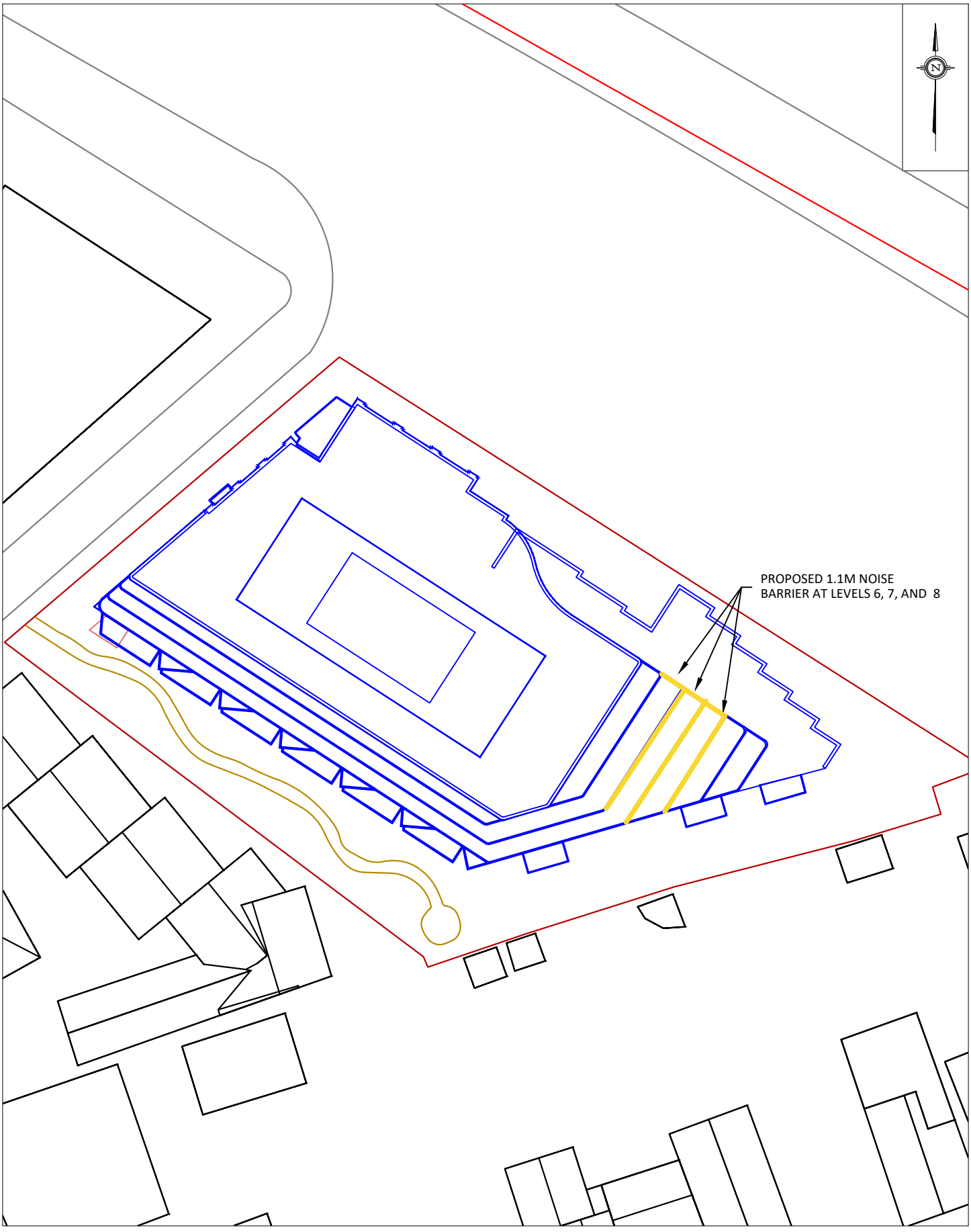

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FIGURE 4:
NOISE BARRIER RECOMMENDATIONS

APPENDIX A

STAMSON 5.04 – INPUT AND OUTPUT DATA

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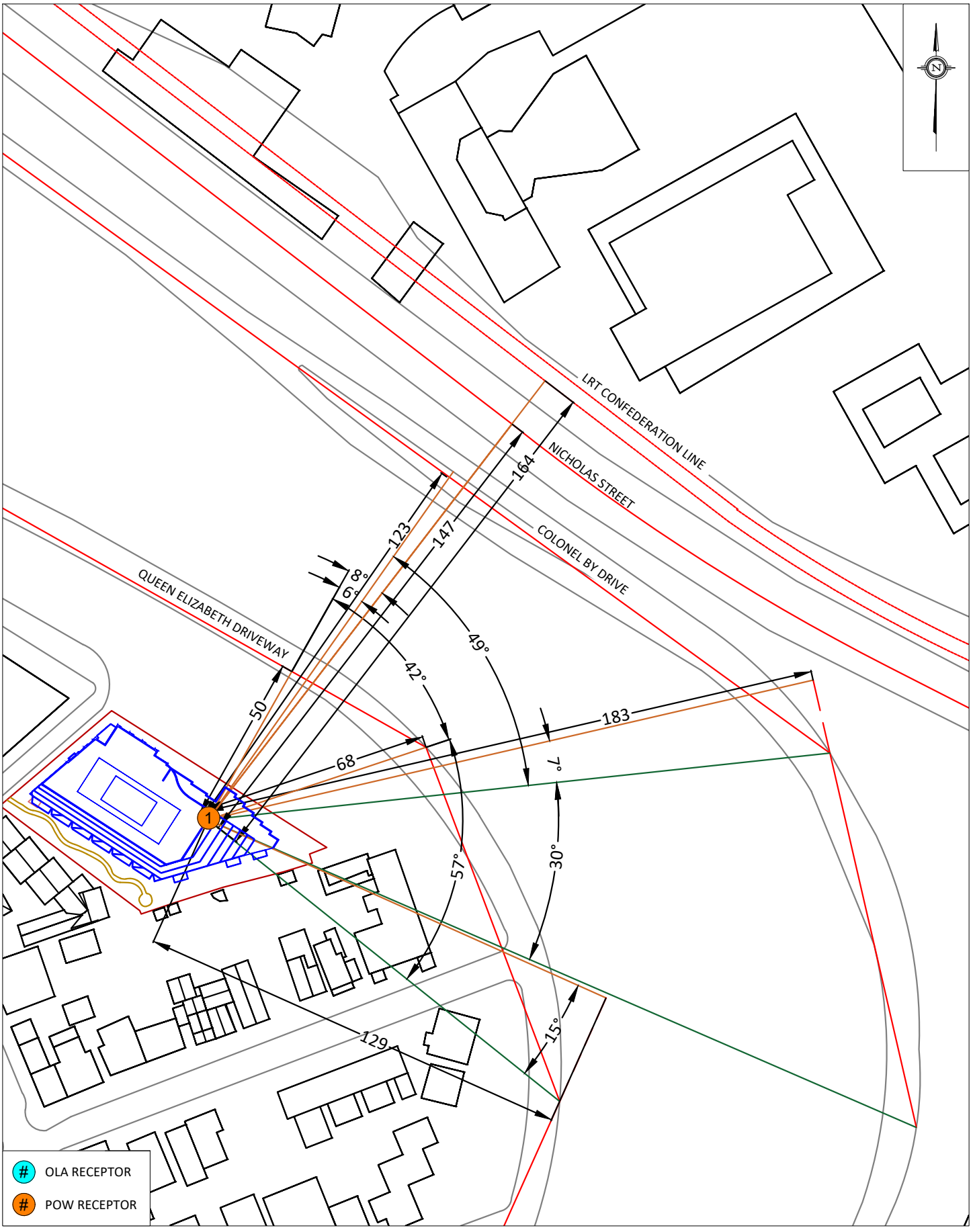

