REPORT
PROJECT: 103291-5.2.2

ENVIRONMENTAL NOISE IMPACT ASSESSMENT
RIVERSIDE SOUTH - PHASE 15-1A
SOLARIUM BLOCK 196
910 SOLARIUM AVENUE
RIVERSIDE SOUTH COMMUNITY

Prepared for URBANDALE CORPORATION
by IBI GROUP

May 13, 2022

1 INTRODUCTION

IBI Group was retained by Urbandale Corporation to conduct an Environmental Noise Impact Assessment in support of a Site Plan Control application for a proposed low-rise residential development residential development at the northeast corner of River Road & Solarium Avenue within the Riverside South community of Ottawa. The subject site was originally intended to be an institutional block and was referred and is located at 910 Solarium Avenue. The objective of this study is to evaluate the impacts of transportation-related noise on residential uses proposed within the subject lands and provide recommendations for appropriate noise control measures or warning clauses, as required, for these sensitive uses.

The proposed development will consist of 35 street townhome units on an approximate 1.0-hectare parcel of land. The site is bound by Lunar Glow Crescent to the north, single-family homes and Big Dipper Street to the east, Solarium Avenue to the south and River Road to the west.

The proposed development and its surrounding context is illustrated in **Figure 1** below.

Figure 1 – Site Location

2 BACKGROUND

2.1 Noise Sources

The study area is primarily subjected to roadway noise externally from River Road to the west and Solarium Avenue to the south. There are no other collector or higher-order roads within 100 metres of the subject site.

The proposed development is located beyond the limits of the Airport Vicinity Development Zone (AVDZ), as identified in Schedule C14 of the 2021 Draft Official Plan, and therefore Aircraft noise from the Ottawa International Airport does not need to be explicitly accounted for in the analysis for this study.

There are no rail lines within 500 metres of the site. As such, no consideration has been given to noise impacts from rail traffic in accordance with the *City of Ottawa Environmental Noise Control (ENC) Guidelines*, dated January 2016.

2.2 Sound Level Limits for Road Traffic

Sound level criteria for road traffic is referenced from the City of Ottawa Environmental Noise Control (ENC) Guidelines and from the Ministry of the Environment, Conservation and Parks Environmental Noise Guideline Publication NPC-300. Noise levels are expressed in the form Leq (T) which refers to a weighted level of a steady sound carrying the same total energy in the time period T (in hours) as the observed fluctuation sound.

2.2.1 Indoor Sound Level Criterion

The recommended indoor sound level criteria for road noise from Table 2.2b of the ENC Guidelines is provided below:

- Bedrooms – 23:00 to 07:00 – 40 dBA Leq (8)
- Living/Dining Areas – 07:00 to 23:00 – 45 dBA Leq (16)

The sound levels are based on the windows and doors to an indoor space being closed.

For the purpose of assessing indoor sound levels, the outdoor sound levels are observed at the plane of the living room window 1.5 metres above the ground for daytime noise and at the plane of the bedroom window 4.5 metres above the ground for nighttime noise.

As per NPC-300 C7.1.2.1 and C7.1.2.2, when the outdoor noise levels are greater than 55 dBA and less than or equal to 65 dBA at the living room window and/or greater than 50 dBA and less than or equal to 60 dBA at the bedroom window, then a warning clause is compulsory. This warning clause specifies that forced air heating with a provision for central air conditioning is required. Should the receptor location at the building face exceed these criteria, central air conditioning is mandatory and a warning clause is required.

2.2.2 Outdoor Sound Level Criterion

As per Table 2.2a of the ENC Guidelines, the sound level criterion for the outdoor living area (OLA) for the daytime period between 07:00 and 23:00 hours is 55 dBA Leq (16). Receptor locations for OLAs are typically located 3 metres from the building face at the centre of the unit at a height of 1.5 metres above the ground.

If the Leq sound level is less than or equal to 55 dBA (daytime), no further action is required by the proponent. In the event that the sound level exceeds the criteria by less than 5 dBA, a warning clause may be provided to prospective purchasers or the proponent may install physical

attenuation. For sound levels greater than 5 dBA above the criteria (i.e. greater than 60 dBA), control measures are required to reduce the noise levels as close to 55 dBA as technically, economically and administratively possible. Should the sound levels with the barrier in place exceed 55 dBA, a warning clause is also required.

2.2.3 Indoor Sound Level Criterion – Building Components

As per NPC-300 C7.1.3, when the outdoor sound levels are less than or equal to 65 dBA at the living room window and/or less than or equal to 60 dBA at the bedroom level, then the building must be compliant with the Ontario Building Code. Should the outdoor sound levels exceed this criteria then the building component, including windows, walls and doors must be designed to achieve indoor sound level criteria described previously and extracted from Table 2.2b of the ENC Guidelines.

3 ROADWAY NOISE

3.1 Road Traffic Data

The major sources of road noise impacting the subject site are expected to result from vehicular traffic on River Road and Solarium Avenue, as described below:

River Road abutting the site presently exists as a two lane rural road with a posted speed limit of 60 km/h. The analysis conducted for this study has been conservatively based on the potential upgrade of this road to include an urban four-lane, divided arterial (4-UAD) cross-section with a posted speed limit of 60km/h and is based on the right-of-way protection identified in the Official Plan.

Solarium Avenue will exist as an urban two-lane, undivided major collector (2-UMCU) road with a posted speed limit not exceeding 50km/h adjacent to the site.

Traffic volume parameters were extracted from Appendix B of the ENC Guidelines for both road types are summarized in Table 3.1 below and will be used to assess traffic noise for this study.

TABLE 3.1 – TRAFFIC AND ROAD DATA SUMMARY

	RIVER ROAD (4-UAD)	SOLARIUM AVENUE (2-UMCU)
Annual Average Daily Traffic (AADT)	35,000	12,000
Posted Speed Limit (km/hr)	60	50
% Medium Trucks	7%	7%
% Heavy Trucks	5%	5%
% Daytime Traffic	92%	92%

3.2 Calculation Methods

The roadway noise analysis for this study was conducted using STAMSON v5.04, an industry-standard software program developed by the Ontario Ministry of the Environment (MOE). Detailed results of this analysis are provided in **Appendix A**.

As indicated on **Noise Plan – Solarium Block 196**, receptor locations were selected to determine the limits of the noise criteria at the building face, as well as within the outdoor living areas. The noise limit at the building face was calculated based on the closest dwelling unit which falls below the 55 dBA (daytime) and 50 dBA (nighttime) thresholds, while the outdoor living area (OLA) only required analysis during daytime conditions for one unit beyond the 55 dBA criteria. When performing the noise analysis, if the lotting of dwelling units mirrored the arrangement for which the noise analysis was conducted, then it was not necessary to repeat the analysis, as both scenarios would yield the same overall result.

Since River Road is modelled as a four-lane, divided arterial road, the noise levels are calculated separately for the northbound and southbound vehicle travel lanes and then combined, as per standard practice.

The results of the indoor noise analysis are presented in **Table 3.2** below.

TABLE 3.2 – UNATTENUATED NOISE LEVELS AT BUILDING FACE (INDOOR)

LOCATION		ROADWAY	SOURCE - RECEIVER DISTANCE (m)	SEGMENT ANGLES		INDOOR NOISE LEVELS (dBA)	
BLOCK	UNIT #			LEFT	RIGHT	DAYTIME	NIGHTTIME
Block 196	Unit 1	River NB	18.5	-90	90	69.27	61.97
Block 196	Unit 1	River SB	30.5	-90	90		
Block 196	Unit 2	River NB	24.5	0	90	64.47	57.27
Block 196	Unit 2	River SB	36.5	0	90		
Block 196	Unit 9	River NB	71.5	0	40	55.13	48.19
Block 196	Unit 9	River SB	83.5	0	40		
Block 196	Unit 10	River NB	77.5	0	35	54.05	47.15
Block 196	Unit 10	River SB	89.5	0	35		
Block 196	Unit 19	River NB	21.5	-90	90	69.28	62.02
Block 196	Unit 19	River SB	33.5	-90	90		
Block 196	Unit 19	Solarium	22.5	-90	45		
Block 196	Unit 20	River NB	27.5	-80	0	66.45	59.18
Block 196	Unit 20	River SB	39.5	-80	0		
Block 196	Unit 20	Solarium	20.5	-90	55		
Block 196	Unit 23	River NB	46.0	-55	5	65.21	57.96
Block 196	Unit 23	River SB	58.0	-55	5		
Block 196	Unit 24	River SB	68.5	-50	0	64.72	57.46
Block 196	Unit 24	Solarium	20.5	-90	90		
Block 196	Unit 27	Solarium	20.5	-90	90	61.70	54.47

As indicated in **Table 3.2** above, noise levels exceed the 55 dBA (daytime) or 50 dBA (nighttime) thresholds at select locations indicated above and therefore abatement measures will be reviewed for the impacted dwelling units in subsequent sections of this report.

The results of the outdoor living area (OLA) noise analysis are presented in **Table 3.3** below.

TABLE 3.3: UNATTENUATED NOISE LEVELS AT OUTDOOR LIVING AREA (OLA)

LOCATION		ROADWAY	SOURCE - RECEIVER DISTANCE (m)	SEGMENT ANGLES		OUTDOOR NOISE LEVELS (dBA)
BLOCK #	UNIT #			LEFT	RIGHT	DAYTIME
Block 196	1	River NB	21.0	-80	45	67.63
Block 196	1	River SB	33.0	-80	45	
Block 196	2	River NB	27.0	-70	20	64.90
Block 196	2	River SB	39.0	-70	20	
Block 196	3	River NB	33.0	-65	15	64.24
Block 196	3	River SB	45.0	-65	15	
Block 196	4	River NB	39.0	-55	15	61.46
Block 196	4	River SB	51.0	-55	15	
Block 196	6	River NB	51.0	-40	10	58.76
Block 196	6	River SB	63.0	-40	10	
Block 196	7	River NB	61.5	-40	5	56.68
Block 196	7	River SB	73.5	-40	5	
Block 196	8	River NB	67.5	-30	5	55.06
Block 196	8	River SB	79.5	-30	5	
Block 196	9	River NB	73.5	-25	5	53.85
Block 196	9	River SB	85.5	-25	5	
Block 196	19	River NB	26.0	-35	70	65.74
Block 196	19	River SB	38.0	-35	70	

As indicated in **Table 3.3** above, the day time noise exceeds 55 dBA at numerous locations.

4 ABATEMENT MEASURES

4.1 Indoor Sound Levels

For Units 1 and 19 which will directly flank River Road or are within closest proximity to the River & Solarium intersection, the daytime sound levels at the building face exceed 65 dBA daytime and therefore require mandatory central air conditioning, a review of the building components and a Type 'D' warning clause on the Agreement of Purchase and Sale.

For all other units where the daytime noise level is less than 65 dBA but exceeds 55 dBA, an alternative means of ventilation is required as well as a Type 'C' warning clause in the Agreement of Purchase and Sale. Alternative means of ventilation usually consists of a forced air heating system with ducts sized for future installation of central air conditioning.

4.2 Outdoor Sound Levels

For dwelling units within closes River Road, daytime noise levels at the Outdoor Living Area (OLA) receptor locations are in excess of 60 dBA and therefore these locations will require physical attenuation. A 2.5-metre high barrier with a length of 42 metres is proposed to screen these OLAs from traffic noise on River Road, as identified on **Noise Plan – Solarium Block 196**. The results of the noise barrier analysis are summarized in **Table 4.1** below.