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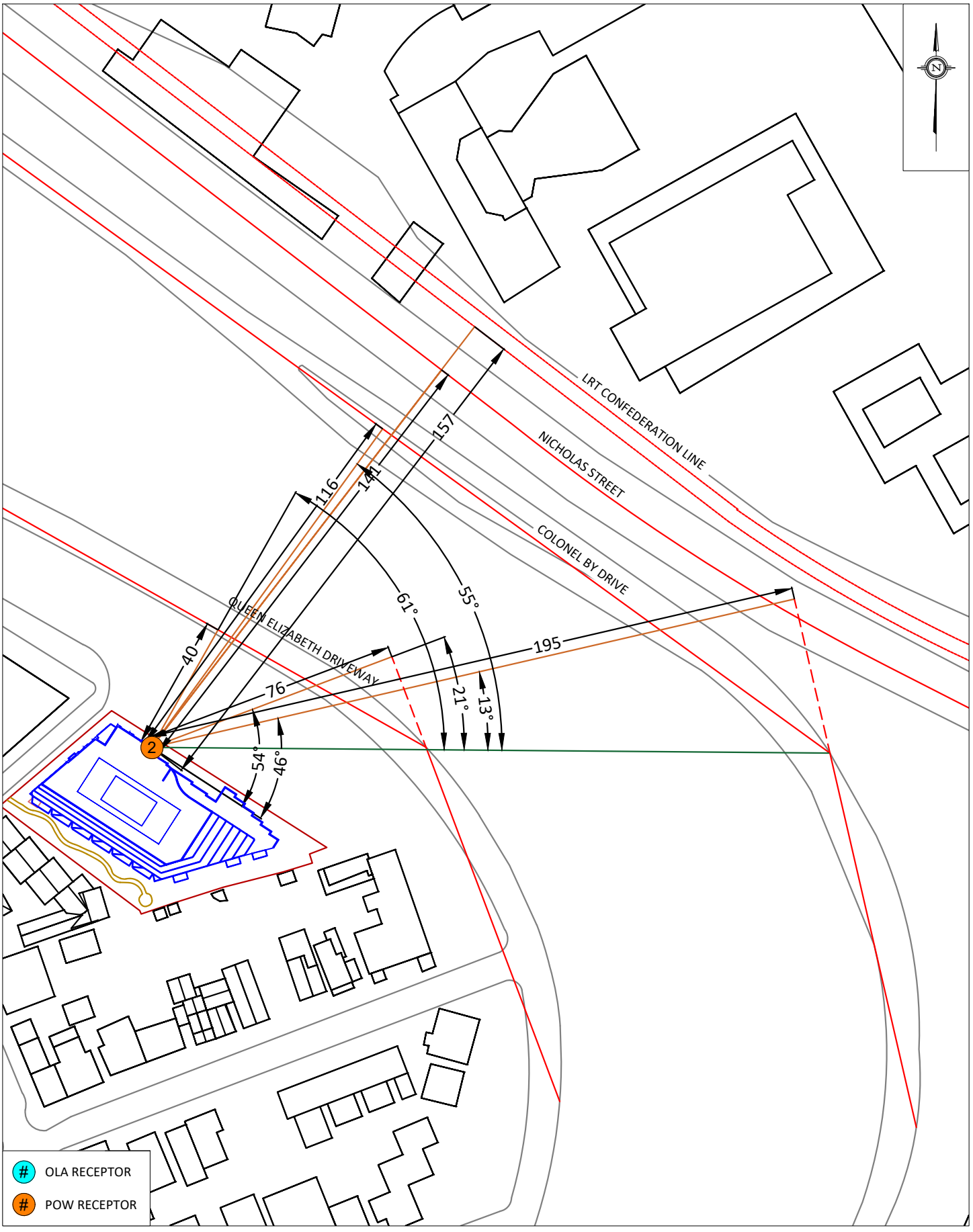
FIGURE A1:
RECEPTOR 1 STAMSON INPUT PARAMETERS



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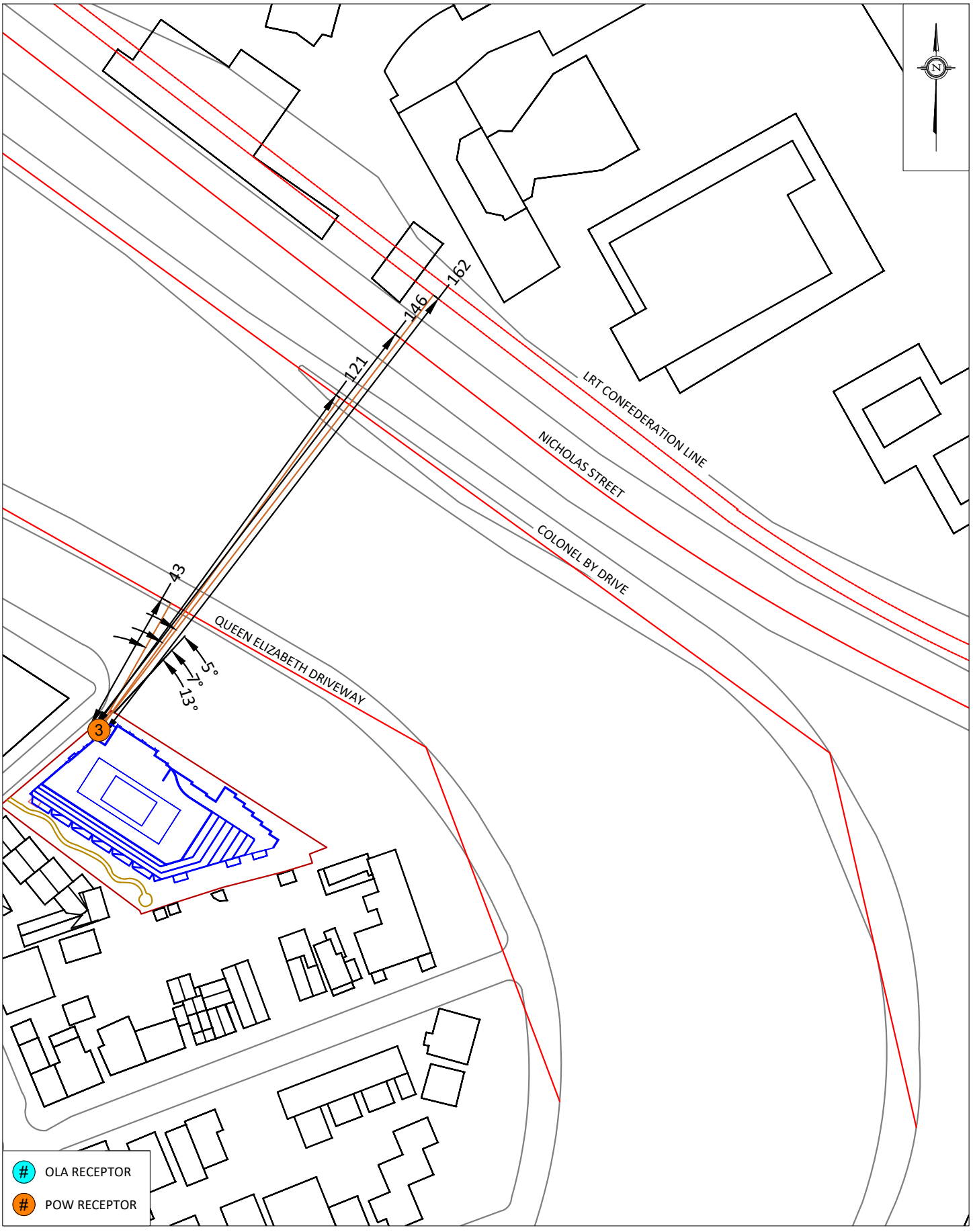
DESCRIPTION

FIGURE A2:
RECEPTOR 2 STAMSON INPUT PARAMETERS



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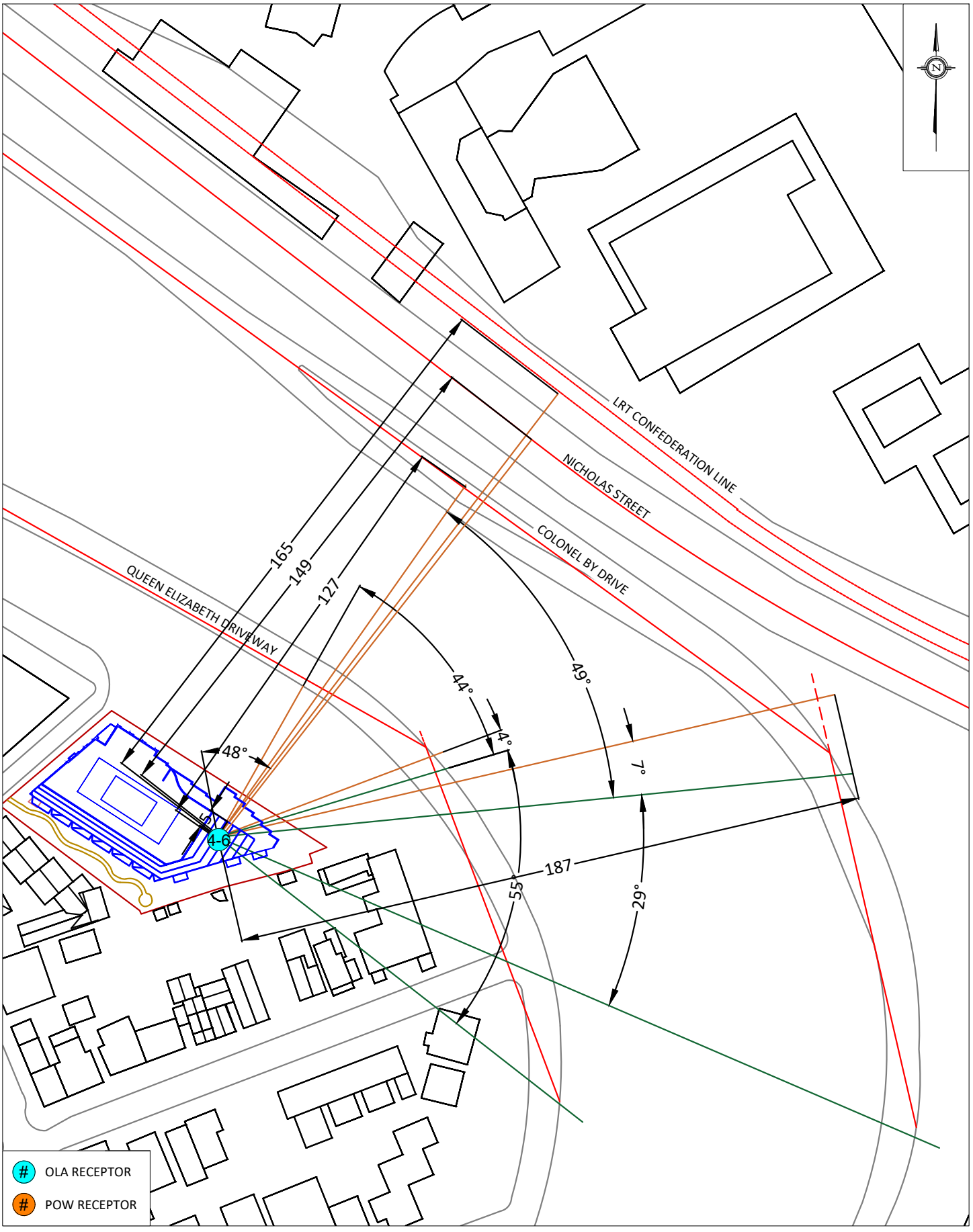
DESCRIPTION

FIGURE A3:
RECEPTOR 3 STAMSON INPUT PARAMETERS



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DATE	JANUARY 9 2023
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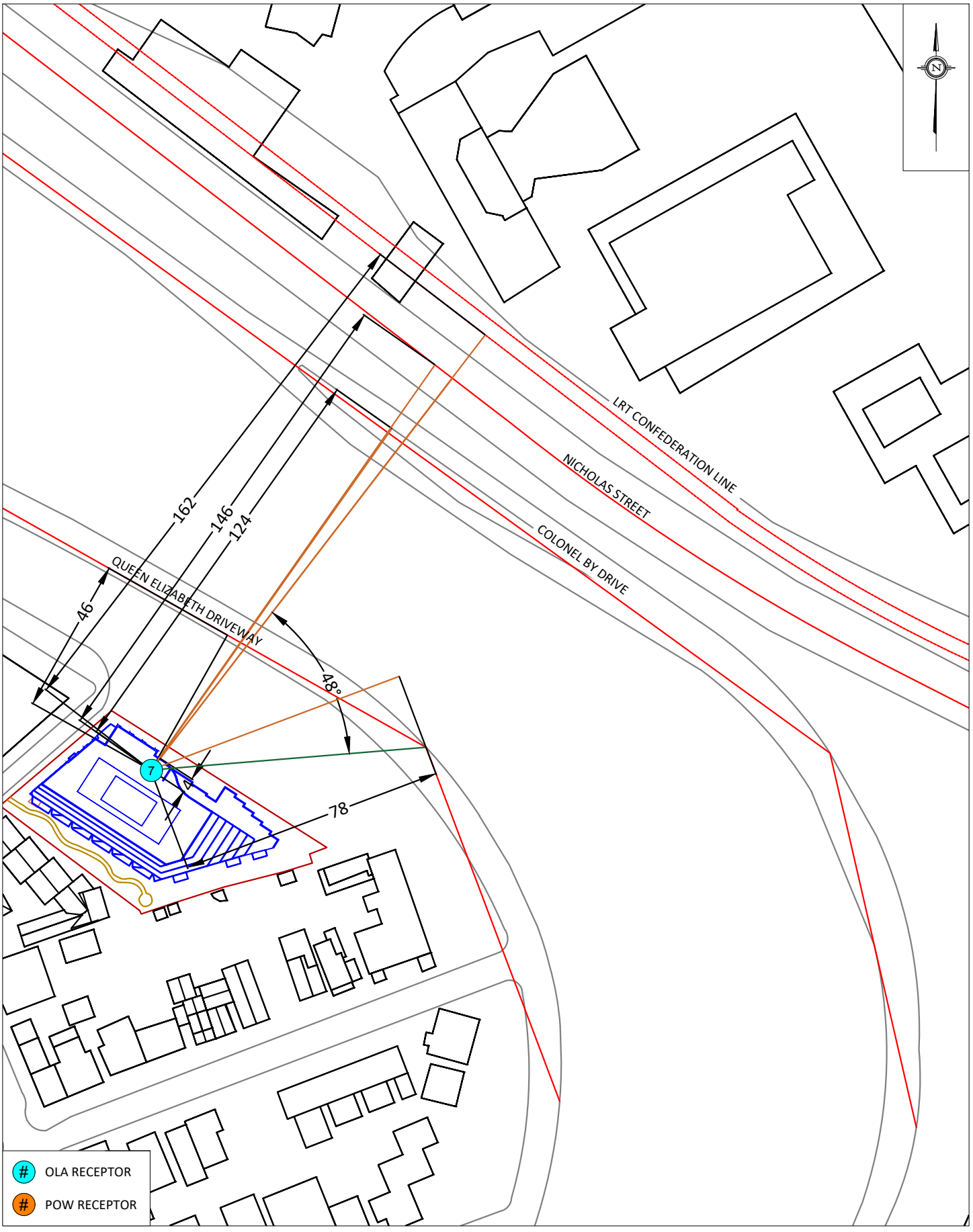
DESCRIPTION

FIGURE A4:
RECEPTOR 4-6 STAMSON INPUT PARAMETERS



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PROJECT	50 THE DRIVEWAY, OTTAWA ROADWAY TRAFFIC NOISE ASSESSMENT
SCALE	1:1500 (APPROX.)
DRAWING NO.	GW21-200-A5
DATE	JANUARY 9 2023
DRAWN BY	E.A.

DESCRIPTION

FIGURE A5:
RECEPTOR 7 STAMSON INPUT PARAMETERS

```
STAMSON 5.0        NORMAL REPORT        Date: 09-01-2023 13:52:03
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           :   0.00 deg   42.00 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           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-------------------------------------------
Angle1   Angle2           :   0.00 deg   57.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  68.00 / 68.00  m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-------------------------------------------
Angle1   Angle2           :  -6.00 deg   49.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 123.00 / 123.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
-------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   7.00 deg   37.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 183.00 / 183.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 5: Nicholas (day/night)
-----------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 5: Nicholas (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 147.00 / 147.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 6: QueenEliz3 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
```

```
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   8000
    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: QueenEliz3 (day/night)
--------------------------------------------
Angle1   Angle2           :  15.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 129.00 / 129.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (day)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.41 + 0.00) = 52.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     42   0.00  63.96   0.00  -5.23  -6.32   0.00   0.00   0.00  52.41
-------------------------------------------------------------------------------

Segment Leq : 52.41 dBA


Results segment # 2: QueenEliz2 (day)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 52.40 + 0.00) = 52.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     57   0.00  63.96   0.00  -6.56  -4.99   0.00   0.00   0.00  52.40
-------------------------------------------------------------------------------

Segment Leq : 52.40 dBA
```

```
Results segment # 3: ColonelBy1 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.67 + 0.00) = 49.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6     49   0.00  63.96   0.00  -9.14  -5.15   0.00   0.00   0.00  49.67
-------------------------------------------------------------------------------

Segment Leq : 49.67 dBA


Results segment # 4: ColonelBy2 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.31 + 0.00) = 45.31 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     7     37   0.00  63.96   0.00 -10.86  -7.78   0.00   0.00   0.00  45.31
-------------------------------------------------------------------------------

Segment Leq : 45.31 dBA


Results segment # 5: Nicholas (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 63.76 + 0.00) = 63.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  73.68   0.00  -9.91   0.00   0.00   0.00   0.00  63.76
-------------------------------------------------------------------------------

Segment Leq : 63.76 dBA


Results segment # 6: QueenEliz3 (day)
-----------------------------------

Source height = 1.50 m

ROAD (0.00 + 54.12 + 0.00) = 54.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    15     90   0.00  67.27   0.00  -9.34  -3.80   0.00   0.00   0.00  54.12
-------------------------------------------------------------------------------
```

```
Segment Leq : 54.12 dBA

Total Leq All Segments: 64.93 dBA


Results segment # 1: QueenEliz1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.81 + 0.00) = 44.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     42   0.00  56.36   0.00  -5.23  -6.32   0.00   0.00   0.00  44.81
-------------------------------------------------------------------------------

Segment Leq : 44.81 dBA

Results segment # 2: QueenEliz2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 44.80 + 0.00) = 44.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     57   0.00  56.36   0.00  -6.56  -4.99   0.00   0.00   0.00  44.80
-------------------------------------------------------------------------------

Segment Leq : 44.80 dBA


Results segment # 3: ColonelBy1 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 42.08 + 0.00) = 42.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6     49   0.00  56.36   0.00  -9.14  -5.15   0.00   0.00   0.00  42.08
-------------------------------------------------------------------------------

Segment Leq : 42.08 dBA


Results segment # 4: ColonelBy2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 37.72 + 0.00) = 37.72 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
```

```
     7     37   0.00  56.36   0.00 -10.86  -7.78   0.00   0.00   0.00  37.72
-------------------------------------------------------------------------------

Segment Leq : 37.72 dBA


Results segment # 5: Nicholas (night)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.17 + 0.00) = 56.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  66.08   0.00  -9.91   0.00   0.00   0.00   0.00  56.17
-------------------------------------------------------------------------------

Segment Leq : 56.17 dBA


Results segment # 6: QueenEliz3 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 46.53 + 0.00) = 46.53 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    15     90   0.00  59.67   0.00  -9.34  -3.80   0.00   0.00   0.00  46.53
-------------------------------------------------------------------------------

Segment Leq : 46.53 dBA

Total Leq All Segments: 57.34 dBA


RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  : 164.00 / 164.00 m
Receiver height           :  28.60 / 28.60  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 + 50.13 + 0.00) = 50.13 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  60.51 -10.39   0.00   0.00   0.00   0.00  50.13
-------------------------------------------------------------------------

Segment Leq : 50.13 dBA

Total Leq All Segments: 50.13 dBA


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

Source height = 0.50 m

RT/Custom (0.00 + 43.60 + 0.00) = 43.60 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  53.98 -10.39   0.00   0.00   0.00   0.00  43.60
-------------------------------------------------------------------------

Segment Leq : 43.60 dBA

Total Leq All Segments: 43.60 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 65.07
                           (NIGHT): 57.52
```


```
STAMSON 5.0         NORMAL REPORT         Date: 09-01-2023 13:54:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   61.00 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           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
--------------------------------------------
Angle1   Angle2           :  21.00 deg   54.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  76.00 / 76.00  m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
--------------------------------------------
Car traffic volume  : 64768/5632  veh/TimePeriod  *
Medium truck volume :  5152/448   veh/TimePeriod  *
Heavy truck volume  :  3680/320   veh/TimePeriod  *
Posted speed limit  :    40 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):  80000
    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: ColonelBy1 (day/night)
--------------------------------------------
Angle1   Angle2           : -90.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 116.00 / 116.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
--------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
-------------------------------------------
Angle1   Angle2           :  13.00 deg   46.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 195.00 / 195.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 5: Nicholas (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth         :   0.00
    Number of Years of Growth           :   0.00
    Medium Truck % of Total Volume      :   7.00
    Heavy Truck  % of Total Volume      :   5.00
    Day (16 hrs) % of Total Volume      :  92.00

Data for Segment # 5: Nicholas (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 141.00 / 147.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (day)
-------------------------------------

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
-------------------------------------------------------------------------------
   -90     61   0.00  63.96   0.00  -4.26  -0.76   0.00   0.00   0.00  58.93
-------------------------------------------------------------------------------

Segment Leq : 58.93 dBA


Results segment # 2: QueenEliz2 (day)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.54 + 0.00) = 49.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    21     54   0.00  63.96   0.00  -7.05  -7.37   0.00   0.00   0.00  49.54
-------------------------------------------------------------------------------

Segment Leq : 49.54 dBA


Results segment # 3: ColonelBy1 (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
-------------------------------------------------------------------------------
   -90     55   0.00  73.96   0.00  -8.88  -0.94   0.00   0.00   0.00  64.13
-------------------------------------------------------------------------------

Segment Leq : 64.13 dBA


Results segment # 4: ColonelBy2 (day)
-------------------------------------

Source height = 1.50 m

ROAD (0.00 + 45.45 + 0.00) = 45.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    13     46   0.00  63.96   0.00 -11.14  -7.37   0.00   0.00   0.00  45.45
-------------------------------------------------------------------------------

Segment Leq : 45.45 dBA


Results segment # 5: Nicholas (day)
-----------------------------------
```