TABLE 4.1 – ATTENUATED NOISE LEVELS AT OLA

LOCATION		ROADWAY	SOURCE - RECEIVER DISTANCE (m)	BARRIER ANGLES		OUTDOOR NOISE LEVELS (dBA)
BLOCK #	UNIT #			LEFT	RIGHT	DAYTIME
Block 196	1	River NB	8.00	-80	45	59.92
Block 196	1	River SB	8.00	-80	45	
Block 196	2	River NB	14.0	-70	20	58.01
Block 196	2	River SB	14.0	-70	20	
Block 196	3	River NB	20.0	-55	15	57.13
Block 196	3	River SB	20.0	-55	15	
Block 196	4	River NB	26.0	-50	15	54.68
Block 196	4	River SB	26.0	-50	15	
Block 196	6	River NB	38.0	-40	10	52.46
Block 196	6	River SB	38.0	-40	10	
Block 196	7	River NB	48.5	-40	5	49.15
Block 196	7	River SB	48.5	-40	5	
Block 196	8	River NB	54.5	-30	5	47.48
Block 196	8	River SB	54.5	-30	5	
Block 196	9	River NB	60.5	-25	5	46.27
Block 196	9	River SB	60.5	-25	5	
Block 196	19	River NB	13.00	-35	70	57.76
Block 196	19	River SB	13.00	-35	70	

With a 2.5-metre high noise barrier in place, noise levels at the critical OLA receptor locations are reduced below 60 dBA but remain above 55 dBA, as indicated in **Table 4.1** above. It is impractical to reduce the noise levels below 55 dBA as it would require noise barriers in excess of five metres in height.

5 SUMMARY OF ATTENUATION MEASURES

5.1 Warning Clauses

A clause regarding noise must appear on the Agreement of Purchase and Sale of the lots and townhouse units indicated on **Noise Plan – Solarium Block 196** and listed in **Table 5.1** below:

Table 5.1 – Warning Clause Summary

WARNING CLAUSE	FRONTAGE STREET	APPLICABLE UNIT
Type 'B'	Lunar Glow Crescent Solarium Avenue	-Units 1 to 3 -Units 19 to 20
Type 'C'	Lunar Glow Crescent Solarium Avenue	-Units 2 to 9 -Units 24 to 35
Type 'D'	Lunar Glow Crescent Solarium Avenue	-Unit 1 -Units 19 to 23

The following warning clauses are taken from Section C8.1 of the NPC-300 Guidelines.

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

5.2 Ventilation Requirements and Building Components

All dwelling units requiring a Type 'C' warning clause listed in Section 5.1 should be fitted with a forced air heating system and sized to accommodate a central air conditioning system.

Any dwelling units requiring a Type 'D' warning clause should have central air conditioning installed, as well as an acoustical review of building components.

5.3 Noise Barrier

A 2.5m high noise barrier constructed to current City of Ottawa and MOE standards is required along the flankage of dwelling units 1 and 19, as shown on **Noise Plan – Solarium Block 196**. All noise barriers shall be located at least 0.3 metres inside the property boundary for the proposed development, as specified in the ENC Guidelines.