Source height = 1.50 m

ROAD (0.00 + 63.94 + 0.00) = 63.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	73.68	0.00	-9.73	0.00	0.00	0.00	0.00	63.94

Segment Leq : 63.94 dBA

Total Leq All Segments: 67.76 dBA

Results segment # 1: QueenEliz1 (night)

Source height = 1.50 m

ROAD (0.00 + 51.34 + 0.00) = 51.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	61	0.00	56.36	0.00	-4.26	-0.76	0.00	0.00	0.00	51.34

Segment Leq : 51.34 dBA

Results segment # 2: QueenEliz2 (night)

Source height = 1.50 m

ROAD (0.00 + 41.95 + 0.00) = 41.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
21	54	0.00	56.36	0.00	-7.05	-7.37	0.00	0.00	0.00	41.95

Segment Leq : 41.95 dBA

Results segment # 3: ColonelBy1 (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
-90	55	0.00	66.36	0.00	-8.88	-0.94	0.00	0.00	0.00	56.54

Segment Leq : 56.54 dBA

```
Results segment # 4: ColonelBy2 (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 37.86 + 0.00) = 37.86 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    13     46   0.00  56.36   0.00 -11.14  -7.37   0.00   0.00   0.00  37.86
-------------------------------------------------------------------------------

Segment Leq : 37.86 dBA


Results segment # 5: Nicholas (night)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 56.17 + 0.00) = 56.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     90   0.00  66.08   0.00  -9.91   0.00   0.00   0.00   0.00  56.17
-------------------------------------------------------------------------------

Segment Leq : 56.17 dBA

Total Leq All Segments: 60.10 dBA


RT/Custom data, segment # 1: LRT (day/night)
---------------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 157.00 / 157.00 m
Receiver height           :  28.60 / 28.60  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 + 50.32 + 0.00) = 50.32 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  60.51 -10.20   0.00   0.00   0.00   0.00  50.32
-------------------------------------------------------------------------

Segment Leq : 50.32 dBA

Total Leq All Segments: 50.32 dBA


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

Source height = 0.50 m

RT/Custom (0.00 + 43.78 + 0.00) = 43.78 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  53.98 -10.20   0.00   0.00   0.00   0.00  43.78
-------------------------------------------------------------------------

Segment Leq : 43.78 dBA

Total Leq All Segments: 43.78 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 67.84
                           (NIGHT): 60.20
```

```
STAMSON 5.0        NORMAL REPORT        Date: 09-01-2023 14:52:49
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: QueenEliz (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz (day/night)
----------------------------------------------
Angle1   Angle2           : -90.00 deg   13.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 2: ColonelBy (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   7.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 121.00 / 121.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


Road data, segment # 3: Nicholas (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Nicholas (day/night)
-------------------------------------------
Angle1   Angle2           : -90.00 deg   5.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 146.00 / 146.00 m
Receiver height           :  28.60 / 28.60  m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00


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

Source height = 1.50 m
```

```
ROAD (0.00 + 56.96 + 0.00) = 56.96 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90     13   0.00  63.96   0.00  -4.57  -2.42   0.00   0.00   0.00
56.96
-------------------------------------------------------------------------
--

Segment Leq : 56.96 dBA


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

Source height = 1.50 m

ROAD (0.00 + 52.20 + 0.00) = 52.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90      7   0.00  63.96   0.00  -9.07  -2.69   0.00   0.00   0.00
52.20
-------------------------------------------------------------------------
--

Segment Leq : 52.20 dBA


Results segment # 3: Nicholas (day)
----------------------------------

Source height = 1.50 m

ROAD (0.00 + 61.02 + 0.00) = 61.02 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90      5   0.00  73.68   0.00  -9.88  -2.78   0.00   0.00   0.00
61.02
-------------------------------------------------------------------------
--

Segment Leq : 61.02 dBA

Total Leq All Segments: 62.85 dBA
```

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

Source height = 1.50 m

ROAD (0.00 + 49.36 + 0.00) = 49.36 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90     13   0.00  56.36   0.00  -4.57  -2.42   0.00   0.00   0.00
49.36
-------------------------------------------------------------------------
--

Segment Leq : 49.36 dBA


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

Source height = 1.50 m

ROAD (0.00 + 44.61 + 0.00) = 44.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90      7   0.00  56.36   0.00  -9.07  -2.69   0.00   0.00   0.00
44.61
-------------------------------------------------------------------------
--

Segment Leq : 44.61 dBA


Results segment # 3: Nicholas (night)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.42 + 0.00) = 53.42 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90      5   0.00  66.08   0.00  -9.88  -2.78   0.00   0.00   0.00
53.42
-------------------------------------------------------------------------
--
```

```
Segment Leq : 53.42 dBA

Total Leq All Segments: 55.25 dBA


RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 162.00 / 162.00 m
Receiver height           :  28.60 / 28.60  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 + 50.18 + 0.00) = 50.18 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  60.51 -10.33   0.00   0.00   0.00   0.00  50.18
-------------------------------------------------------------------------

Segment Leq : 50.18 dBA

Total Leq All Segments: 50.18 dBA


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

Source height = 0.50 m

RT/Custom (0.00 + 43.65 + 0.00) = 43.65 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.00  53.98 -10.33   0.00   0.00   0.00   0.00  43.65
-------------------------------------------------------------------------
```

```
Segment Leq : 43.65 dBA

Total Leq All Segments: 43.65 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 63.08
                           (NIGHT): 55.54
```

```
STAMSON 5.0        NORMAL REPORT        Date: 10-01-2023 08:48:25
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -48.00 deg   44.00 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           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 44.00 deg
Barrier height            :  17.10 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   4.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   4.00 deg   Angle2 : 55.00 deg
Barrier height            :  17.10 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -48.00 deg   49.00 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            :  18.60 / 18.60  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 49.00 deg
Barrier height             :  17.10 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
---------------------------------------------
Angle1   Angle2            :   7.00 deg   36.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 187.00 / 187.00 m
Receiver height            :  18.60 / 18.60  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             :   7.00 deg   Angle2 : 36.00 deg
Barrier height             :  17.10 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 5: Nicholas (day/night)
---------------------------------------------
```

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Nicholas (day/night)
------------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  17.10 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (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 !       18.60 !       16.92 !        16.92

ROAD (0.00 + 50.59 + 0.00) = 50.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
```

```
   -48     44   0.00  63.96   0.00  -5.31  -2.91   0.00   0.00  -5.14
50.59
-------------------------------------------------------------------------
--

Segment Leq : 50.59 dBA


Results segment # 2: QueenEliz2 (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 !       18.60 !       17.40 !        17.40

ROAD (0.00 + 51.73 + 0.00) = 51.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00  -4.61
47.12*
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00   0.00
51.73
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 51.73 dBA


Results segment # 3: ColonelBy1 (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 !       18.60 !       17.93 !        17.93

ROAD (0.00 + 50.55 + 0.00) = 50.55 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00  -0.61
51.39*
   -48     49   0.15  63.96   0.00 -10.64  -2.77   0.00   0.00   0.00
50.55
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 50.55 dBA


Results segment # 4: ColonelBy2 (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 !       18.60 !       18.14 !        18.14

ROAD (0.00 + 43.40 + 0.00) = 43.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00   0.00
45.07*
     7     36   0.15  63.96   0.00 -12.57  -7.98   0.00   0.00   0.00
43.40
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 43.40 dBA


Results segment # 5: Nicholas (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 !       18.60 !       18.03 !        18.03

ROAD (0.00 + 60.79 + 0.00) = 60.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00  -0.77
61.78*
   -48     90   0.15  73.68   0.00 -11.44  -1.44   0.00   0.00   0.00
60.79
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 60.79 dBA

Total Leq All Segments: 62.04 dBA


Results segment # 1: QueenEliz1 (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 !       18.60 !       16.92 !        16.92

ROAD (0.00 + 42.99 + 0.00) = 42.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     44   0.00  56.36   0.00  -5.31  -2.91   0.00   0.00  -5.14
42.99
-------------------------------------------------------------------------
--

Segment Leq : 42.99 dBA


Results segment # 2: QueenEliz2 (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 !       18.60 !       17.40 !        17.40

ROAD (0.00 + 44.13 + 0.00) = 44.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00  -4.61
39.53*
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00   0.00
44.13
-------------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 44.13 dBA


Results segment # 3: ColonelBy1 (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 !       18.60 !       17.93 !        17.93

ROAD (0.00 + 42.95 + 0.00) = 42.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00  -0.61
43.79*
   -48     49   0.15  56.36   0.00 -10.64  -2.77   0.00   0.00   0.00
42.95
-------------------------------------------------------------------------------
--
```

```
 * Bright Zone !

Segment Leq : 42.95 dBA


Results segment # 4: ColonelBy2 (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 !       18.60 !       18.14 !        18.14

ROAD (0.00 + 35.81 + 0.00) = 35.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00   0.00
37.48*
     7     36   0.15  56.36   0.00 -12.57  -7.98   0.00   0.00   0.00
35.81
-------------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 35.81 dBA


Results segment # 5: Nicholas (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 !       18.60 !       18.03 !        18.03

ROAD (0.00 + 53.20 + 0.00) = 53.20 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
--
   -48      90    0.00   66.08    0.00   -9.97   -1.15    0.00    0.00   -0.77
54.18*
   -48      90    0.15   66.08    0.00  -11.44   -1.44    0.00    0.00    0.00
53.20
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 53.20 dBA

Total Leq All Segments: 54.44 dBA


RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 165.00 / 165.00 m
Receiver height           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  17.10 m
Barrier receiver distance :   3.00 / 3.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.27 !        18.27
```

```
RT/Custom (0.00 + 46.76 + 0.00) = 46.76 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00  -0.26  48.69*
   -48     90   0.18  60.51 -12.26  -1.50   0.00   0.00   0.00  46.76
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 46.76 dBA

Total Leq All Segments: 46.76 dBA


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.27 !        18.27

RT/Custom (0.00 + 40.23 + 0.00) = 40.23 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  53.98 -10.41  -1.15   0.00   0.00  -0.26  42.16*
   -48     90   0.18  53.98 -12.26  -1.50   0.00   0.00   0.00  40.23
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 40.23 dBA

Total Leq All Segments: 40.23 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 62.16
                           (NIGHT): 54.61
```

```
STAMSON 5.0        NORMAL REPORT        Date: 10-01-2023 08:49:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r4b.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -48.00 deg   44.00 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           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 44.00 deg
Barrier height            :  18.20 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   4.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   4.00 deg   Angle2 : 55.00 deg
Barrier height            :  18.20 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -48.00 deg   49.00 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            :  18.60 / 18.60  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 49.00 deg
Barrier height             :  18.20 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
---------------------------------------------
Angle1   Angle2            :   7.00 deg   36.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 187.00 / 187.00 m
Receiver height            :  18.60 / 18.60  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             :   7.00 deg   Angle2 : 36.00 deg
Barrier height             :  18.20 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00

Road data, segment # 5: Nicholas (day/night)
---------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
```

```
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Nicholas (day/night)
------------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  18.60 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  18.20 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (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 !       18.60 !       16.92 !        16.92

ROAD (0.00 + 45.81 + 0.00) = 45.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
```

```
   -48     44   0.00  63.96   0.00  -5.31  -2.91   0.00   0.00  -9.91
45.81
-------------------------------------------------------------------------
--

Segment Leq : 45.81 dBA


Results segment # 2: QueenEliz2 (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 !       18.60 !       17.40 !        17.40

ROAD (0.00 + 44.35 + 0.00) = 44.35 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00  -7.38
44.35
-------------------------------------------------------------------------
--

Segment Leq : 44.35 dBA


Results segment # 3: ColonelBy1 (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 !       18.60 !       17.93 !        17.93

ROAD (0.00 + 46.65 + 0.00) = 46.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00  -5.35
46.65
-------------------------------------------------------------------------
--

Segment Leq : 46.65 dBA


Results segment # 4: ColonelBy2 (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 !       18.60 !       18.14 !        18.14

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
-------------------------------------------------------------------------
--
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00  -5.02
40.05
-------------------------------------------------------------------------
--

Segment Leq : 40.05 dBA


Results segment # 5: Nicholas (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 !       18.60 !       18.03 !        18.03

ROAD (0.00 + 57.43 + 0.00) = 57.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00  -5.12
57.43
-------------------------------------------------------------------------
--

Segment Leq : 57.43 dBA

Total Leq All Segments: 58.29 dBA


Results segment # 1: QueenEliz1 (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 !       18.60 !       16.92 !        16.92

ROAD (0.00 + 38.22 + 0.00) = 38.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     44   0.00  56.36   0.00  -5.31  -2.91   0.00   0.00  -9.91
38.22
-------------------------------------------------------------------------
--

Segment Leq : 38.22 dBA


Results segment # 2: QueenEliz2 (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 !       18.60 !       17.40 !        17.40

ROAD (0.00 + 36.76 + 0.00) = 36.76 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------------
--
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00  -7.38
36.76
-------------------------------------------------------------------------------
--

Segment Leq : 36.76 dBA


Results segment # 3: ColonelBy1 (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 !       18.60 !       17.93 !        17.93

ROAD (0.00 + 39.05 + 0.00) = 39.05 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00  -5.35
39.05
-------------------------------------------------------------------------------
--

Segment Leq : 39.05 dBA


Results segment # 4: ColonelBy2 (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 !       18.60 !       18.14 !        18.14

ROAD (0.00 + 32.46 + 0.00) = 32.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
--
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00  -5.02
32.46
-------------------------------------------------------------------------
--

Segment Leq : 32.46 dBA


Results segment # 5: Nicholas (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 !       18.60 !       18.03 !        18.03

ROAD (0.00 + 49.84 + 0.00) = 49.84 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  66.08   0.00  -9.97  -1.15   0.00   0.00  -5.12
49.84
-------------------------------------------------------------------------
--

Segment Leq : 49.84 dBA

Total Leq All Segments: 50.70 dBA


RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (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  : 165.00 / 165.00 m
Receiver height           :  18.60 / 18.60  m
```

```
Topography                  :      2       (Flat/gentle slope; with barrier)
Barrier angle1              : -48.00 deg   Angle2 : 90.00 deg
Barrier height              :  18.20 m
Barrier receiver distance   :   3.00 / 3.00   m
Source elevation            :   0.00 m
Receiver elevation          :   0.00 m
Barrier elevation           :   0.00 m
Reference angle             :   0.00


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.27 !        18.27

RT/Custom (0.00 + 48.95 + 0.00) = 48.95 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00  -4.97  43.98*
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00   0.00  48.95
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 48.95 dBA

Total Leq All Segments: 48.95 dBA


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.27 !        18.27

RT/Custom (0.00 + 42.41 + 0.00) = 42.41 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
```

```
   -48      90    0.00   53.98 -10.41  -1.15   0.00   0.00  -4.97  37.45*
   -48      90    0.00   53.98 -10.41  -1.15   0.00   0.00   0.00  42.41
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 42.41 dBA

Total Leq All Segments: 42.41 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 58.77
                           (NIGHT): 51.30
```

```
STAMSON 5.0        NORMAL REPORT        Date: 10-01-2023 08:49:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -48.00 deg   44.00 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           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 44.00 deg
Barrier height            :  20.40 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   4.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   4.00 deg   Angle2 : 55.00 deg
Barrier height            :  20.40 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -48.00 deg   49.00 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            :  21.90 / 21.90  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 49.00 deg
Barrier height             :  20.40 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
---------------------------------------------
Angle1   Angle2            :   7.00 deg   36.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 187.00 / 187.00 m
Receiver height            :  21.90 / 21.90  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             :   7.00 deg   Angle2 : 36.00 deg
Barrier height             :  20.40 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 5: Nicholas (day/night)
---------------------------------------------
```