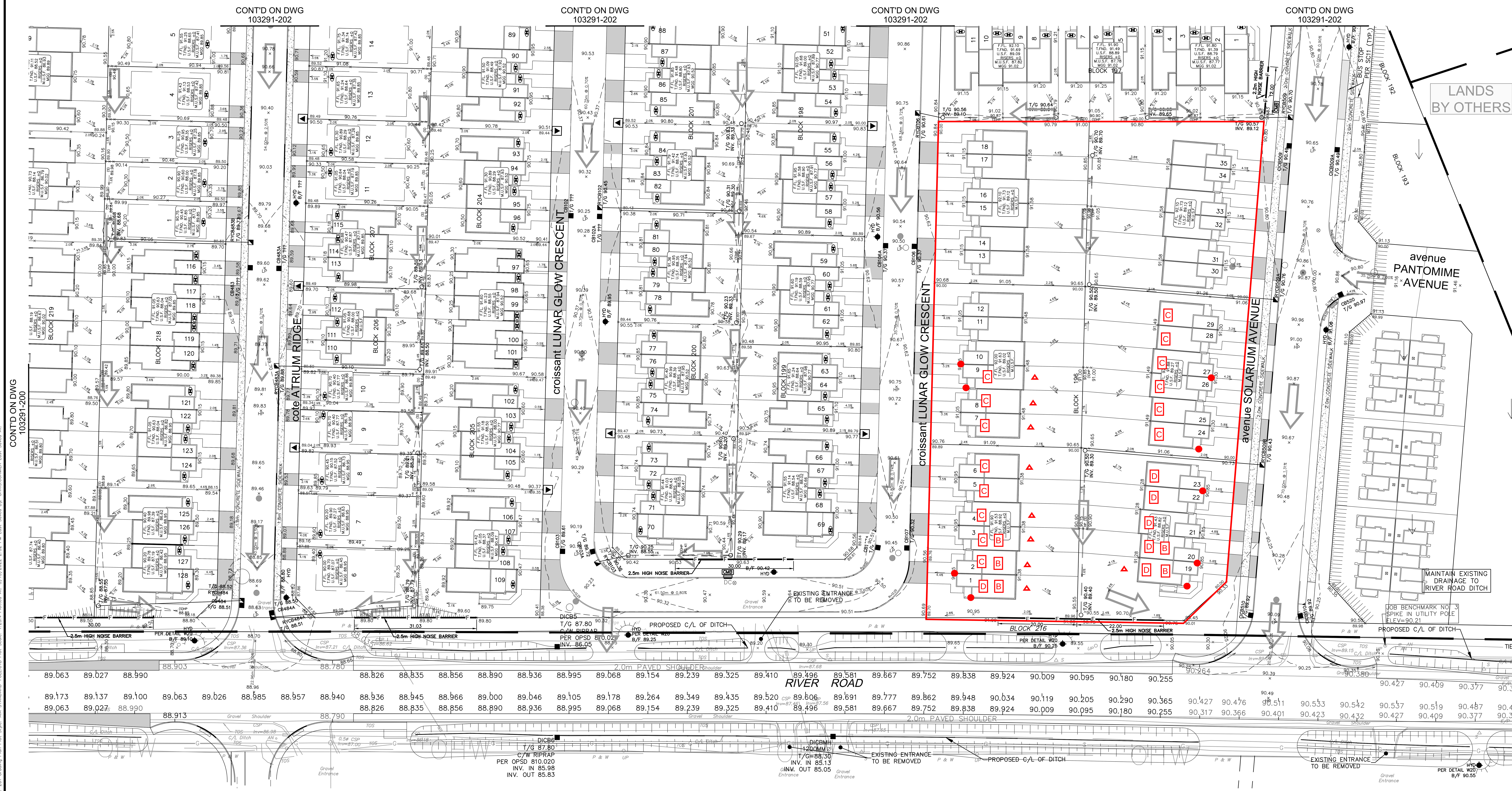
6 Conclusion

This Environmental Noise Impact Assessment was conducted in support of a Site Plan Control application for a proposed residential townhouse development for Block 196 within the Riverside South community of Ottawa. The impacts of transportation-related noise within the proposed development were evaluated and, based on the analysis conducted for this study, it is expected that noise levels will remain within the standards established by the City of Ottawa and Ministry of the Environment, Conservation and Parks (MECP) with the exception of select units identified on **Noise Plan – Solarium Block 196**. For these dwelling units, appropriate warning clauses and associated noise abatement measures must be provided on the Agreement of Purchase and Sale.

7 Professional Authorization

Prepared By:

Ben Pascolo-Neveu, P.Eng.



LEGEND:

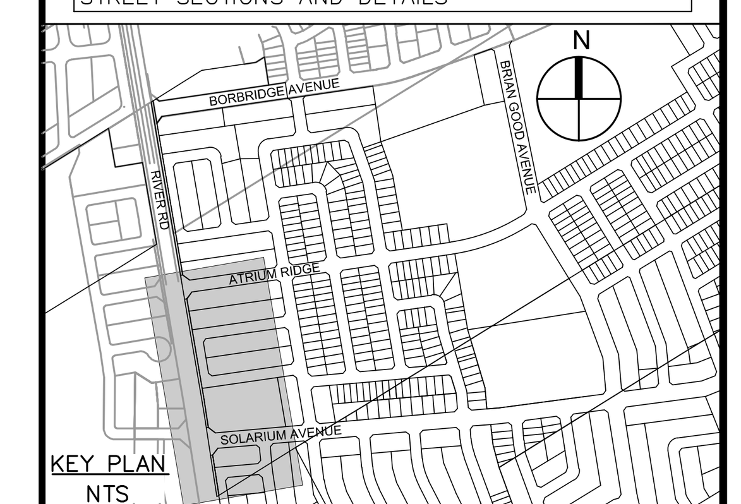
- NOISE BARRIER WITH HEIGHT
- D — NOISE RECEIVER LOCATION
- LOCATION OF INDOOR NOISE RECEPTOR
- LOCATION OF OUTDOOR NOISE RECEPTOR
- LOCATION OF OUTDOOR NOISE RECEPTOR

PROPERTY LINE

0.30m

NOISE BARRIER TO BE LOCATED ON PRIVATE PROPERTY. BARRIER TO HAVE A MINIMUM SURFACE DENSITY OF $20 kg/m^2$ AND SHALL HAVE NO HOLES OR GAPS

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



KEY PLAN
NTS

No.	REVISIONS	By	Date
14			
13			
12			
11	REVISED UNITS ALONG SOLARIUM AVE & LUNAR GLOW CRES	L.M.E.	2022:05:13
10	MILESTONE REISSUE TO CONTRACTOR	L.M.E.	2020:06:12
9	REVISED USFs	L.M.E.	2019:06:06
8	REVISED RYCB ON SOLARIUM AVE	L.M.E.	2019:05:22
7	REVISED PER CITY COMMENTS	L.M.E.	2019:05:16
6	ISSUED FOR APPROVAL	L.M.E.	2019:05:01
5	REVISED PER CITY COMMENTS	L.M.E.	2019:04:18
4	REVISED PER CITY COMMENTS	L.M.E.	2018:10:11
3	REVISED PER CITY COMMENTS	L.M.E.	2018:10:02
2	ISSUED FOR TENDER	L.M.E.	2018:08:31
1	SUBMISSION 1 FOR CITY REVIEW	L.M.E.	2018:07:13

Riverside South

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Project Title

RIVERSIDE SOUTH

PHASE 1

LICENSED PROFESSIONAL ENGINEER
B. PASCOLO-NEVEU
100209797
2022-05-13
PROVINCE OF ONTARIO

Drawing Title

NOISE PLAN - SOLARIUM BLOCK 146

Scale: 1 : 500

Design	Date
K.H.	JULY 2018
Drawn	**Checked**
C.C.	L.E.
Project No.	**Drawing No.**
103291	201

D07-16-17-0023

#17743

Appendix A
Noise Calculations

Noise Calculations
Indoor (at Building Face)

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:03:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u1.te Time Period: Day/Night 16/8 hours
Description: block 196 u 1 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 18.50 / 18.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (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 : 30.50 / 30.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 67.70 + 0.00) = 67.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.67	0.00	-1.51	-1.46	0.00	0.00	0.00	67.70

Segment Leq : 67.70 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 64.09 + 0.00) = 64.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.67	0.00	-5.12	-1.46	0.00	0.00	0.00	64.09

Segment Leq : 64.09 dBA

Total Leq All Segments: 69.27 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 60.34 + 0.00) = 60.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-1.43	-1.30	0.00	0.00	0.00	60.34

Segment Leq : 60.34 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 56.93 + 0.00) = 56.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-4.84	-1.30	0.00	0.00	0.00	56.93

Segment Leq : 56.93 dBA

Total Leq All Segments: 61.97 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 69.27
(NIGHT): 61.97

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:06:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u2.te Time Period: Day/Night 16/8 hours
Description: block 196 u 2 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 24.50 / 24.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 36.50 / 36.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 62.66 + 0.00) = 62.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.66	70.67	0.00	-3.54	-4.47	0.00	0.00	0.00	62.66