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Nicholas (day/night)
------------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  20.40 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (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 !       21.90 !       19.90 !        19.90

ROAD (0.00 + 49.73 + 0.00) = 49.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
```

```
   -48     44   0.00  63.96   0.00  -5.31  -2.91   0.00   0.00  -6.00
49.73
-------------------------------------------------------------------------
--

Segment Leq : 49.73 dBA


Results segment # 2: QueenEliz2 (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 !       21.90 !       20.46 !        20.46

ROAD (0.00 + 51.73 + 0.00) = 51.73 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00  -4.98
46.74*
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00   0.00
51.73
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 51.73 dBA


Results segment # 3: ColonelBy1 (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 !       21.90 !       21.10 !        21.10

ROAD (0.00 + 51.52 + 0.00) = 51.52 dBA
```

```
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00  -2.23
49.76*
   -48     49   0.05  63.96   0.00  -9.72  -2.71   0.00   0.00   0.00
51.52
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 51.52 dBA


Results segment # 4: ColonelBy2 (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 !       21.90 !       21.35 !        21.35

ROAD (0.00 + 44.52 + 0.00) = 44.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00   0.00
45.07*
     7     36   0.05  63.96   0.00 -11.48  -7.95   0.00   0.00   0.00
44.52
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 44.52 dBA


Results segment # 5: Nicholas (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 !       21.90 !       21.22 !        21.22

ROAD (0.00 + 61.97 + 0.00) = 61.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00  -1.44
61.11*
   -48     90   0.05  73.68   0.00 -10.45  -1.25   0.00   0.00   0.00
61.97
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 61.97 dBA

Total Leq All Segments: 62.98 dBA


Results segment # 1: QueenEliz1 (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 !       21.90 !       19.90 !        19.90

ROAD (0.00 + 42.13 + 0.00) = 42.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     44   0.00  56.36   0.00  -5.31  -2.91   0.00   0.00  -6.00
42.13
-------------------------------------------------------------------------
--

Segment Leq : 42.13 dBA


Results segment # 2: QueenEliz2 (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 !       21.90 !       20.46 !        20.46

ROAD (0.00 + 44.13 + 0.00) = 44.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00  -4.98
39.15*
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00   0.00
44.13
-------------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 44.13 dBA


Results segment # 3: ColonelBy1 (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 !       21.90 !       21.10 !        21.10

ROAD (0.00 + 43.93 + 0.00) = 43.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00  -2.23
42.17*
   -48     49   0.05  56.36   0.00  -9.72  -2.71   0.00   0.00   0.00
43.93
-------------------------------------------------------------------------------
--
```

```
 * Bright Zone !

Segment Leq : 43.93 dBA


Results segment # 4: ColonelBy2 (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 !       21.90 !       21.35 !        21.35

ROAD (0.00 + 36.93 + 0.00) = 36.93 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00   0.00
37.48*
     7     36   0.05  56.36   0.00 -11.48  -7.95   0.00   0.00   0.00
36.93
-------------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 36.93 dBA


Results segment # 5: Nicholas (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 !       21.90 !       21.22 !        21.22

ROAD (0.00 + 54.37 + 0.00) = 54.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
--
   -48      90    0.00   66.08    0.00   -9.97   -1.15    0.00    0.00   -1.44
53.52*
   -48      90    0.05   66.08    0.00  -10.45   -1.25    0.00    0.00    0.00
54.37
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 54.37 dBA

Total Leq All Segments: 55.38 dBA


RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 165.00 / 165.00 m
Receiver height           :  21.90 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  20.40 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       21.90 !       21.25 !        21.25
```

```
RT/Custom (0.00 + 47.98 + 0.00) = 47.98 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00  -1.12  47.83*
   -48     90   0.08  60.51 -11.23  -1.31   0.00   0.00   0.00  47.98
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 47.98 dBA

Total Leq All Segments: 47.98 dBA


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.05 !        18.05

RT/Custom (0.00 + 29.91 + 0.00) = 29.91 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  53.98 -10.41  -1.15   0.00   0.00 -12.50  29.91
-------------------------------------------------------------------------

Segment Leq : 29.91 dBA

Total Leq All Segments: 29.91 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 63.12
                           (NIGHT): 55.40
```

```
STAMSON 5.0        NORMAL REPORT        Date: 10-01-2023 08:43:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r5b.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -48.00 deg   44.00 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           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 44.00 deg
Barrier height            :  21.50 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00

Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   4.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   4.00 deg   Angle2 : 55.00 deg
Barrier height            :  21.50 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -48.00 deg   49.00 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           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 49.00 deg
Barrier height            :  21.50 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
------------------------------------------------
Angle1   Angle2           :   7.00 deg   36.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 187.00 / 187.00 m
Receiver height           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   7.00 deg   Angle2 : 36.00 deg
Barrier height            :  21.50 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 5: Nicholas (day/night)
------------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
```

```
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Nicholas (day/night)
------------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  21.90 / 21.90  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  21.50 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (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 !       21.90 !       19.90 !        19.90

ROAD (0.00 + 44.37 + 0.00) = 44.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
```

```
   -48     44   0.00  63.96   0.00  -5.31  -2.91   0.00   0.00 -11.35
44.37
-------------------------------------------------------------------------
--

Segment Leq : 44.37 dBA


Results segment # 2: QueenEliz2 (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 !       21.90 !       20.46 !        20.46

ROAD (0.00 + 43.25 + 0.00) = 43.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00  -8.48
43.25
-------------------------------------------------------------------------
--

Segment Leq : 43.25 dBA


Results segment # 3: ColonelBy1 (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 !       21.90 !       21.10 !        21.10

ROAD (0.00 + 46.27 + 0.00) = 46.27 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00  -5.73
46.27
-------------------------------------------------------------------------
--

Segment Leq : 46.27 dBA


Results segment # 4: ColonelBy2 (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 !       21.90 !       21.35 !        21.35

ROAD (0.00 + 39.97 + 0.00) = 39.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00  -5.10
39.97
-------------------------------------------------------------------------
--

Segment Leq : 39.97 dBA


Results segment # 5: Nicholas (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 !       21.90 !       21.22 !        21.22

ROAD (0.00 + 57.25 + 0.00) = 57.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00  -5.30
57.25
-------------------------------------------------------------------------
--

Segment Leq : 57.25 dBA

Total Leq All Segments: 58.00 dBA


Results segment # 1: QueenEliz1 (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 !       21.90 !       19.90 !        19.90

ROAD (0.00 + 36.78 + 0.00) = 36.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     44   0.00  56.36   0.00  -5.31  -2.91   0.00   0.00 -11.35
36.78
-------------------------------------------------------------------------
--

Segment Leq : 36.78 dBA


Results segment # 2: QueenEliz2 (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 !       21.90 !       20.46 !        20.46

ROAD (0.00 + 35.65 + 0.00) = 35.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------------
--
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00  -8.48
35.65
-------------------------------------------------------------------------------
--

Segment Leq : 35.65 dBA


Results segment # 3: ColonelBy1 (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 !       21.90 !       21.10 !        21.10

ROAD (0.00 + 38.67 + 0.00) = 38.67 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00  -5.73
38.67
-------------------------------------------------------------------------------
--

Segment Leq : 38.67 dBA


Results segment # 4: ColonelBy2 (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 !       21.90 !       21.35 !        21.35

ROAD (0.00 + 32.37 + 0.00) = 32.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
--
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00  -5.10
32.37
-------------------------------------------------------------------------
--

Segment Leq : 32.37 dBA


Results segment # 5: Nicholas (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 !       21.90 !       21.22 !        21.22

ROAD (0.00 + 49.65 + 0.00) = 49.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  66.08   0.00  -9.97  -1.15   0.00   0.00  -5.30
49.65
-------------------------------------------------------------------------
--

Segment Leq : 49.65 dBA

Total Leq All Segments: 50.41 dBA


RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 165.00 / 165.00 m
Receiver height           :  21.90 / 21.90  m
```

```
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 90.00 deg
Barrier height             :  21.50 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00

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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       21.90 !       21.25 !        21.25

RT/Custom (0.00 + 43.71 + 0.00) = 43.71 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00  -5.23  43.71
-------------------------------------------------------------------------

Segment Leq : 43.71 dBA

Total Leq All Segments: 43.71 dBA

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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       21.90 !       21.25 !        21.25

RT/Custom (0.00 + 37.18 + 0.00) = 37.18 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  53.98 -10.41  -1.15   0.00   0.00  -5.23  37.18
-------------------------------------------------------------------------

Segment Leq : 37.18 dBA
```

```
Total Leq All Segments: 37.18 dBA


TOTAL Leq FROM ALL SOURCES (DAY): 58.16
                           (NIGHT): 50.61
```

```
STAMSON 5.0        NORMAL REPORT        Date: 10-01-2023 08:44:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -48.00 deg   44.00 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           :  25.30 / 25.30  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 44.00 deg
Barrier height            :  23.80 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   4.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  25.30 / 25.30  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   4.00 deg   Angle2 : 55.00 deg
Barrier height            :  23.80 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -48.00 deg   49.00 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            :  25.30 / 25.30  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 49.00 deg
Barrier height             :  23.80 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
------------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
---------------------------------------------
Angle1   Angle2            :   7.00 deg   36.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 187.00 / 187.00 m
Receiver height            :  25.30 / 25.30  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             :   7.00 deg   Angle2 : 36.00 deg
Barrier height             :  23.80 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 5: Nicholas (day/night)
---------------------------------------------
```

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Nicholas (day/night)
------------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  25.30 / 25.30  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  23.80 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (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 !       25.30 !       22.97 !        22.97

ROAD (0.00 + 48.38 + 0.00) = 48.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
```

```
   -48     44   0.00  63.96   0.00  -5.31  -2.91   0.00   0.00  -7.34
48.38
-------------------------------------------------------------------------
--

Segment Leq : 48.38 dBA


Results segment # 2: QueenEliz2 (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 !       25.30 !       23.62 !        23.62

ROAD (0.00 + 46.60 + 0.00) = 46.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00  -5.13
46.60
-------------------------------------------------------------------------
--

Segment Leq : 46.60 dBA


Results segment # 3: ColonelBy1 (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 !       25.30 !       24.36 !        24.36

ROAD (0.00 + 51.99 + 0.00) = 51.99 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00  -3.36
48.63*
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00   0.00
51.99
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 51.99 dBA


Results segment # 4: ColonelBy2 (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 !       25.30 !       24.66 !        24.66

ROAD (0.00 + 45.07 + 0.00) = 45.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00  -0.12
44.95*
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00   0.00
45.07
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 45.07 dBA


Results segment # 5: Nicholas (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 !       25.30 !       24.50 !        24.50

ROAD (0.00 + 62.55 + 0.00) = 62.55 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00  -2.67
59.88*
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00   0.00
62.55
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 62.55 dBA

Total Leq All Segments: 63.23 dBA


Results segment # 1: QueenEliz1 (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 !       25.30 !       22.97 !        22.97

ROAD (0.00 + 40.79 + 0.00) = 40.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     44   0.00  56.36   0.00  -5.31  -2.91   0.00   0.00  -7.34
40.79
-------------------------------------------------------------------------
--

Segment Leq : 40.79 dBA


Results segment # 2: QueenEliz2 (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 !       25.30 !       23.62 !        23.62

ROAD (0.00 + 39.01 + 0.00) = 39.01 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00  -5.13
39.01
-------------------------------------------------------------------------
--

Segment Leq : 39.01 dBA


Results segment # 3: ColonelBy1 (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 !       25.30 !       24.36 !        24.36

ROAD (0.00 + 44.40 + 0.00) = 44.40 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00  -3.36
41.04*
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00   0.00
44.40
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 44.40 dBA


Results segment # 4: ColonelBy2 (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 !       25.30 !       24.66 !        24.66

ROAD (0.00 + 37.48 + 0.00) = 37.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00  -0.12
37.35*
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00   0.00
37.48
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 37.48 dBA


Results segment # 5: Nicholas (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 !       25.30 !       24.50 !        24.50

ROAD (0.00 + 54.95 + 0.00) = 54.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  66.08   0.00  -9.97  -1.15   0.00   0.00  -2.67
52.28*
   -48     90   0.00  66.08   0.00  -9.97  -1.15   0.00   0.00   0.00
54.95
-------------------------------------------------------------------------
--
```

```
 * Bright Zone !

Segment Leq : 54.95 dBA

Total Leq All Segments: 55.63 dBA


RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (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  : 165.00 / 165.00 m
Receiver height           :  25.30 / 18.60  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  23.80 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       25.30 !       24.55 !        24.55

RT/Custom (0.00 + 48.95 + 0.00) = 48.95 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00  -2.23  46.72*
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00   0.00  48.95
-------------------------------------------------------------------------

 * Bright Zone !
```

```
Segment Leq : 48.95 dBA

Total Leq All Segments: 48.95 dBA


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.05 !        18.05

RT/Custom (0.00 + 24.75 + 0.00) = 24.75 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -48     90   0.00  53.98 -10.41  -1.15   0.00   0.00 -17.66  24.75
-------------------------------------------------------------------------

Segment Leq : 24.75 dBA

Total Leq All Segments: 24.75 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 63.39
                           (NIGHT): 55.63
```

```
STAMSON 5.0        NORMAL REPORT        Date: 10-01-2023 08:47:40
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r6b.te               Time Period: Day/Night 16/8 hours
Description:


Road data, segment # 1: QueenEliz1 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz1 (day/night)
--------------------------------------------
Angle1   Angle2           : -48.00 deg   44.00 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           :  25.30 / 25.30  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 44.00 deg
Barrier height            :  24.90 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 2: QueenEliz2 (day/night)
----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: QueenEliz2 (day/night)
-----------------------------------------------
Angle1   Angle2           :   4.00 deg   55.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.00 / 71.00  m
Receiver height           :  25.30 / 25.30  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :   4.00 deg   Angle2 : 55.00 deg
Barrier height            :  24.90 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Road data, segment # 3: ColonelBy1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -48.00 deg   49.00 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            :  25.30 / 25.30  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 49.00 deg
Barrier height             :  24.90 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 4: ColonelBy2 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: ColonelBy2 (day/night)
---------------------------------------------
Angle1   Angle2            :   7.00 deg   36.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 187.00 / 187.00 m
Receiver height            :  25.30 / 25.30  m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             :   7.00 deg   Angle2 : 36.00 deg
Barrier height             :  24.90 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


Road data, segment # 5: Nicholas (day/night)
---------------------------------------------
```

```
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 5: Nicholas (day/night)
------------------------------------------
Angle1   Angle2           : -48.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 149.00 / 149.00 m
Receiver height           :  25.30 / 25.30  m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -48.00 deg   Angle2 : 90.00 deg
Barrier height            :  24.90 m
Barrier receiver distance :   5.00 / 5.00   m
Source elevation          :   0.00 m
Receiver elevation        :   0.00 m
Barrier elevation         :   0.00 m
Reference angle           :   0.00


Results segment # 1: QueenEliz1 (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 !       25.30 !       22.97 !        22.97

ROAD (0.00 + 43.08 + 0.00) = 43.08 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
```

```
   -48     44   0.00  63.96   0.00  -5.31  -2.91   0.00   0.00 -12.64
43.08
-------------------------------------------------------------------------
--

Segment Leq : 43.08 dBA


Results segment # 2: QueenEliz2 (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 !       25.30 !       23.62 !        23.62

ROAD (0.00 + 42.13 + 0.00) = 42.13 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     4     55   0.00  63.96   0.00  -6.75  -5.48   0.00   0.00  -9.60
42.13
-------------------------------------------------------------------------
--

Segment Leq : 42.13 dBA


Results segment # 3: ColonelBy1 (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 !       25.30 !       24.36 !        24.36

ROAD (0.00 + 45.77 + 0.00) = 45.77 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     49   0.00  63.96   0.00  -9.28  -2.69   0.00   0.00  -6.23
45.77
-------------------------------------------------------------------------
--

Segment Leq : 45.77 dBA


Results segment # 4: ColonelBy2 (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 !       25.30 !       24.66 !        24.66

ROAD (0.00 + 39.80 + 0.00) = 39.80 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
     7     36   0.00  63.96   0.00 -10.96  -7.93   0.00   0.00  -5.27
39.80
-------------------------------------------------------------------------
--

Segment Leq : 39.80 dBA


Results segment # 5: Nicholas (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 !       25.30 !       24.50 !        24.50

ROAD (0.00 + 56.98 + 0.00) = 56.98 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
```

```
   -48     90   0.00  73.68   0.00  -9.97  -1.15   0.00   0.00  -5.58
56.98
-------------------------------------------------------------------------
--

Segment Leq : 56.98 dBA

Total Leq All Segments: 57.66 dBA


Results segment # 1: QueenEliz1 (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 !       25.30 !       22.97 !        22.97

ROAD (0.00 + 35.49 + 0.00) = 35.49 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     44   0.00  56.36   0.00  -5.31  -2.91   0.00   0.00 -12.64
35.49
-------------------------------------------------------------------------
--

Segment Leq : 35.49 dBA


Results segment # 2: QueenEliz2 (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 !       25.30 !       23.62 !        23.62

ROAD (0.00 + 34.54 + 0.00) = 34.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------------
--
     4     55   0.00  56.36   0.00  -6.75  -5.48   0.00   0.00  -9.60
34.54
-------------------------------------------------------------------------------
--

Segment Leq : 34.54 dBA


Results segment # 3: ColonelBy1 (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 !       25.30 !       24.36 !        24.36

ROAD (0.00 + 38.17 + 0.00) = 38.17 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -48     49   0.00  56.36   0.00  -9.28  -2.69   0.00   0.00  -6.23
38.17
-------------------------------------------------------------------------------
--

Segment Leq : 38.17 dBA


Results segment # 4: ColonelBy2 (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 !       25.30 !       24.66 !        24.66

ROAD (0.00 + 32.21 + 0.00) = 32.21 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
--
     7     36   0.00  56.36   0.00 -10.96  -7.93   0.00   0.00  -5.27
32.21
-------------------------------------------------------------------------
--

Segment Leq : 32.21 dBA


Results segment # 5: Nicholas (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 !       25.30 !       24.50 !        24.50

ROAD (0.00 + 49.38 + 0.00) = 49.38 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -48     90   0.00  66.08   0.00  -9.97  -1.15   0.00   0.00  -5.58
49.38
-------------------------------------------------------------------------
--

Segment Leq : 49.38 dBA

Total Leq All Segments: 50.06 dBA


RT/Custom data, segment # 1: LRT (day/night)
--------------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (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  : 165.00 / 165.00 m
Receiver height           :  25.30 / 18.60  m
```

```
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -48.00 deg   Angle2 : 90.00 deg
Barrier height             :  24.90 m
Barrier receiver distance  :   5.00 / 5.00   m
Source elevation           :   0.00 m
Receiver elevation         :   0.00 m
Barrier elevation          :   0.00 m
Reference angle            :   0.00


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

Source height = 0.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       25.30 !       24.55 !        24.55

RT/Custom (0.00 + 43.49 + 0.00) = 43.49 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
   -48     90   0.00  60.51 -10.41  -1.15   0.00   0.00  -5.45  43.49
-----------------------------------------------------------------------

Segment Leq : 43.49 dBA

Total Leq All Segments: 43.49 dBA


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

Source height = 0.50 m

Barrier height for grazing incidence
-------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !       18.60 !       18.05 !        18.05

RT/Custom (0.00 + 24.26 + 0.00) = 24.26 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-----------------------------------------------------------------------
   -48     90   0.00  53.98 -10.41  -1.15   0.00   0.00 -18.15  24.26
-----------------------------------------------------------------------
```

```
Segment Leq : 24.26 dBA

Total Leq All Segments: 24.26 dBA



TOTAL Leq FROM ALL SOURCES (DAY): 57.82
                           (NIGHT): 50.07
```

```
STAMSON 5.0        NORMAL REPORT        Date: 09-01-2023 10:40:43
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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


Road data, segment # 1: Queen Eliz.1 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: Queen Eliz.1 (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   48.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  46.00 / 46.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 48.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :  69.00 m
Receiver elevation        : 100.10 m
Barrier elevation         : 100.10 m
Reference angle           :   0.00


Road data, segment # 2: Queen Eliz.2 (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: Queen Eliz.2 (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  :  78.00 / 78.00  m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            :  48.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :  69.00 m
Receiver elevation        :  99.50 m
Barrier elevation         :  99.50 m
Reference angle           :   0.00


Road data, segment # 3: Colonel By (day/night)
-----------------------------------------------
Car traffic volume  :  6477/563   veh/TimePeriod  *
Medium truck volume :   515/45    veh/TimePeriod  *
Heavy truck volume  :   368/32    veh/TimePeriod  *
Posted speed limit  :    40 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):   8000
    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: Colonel By (day/night)
-----------------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
```