Segment Leq : 62.66 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 59.79 + 0.00) = 59.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.66	70.67	0.00	-6.41	-4.47	0.00	0.00	0.00	59.79

Segment Leq : 59.79 dBA

Total Leq All Segments: 64.47 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 55.41 + 0.00) = 55.41 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	63.07	0.00	-3.35	-4.31	0.00	0.00	0.00	55.41

Segment Leq : 55.41 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 52.69 + 0.00) = 52.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.57	63.07	0.00	-6.06	-4.31	0.00	0.00	0.00	52.69

Segment Leq : 52.69 dBA

Total Leq All Segments: 57.27 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 64.47
(NIGHT): 57.27

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:35:30
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u9.te Time Period: Day/Night 16/8 hours
Description: block 196 u 9 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : 0.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 71.50 / 71.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : 0.00 deg 40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 83.50 / 83.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 52.64 + 0.00) = 52.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.66	70.67	0.00	-11.26	-6.77	0.00	0.00	0.00	52.64

Segment Leq : 52.64 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 51.52 + 0.00) = 51.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.66	70.67	0.00	-12.38	-6.77	0.00	0.00	0.00	51.52

Segment Leq : 51.52 dBA

Total Leq All Segments: 55.13 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 45.68 + 0.00) = 45.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.57	63.07	0.00	-10.65	-6.74	0.00	0.00	0.00	45.68

Segment Leq : 45.68 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 44.62 + 0.00) = 44.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.57	63.07	0.00	-11.71	-6.74	0.00	0.00	0.00	44.62

Segment Leq : 44.62 dBA

Total Leq All Segments: 48.19 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 55.13
(NIGHT): 48.19

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:29:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u10.te Time Period: Day/Night 16/8 hours
Description: block 196 u 10 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : 0.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 77.50 / 77.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : 0.00 deg 35.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 89.50 / 89.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 51.53 + 0.00) = 51.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.66	70.67	0.00	-11.84	-7.29	0.00	0.00	0.00	51.53

Segment Leq : 51.53 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 50.49 + 0.00) = 50.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.66	70.67	0.00	-12.88	-7.29	0.00	0.00	0.00	50.49

Segment Leq : 50.49 dBA

Total Leq All Segments: 54.05 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 44.60 + 0.00) = 44.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.57	63.07	0.00	-11.20	-7.27	0.00	0.00	0.00	44.60

Segment Leq : 44.60 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 43.62 + 0.00) = 43.62 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	35	0.57	63.07	0.00	-12.18	-7.27	0.00	0.00	0.00	43.62

Segment Leq : 43.62 dBA

Total Leq All Segments: 47.15 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 54.05
(NIGHT): 47.15

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:08:33
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u19.te Time Period: Day/Night 16/8 hours
Description: block 196 u 19 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.50 / 21.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (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 : 33.50 / 33.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 3: Solarium (day/night)

Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume : 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Solarium (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 22.50 / 22.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 66.61 + 0.00) = 66.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.67	0.00	-2.60	-1.46	0.00	0.00	0.00	66.61

Segment Leq : 66.61 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 63.42 + 0.00) = 63.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	70.67	0.00	-5.79	-1.46	0.00	0.00	0.00	63.42

Segment Leq : 63.42 dBA

FF
Results segment # 3: Solarium (day)

Source height = 1.50 m

ROAD (0.00 + 62.30 + 0.00) = 62.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	67.51	0.00	-2.92	-2.29	0.00	0.00	0.00	62.30

Segment Leq : 62.30 dBA

Total Leq All Segments: 69.28 dBA

FF

Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 59.31 + 0.00) = 59.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-2.45	-1.30	0.00	0.00	0.00	59.31

Segment Leq : 59.31 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 56.29 + 0.00) = 56.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-5.48	-1.30	0.00	0.00	0.00	56.29

Segment Leq : 56.29 dBA

FF
Results segment # 3: Solarium (night)

Source height = 1.50 m

ROAD (0.00 + 54.97 + 0.00) = 54.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	59.91	0.00	-2.76	-2.18	0.00	0.00	0.00	54.97

Segment Leq : 54.97 dBA

Total Leq All Segments: 62.02 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 69.28
(NIGHT): 62.02

FF
FF

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:09:10
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u20.te Time Period: Day/Night 16/8 hours
Description: block 196 u 20 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -80.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.50 / 27.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -80.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.50 / 39.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 3: Solarium (day/night)

Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume : 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Solarium (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 : 20.50 / 20.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 61.70 + 0.00) = 61.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	0	0.66	70.67	0.00	-4.37	-4.60	0.00	0.00	0.00	61.70

Segment Leq : 61.70 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 59.09 + 0.00) = 59.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	0	0.66	70.67	0.00	-6.98	-4.60	0.00	0.00	0.00	59.09

Segment Leq : 59.09 dBA

FF
Results segment # 3: Solarium (day)

Source height = 1.50 m

ROAD (0.00 + 63.27 + 0.00) = 63.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	55	0.66	67.51	0.00	-2.25	-1.99	0.00	0.00	0.00	63.27

Segment Leq : 63.27 dBA

Total Leq All Segments: 66.45 dBA

FF

Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 54.47 + 0.00) = 54.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	0	0.57	63.07	0.00	-4.13	-4.47	0.00	0.00	0.00	54.47

Segment Leq : 54.47 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 52.00 + 0.00) = 52.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	0	0.57	63.07	0.00	-6.60	-4.47	0.00	0.00	0.00	52.00

Segment Leq : 52.00 dBA

FF
Results segment # 3: Solarium (night)

Source height = 1.50 m

ROAD (0.00 + 55.90 + 0.00) = 55.90 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	55	0.57	59.91	0.00	-2.13	-1.88	0.00	0.00	0.00	55.90

Segment Leq : 55.90 dBA

Total Leq All Segments: 59.18 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 66.45
(NIGHT): 59.18
FF
FF

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:10:51
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u23.te Time Period: Day/Night 16/8 hours
Description: block 196 u 23 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -55.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 46.00 / 46.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -55.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 58.00 / 58.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 3: Solarium (day/night)

Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume : 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Solarium (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 : 20.50 / 20.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 57.39 + 0.00) = 57.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	5	0.66	70.67	0.00	-8.08	-5.20	0.00	0.00	0.00	57.39

Segment Leq : 57.39 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 55.72 + 0.00) = 55.72 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	5	0.66	70.67	0.00	-9.75	-5.20	0.00	0.00	0.00	55.72

Segment Leq : 55.72 dBA

FF
Results segment # 3: Solarium (day)

Source height = 1.50 m

ROAD (0.00 + 63.80 + 0.00) = 63.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.51	0.00	-2.25	-1.46	0.00	0.00	0.00	63.80

Segment Leq : 63.80 dBA

Total Leq All Segments: 65.21 dBA

FF

Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 50.29 + 0.00) = 50.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	5	0.57	63.07	0.00	-7.64	-5.14	0.00	0.00	0.00	50.29

Segment Leq : 50.29 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 48.71 + 0.00) = 48.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	5	0.57	63.07	0.00	-9.22	-5.14	0.00	0.00	0.00	48.71

Segment Leq : 48.71 dBA

FF
Results segment # 3: Solarium (night)

Source height = 1.50 m

ROAD (0.00 + 56.48 + 0.00) = 56.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	59.91	0.00	-2.13	-1.30	0.00	0.00	0.00	56.48

Segment Leq : 56.48 dBA

Total Leq All Segments: 57.96 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 65.21
(NIGHT): 57.96
FF
FF

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:16:23
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u24.te Time Period: Day/Night 16/8 hours
Description: block 196 u 24 indoor

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -50.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 56.50 / 56.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -50.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 68.50 / 68.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 3: Solarium (day/night)

Car traffic volume : 9715/845 veh/TimePeriod
Medium truck volume : 773/67 veh/TimePeriod
Heavy truck volume : 552/48 veh/TimePeriod
Posted speed limit : 50 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

Data for Segment # 3: Solarium (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 : 20.50 / 20.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 55.16 + 0.00) = 55.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	0	0.66	70.67	0.00	-9.56	-5.94	0.00	0.00	0.00	55.16

Segment Leq : 55.16 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 53.77 + 0.00) = 53.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	0	0.66	70.67	0.00	-10.95	-5.94	0.00	0.00	0.00	53.77

Segment Leq : 53.77 dBA

FF
Results segment # 3: Solarium (day)

Source height = 1.50 m

ROAD (0.00 + 63.80 + 0.00) = 63.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.66	67.51	0.00	-2.25	-1.46	0.00	0.00	0.00	63.80

Segment Leq : 63.80 dBA

Total Leq All Segments: 64.72 dBA

FF

Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 48.13 + 0.00) = 48.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	0	0.57	63.07	0.00	-9.04	-5.89	0.00	0.00	0.00	48.13

Segment Leq : 48.13 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 46.82 + 0.00) = 46.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	0	0.57	63.07	0.00	-10.36	-5.89	0.00	0.00	0.00	46.82

Segment Leq : 46.82 dBA

FF
Results segment # 3: Solarium (night)

Source height = 1.50 m

ROAD (0.00 + 56.48 + 0.00) = 56.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	59.91	0.00	-2.13	-1.30	0.00	0.00	0.00	56.48

Segment Leq : 56.48 dBA

Total Leq All Segments: 57.46 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 64.72
(NIGHT): 57.46
FF
FF

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 14:11:11
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u27.te Time Period: Day/Night 16/8 hours
Description: block 196 u 27 indoor

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

```
Car traffic volume  : 14168/1232  veh/TimePeriod  *
Medium truck volume :  1127/98    veh/TimePeriod  *
Heavy truck volume  :   805/70    veh/TimePeriod  *
Posted speed limit  :    60 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  17500
    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: River NB (day/night)

```
Angle1   Angle2           : -80.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  27.50 / 27.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

FF

Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 61.70 + 0.00) = 61.70 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	0	0.66	70.67	0.00	-4.37	-4.60	0.00	0.00	0.00	61.70

Segment Leq : 61.70 dBA

Total Leq All Segments: 61.70 dBA

FF

Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 54.47 + 0.00) = 54.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	0	0.57	63.07	0.00	-4.13	-4.47	0.00	0.00	0.00	54.47

Segment Leq : 54.47 dBA

Total Leq All Segments: 54.47 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 61.70
(NIGHT): 54.47

FF

FF

Noise Calculations
OLA

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:12:12
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u1.te Time Period: Day/Night 16/8 hours
Description: block 196 u 1 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 / 21.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 33.00 / 33.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 65.95 + 0.00) = 65.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	70.67	0.00	-2.43	-2.29	0.00	0.00	0.00	65.95

Segment Leq : 65.95 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 62.69 + 0.00) = 62.69 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.66	70.67	0.00	-5.68	-2.29	0.00	0.00	0.00	62.69

Segment Leq : 62.69 dBA

Total Leq All Segments: 67.63 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 58.60 + 0.00) = 58.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	63.07	0.00	-2.29	-2.18	0.00	0.00	0.00	58.60

Segment Leq : 58.60 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 55.51 + 0.00) = 55.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	45	0.57	63.07	0.00	-5.38	-2.18	0.00	0.00	0.00	55.51

Segment Leq : 55.51 dBA

Total Leq All Segments: 60.33 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 67.63
(NIGHT): 60.33

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:12:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u2.te Time Period: Day/Night 16/8 hours
Description: block 196 u 2 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -80.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 27.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -80.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 63.02 + 0.00) = 63.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	20	0.66	70.67	0.00	-4.24	-3.41	0.00	0.00	0.00	63.02

Segment Leq : 63.02 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 60.37 + 0.00) = 60.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	20	0.66	70.67	0.00	-6.89	-3.41	0.00	0.00	0.00	60.37

Segment Leq : 60.37 dBA

Total Leq All Segments: 64.90 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 55.76 + 0.00) = 55.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	20	0.57	63.07	0.00	-4.01	-3.31	0.00	0.00	0.00	55.76

Segment Leq : 55.76 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 53.25 + 0.00) = 53.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	20	0.57	63.07	0.00	-6.52	-3.31	0.00	0.00	0.00	53.25

Segment Leq : 53.25 dBA

Total Leq All Segments: 57.69 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 64.90
(NIGHT): 57.69

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:45:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u3.te Time Period: Day/Night 16/8 hours
Description: block 196 u 3 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -65.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 27.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -65.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 62.36 + 0.00) = 62.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	15	0.66	70.67	0.00	-4.24	-4.06	0.00	0.00	0.00	62.36

Segment Leq : 62.36 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 59.71 + 0.00) = 59.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	15	0.66	70.67	0.00	-6.89	-4.06	0.00	0.00	0.00	59.71

Segment Leq : 59.71 dBA

Total Leq All Segments: 64.24 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 55.06 + 0.00) = 55.06 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	15	0.57	63.07	0.00	-4.01	-4.00	0.00	0.00	0.00	55.06

Segment Leq : 55.06 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 52.56 + 0.00) = 52.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	15	0.57	63.07	0.00	-6.52	-4.00	0.00	0.00	0.00	52.56

Segment Leq : 52.56 dBA

Total Leq All Segments: 57.00 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 64.24
(NIGHT): 57.00

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 16:28:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u4.te Time Period: Day/Night 16/8 hours
Description: block 196 u 4 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -55.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -55.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 51.00 / 51.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 59.31 + 0.00) = 59.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	15	0.66	70.67	0.00	-6.89	-4.47	0.00	0.00	0.00	59.31

Segment Leq : 59.31 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 57.37 + 0.00) = 57.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	15	0.66	70.67	0.00	-8.82	-4.47	0.00	0.00	0.00	57.37

Segment Leq : 57.37 dBA

Total Leq All Segments: 61.46 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 52.13 + 0.00) = 52.13 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	15	0.57	63.07	0.00	-6.52	-4.42	0.00	0.00	0.00	52.13

Segment Leq : 52.13 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 50.30 + 0.00) = 50.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	15	0.57	63.07	0.00	-8.34	-4.42	0.00	0.00	0.00	50.30

Segment Leq : 50.30 dBA

Total Leq All Segments: 54.32 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 61.46
(NIGHT): 54.32

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 56.44 + 0.00) = 56.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	10	0.66	70.67	0.00	-8.82	-5.40	0.00	0.00	0.00	56.44

Segment Leq : 56.44 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 54.92 + 0.00) = 54.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	10	0.66	70.67	0.00	-10.35	-5.40	0.00	0.00	0.00	54.92

Segment Leq : 54.92 dBA

Total Leq All Segments: 58.76 dBA

FF
Results segment # 1: River NB (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
-45	10	0.57	63.07	0.00	-8.34	-5.37	0.00	0.00	0.00	49.36

Segment Leq : 49.36 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 47.92 + 0.00) = 47.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	10	0.57	63.07	0.00	-9.79	-5.37	0.00	0.00	0.00	47.92

Segment Leq : 47.92 dBA

Total Leq All Segments: 51.71 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 58.76
(NIGHT): 51.71

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:14:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u7.te Time Period: Day/Night 16/8 hours
Description: block 196 u 7 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -40.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 61.50 / 61.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -40.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 73.50 / 73.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 54.26 + 0.00) = 54.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	5	0.66	70.67	0.00	-10.17	-6.23	0.00	0.00	0.00	54.26

Segment Leq : 54.26 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 52.98 + 0.00) = 52.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	5	0.66	70.67	0.00	-11.46	-6.23	0.00	0.00	0.00	52.98

Segment Leq : 52.98 dBA

Total Leq All Segments: 56.68 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 47.24 + 0.00) = 47.24 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	5	0.57	63.07	0.00	-9.62	-6.21	0.00	0.00	0.00	47.24

Segment Leq : 47.24 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 46.03 + 0.00) = 46.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	5	0.57	63.07	0.00	-10.84	-6.21	0.00	0.00	0.00	46.03

Segment Leq : 46.03 dBA

Total Leq All Segments: 49.69 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 56.68
(NIGHT): 49.69

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:15:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u8.te Time Period: Day/Night 16/8 hours
Description: block 196 u 8 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -30.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 67.50 / 67.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -30.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 79.50 / 79.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 52.60 + 0.00) = 52.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	5	0.66	70.67	0.00	-10.84	-7.23	0.00	0.00	0.00	52.60

Segment Leq : 52.60 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 51.42 + 0.00) = 51.42 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	5	0.66	70.67	0.00	-12.02	-7.23	0.00	0.00	0.00	51.42

Segment Leq : 51.42 dBA

Total Leq All Segments: 55.06 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 45.60 + 0.00) = 45.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	5	0.57	63.07	0.00	-10.26	-7.21	0.00	0.00	0.00	45.60

Segment Leq : 45.60 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 44.49 + 0.00) = 44.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-30	5	0.57	63.07	0.00	-11.37	-7.21	0.00	0.00	0.00	44.49

Segment Leq : 44.49 dBA

Total Leq All Segments: 48.09 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 55.06
(NIGHT): 48.09

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:16:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u9.te Time Period: Day/Night 16/8 hours
Description: block 196 u 9 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -25.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 73.50 / 73.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -25.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 85.50 / 85.50 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 51.35 + 0.00) = 51.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	5	0.66	70.67	0.00	-11.46	-7.86	0.00	0.00	0.00	51.35

Segment Leq : 51.35 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 50.26 + 0.00) = 50.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	5	0.66	70.67	0.00	-12.55	-7.86	0.00	0.00	0.00	50.26

Segment Leq : 50.26 dBA

Total Leq All Segments: 53.85 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 44.38 + 0.00) = 44.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	5	0.57	63.07	0.00	-10.84	-7.85	0.00	0.00	0.00	44.38

Segment Leq : 44.38 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 43.35 + 0.00) = 43.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-25	5	0.57	63.07	0.00	-11.87	-7.85	0.00	0.00	0.00	43.35