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 124.00 / 124.00 m
Receiver height            :   1.50 / 1.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : 90.00 deg
Barrier height             :   0.00 m
Barrier receiver distance  :   4.00 / 4.00   m
Source elevation           :  69.00 m
Receiver elevation         :  99.50 m
Barrier elevation          :  99.50 m
Reference angle            :   0.00


Road data, segment # 4: Nicholas (day/night)
-------------------------------------------
Car traffic volume  : 28336/2464  veh/TimePeriod  *
Medium truck volume :  2254/196   veh/TimePeriod  *
Heavy truck volume  :  1610/140   veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  35000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: Nicholas (day/night)
------------------------------------------
Angle1   Angle2            : -90.00 deg   90.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   : 146.00 / 146.00 m
Receiver height            :   1.50 / 1.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : 90.00 deg
Barrier height             :   0.00 m
Barrier receiver distance  :   4.00 / 4.00   m
Source elevation           :  70.00 m
Receiver elevation         : 100.50 m
Barrier elevation          : 100.50 m
Reference angle            :   0.00


Results segment # 1: Queen Eliz.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 !       -1.20 !        98.90

ROAD (0.00 + 49.65 + 0.00) = 49.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90     48   0.00  63.96   0.00  -4.87  -1.15   0.00   0.00  -8.28
49.65
-------------------------------------------------------------------------
--

Segment Leq : 49.65 dBA


Results segment # 2: Queen Eliz.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 !       -0.06 !        99.44

ROAD (0.00 + 45.47 + 0.00) = 45.47 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
    48     90   0.00  63.96   0.00  -7.16  -6.32   0.00   0.00  -5.01
45.47
-------------------------------------------------------------------------
--

Segment Leq : 45.47 dBA


Results segment # 3: Colonel By (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 !        0.52 !       100.02

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
-------------------------------------------------------------------------
--
   -90     90   0.66  63.96   0.00 -15.23  -1.46   0.00   0.00  -3.81
43.46*
   -90     90   0.66  63.96   0.00 -15.23  -1.46   0.00   0.00   0.00
47.27
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 47.27 dBA


Results segment # 4: Nicholas (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 !        0.66 !       101.16

ROAD (0.00 + 55.81 + 0.00) = 55.81 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90     90   0.66  73.68   0.00 -16.41  -1.46   0.00   0.00  -2.74
53.07*
   -90     90   0.66  73.68   0.00 -16.41  -1.46   0.00   0.00   0.00
55.81
-------------------------------------------------------------------------
--

 * Bright Zone !
```

```
Segment Leq : 55.81 dBA

Total Leq All Segments: 57.50 dBA


Results segment # 1: Queen Eliz.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 !       -1.20 !        98.90

ROAD (0.00 + 42.06 + 0.00) = 42.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
   -90     48    0.00  56.36   0.00  -4.87  -1.15   0.00   0.00  -8.28
42.06
-------------------------------------------------------------------------
--

Segment Leq : 42.06 dBA


Results segment # 2: Queen Eliz.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 !       -0.06 !        99.44

ROAD (0.00 + 37.87 + 0.00) = 37.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------
--
    48     90    0.00  56.36   0.00  -7.16  -6.32   0.00   0.00  -5.01
37.87
```

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

Segment Leq : 37.87 dBA


Results segment # 3: Colonel By (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 !        0.52 !       100.02

ROAD (0.00 + 39.68 + 0.00) = 39.68 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
-------------------------------------------------------------------------------
--
   -90     90   0.66  56.36   0.00 -15.23  -1.46   0.00   0.00  -3.81
35.87*
   -90     90   0.66  56.36   0.00 -15.23  -1.46   0.00   0.00   0.00
39.68
-------------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 39.68 dBA


Results segment # 4: Nicholas (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 !        0.66 !       101.16

ROAD (0.00 + 48.22 + 0.00) = 48.22 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj
SubLeq
```

```
-------------------------------------------------------------------------
--
   -90      90    0.66   66.08    0.00 -16.41  -1.46    0.00    0.00  -2.74
45.47*
   -90      90    0.66   66.08    0.00 -16.41  -1.46    0.00    0.00   0.00
48.22
-------------------------------------------------------------------------
--

 * Bright Zone !

Segment Leq : 48.22 dBA

Total Leq All Segments: 49.91 dBA


RT/Custom data, segment # 1: LRT (day/night)
-----------------------------------------
1 - 4-car SRT:
Traffic volume    :   540/60    veh/TimePeriod
Speed             :    50 km/h

Data for Segment # 1: LRT (day/night)
-------------------------------------
Angle1   Angle2           : -90.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  : 162.00 / 162.00 m
Receiver height           :   1.50 / 1.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -90.00 deg   Angle2 : 90.00 deg
Barrier height            :   0.00 m
Barrier receiver distance :   4.00 / 4.00   m
Source elevation          :  71.00 m
Receiver elevation        : 101.50 m
Barrier elevation         : 101.50 m
Reference angle           :   0.00


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !        1.50 !        0.72 !       102.22
```

```
RT/Custom (0.00 + 41.90 + 0.00) = 41.90 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  60.51 -17.15  -1.46   0.00   0.00  -2.14  39.76*
   -90     90   0.66  60.51 -17.15  -1.46   0.00   0.00   0.00  41.90
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 41.90 dBA

Total Leq All Segments: 41.90 dBA


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

Source height = 0.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       0.50 !        1.50 !        0.72 !       102.22

RT/Custom (0.00 + 35.37 + 0.00) = 35.37 dBA
Angle1 Angle2  Alpha RefLeq  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------
   -90     90   0.66  53.98 -17.15  -1.46   0.00   0.00  -2.14  33.23*
   -90     90   0.66  53.98 -17.15  -1.46   0.00   0.00   0.00  35.37
-------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 35.37 dBA

Total Leq All Segments: 35.37 dBA




TOTAL Leq FROM ALL SOURCES (DAY): 57.61
                           (NIGHT): 50.06
```