Segment Leq : 43.35 dBA

Total Leq All Segments: 46.91 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 53.85
(NIGHT): 46.91

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 13:06:27
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u19.te Time Period: Day/Night 16/8 hours
Description: block 196 u 19 ola

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -35.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 / 26.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -35.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 38.00 / 38.00 m
Receiver height : 1.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

FF
Results segment # 1: River NB (day)

Source height = 1.50 m

ROAD (0.00 + 63.89 + 0.00) = 63.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	75	0.66	70.67	0.00	-3.97	-2.81	0.00	0.00	0.00	63.89

Segment Leq : 63.89 dBA

FF
Results segment # 2: River SB (day)

Source height = 1.50 m

ROAD (0.00 + 61.15 + 0.00) = 61.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	75	0.66	70.67	0.00	-6.70	-2.81	0.00	0.00	0.00	61.15

Segment Leq : 61.15 dBA

Total Leq All Segments: 65.74 dBA

FF
Results segment # 1: River NB (night)

Source height = 1.50 m

ROAD (0.00 + 56.59 + 0.00) = 56.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	75	0.57	63.07	0.00	-3.75	-2.73	0.00	0.00	0.00	56.59

Segment Leq : 56.59 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

ROAD (0.00 + 54.00 + 0.00) = 54.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	75	0.57	63.07	0.00	-6.34	-2.73	0.00	0.00	0.00	54.00

Segment Leq : 54.00 dBA

Total Leq All Segments: 58.50 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 65.74
(NIGHT): 58.50

Noise Calculations
OLA w Barrier

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:12:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u1.te Time Period: Day/Night 16/8 hours
Description: block 196 u 1 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 21.00 / 21.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -80.00 deg Angle2 : 45.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 8.00 / 8.00 m
Source elevation : 90.10 m
Receiver elevation : 91.20 m
Barrier elevation : 91.00 m
Reference angle : 0.00

FF

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -90.00 deg 45.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  33.00 / 33.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -80.00 deg   Angle2 : 45.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :   8.00 / 8.00   m
Source elevation           :  90.10 m
Receiver elevation         :  91.20 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        1.28 !        92.28

ROAD (48.48 + 57.24 + 0.00) = 57.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -80   0.66  70.67   0.00  -2.43 -19.76   0.00   0.00   0.00  48.48
-------------------------------------------------------------------------------
   -80     45   0.51  70.67   0.00  -2.21  -2.21   0.00   0.00  -9.01  57.24
-------------------------------------------------------------------------------

Segment Leq : 57.78 dBA
```

FF

```
Results segment # 2: River SB (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 !        1.43 !        92.43

ROAD (45.22 + 55.42 + 0.00) = 55.82 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -80   0.66  70.67   0.00  -5.68 -19.76   0.00   0.00   0.00  45.22
-------------------------------------------------------------------------------
   -80     45   0.51  70.67   0.00  -5.17  -2.21   0.00   0.00  -7.87  55.42
-------------------------------------------------------------------------------

Segment Leq : 55.82 dBA

Total Leq All Segments: 59.92 dBA
```

FF

```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m
```

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	3.14	94.14

ROAD (41.93 + 58.50 + 0.00) = 58.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-80	0.57	63.07	0.00	-2.29	-18.84	0.00	0.00	0.00	41.93
-80	45	0.42	63.07	0.00	-2.08	-2.11	0.00	0.00	-3.12	55.77*
-80	45	0.57	63.07	0.00	-2.29	-2.27	0.00	0.00	0.00	58.50

* Bright Zone !

Segment Leq : 58.60 dBA

FF

Results segment # 2: River SB (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	3.70	94.70

ROAD (38.85 + 55.42 + 0.00) = 55.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-80	0.57	63.07	0.00	-5.38	-18.84	0.00	0.00	0.00	38.85
-80	45	0.42	63.07	0.00	-4.86	-2.11	0.00	0.00	-0.32	55.78*
-80	45	0.57	63.07	0.00	-5.38	-2.27	0.00	0.00	0.00	55.42

* Bright Zone !

Segment Leq : 55.51 dBA

Total Leq All Segments: 60.33 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 59.92
(NIGHT): 60.33

FF
FF

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:13:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u2.te Time Period: Day/Night 16/8 hours
Description: block 196 u 2 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -80.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 27.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -70.00 deg Angle2 : 20.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 14.00 / 14.00 m
Source elevation : 90.10 m
Receiver elevation : 91.20 m
Barrier elevation : 91.00 m
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -80.00 deg 20.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  39.00 / 39.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -70.00 deg   Angle2 : 20.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  14.00 / 14.00  m
Source elevation           :  90.10 m
Receiver elevation         :  91.20 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

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```
Results segment # 1: River NB (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 !        1.13 !        92.13

ROAD (49.98 + 54.29 + 0.00) = 55.66 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80    -70   0.66  70.67   0.00  -4.24 -16.45   0.00   0.00   0.00  49.98
-------------------------------------------------------------------------------
   -70     20   0.51  70.67   0.00  -3.85  -3.50   0.00   0.00  -9.03  54.29
-------------------------------------------------------------------------------

Segment Leq : 55.66 dBA
```

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```
Results segment # 2: River SB (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 !        1.30 !        92.30

ROAD (47.33 + 53.24 + 0.00) = 54.23 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80    -70   0.66  70.67   0.00  -6.89 -16.45   0.00   0.00   0.00  47.33
-------------------------------------------------------------------------------
   -70     20   0.51  70.67   0.00  -6.27  -3.50   0.00   0.00  -7.66  53.24
-------------------------------------------------------------------------------

Segment Leq : 54.23 dBA

Total Leq All Segments: 58.01 dBA
```

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```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m
```

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	2.57	93.57

ROAD (43.14 + 55.51 + 0.00) = 55.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	-70	0.57	63.07	0.00	-4.01	-15.92	0.00	0.00	0.00	43.14
-70	20	0.42	63.07	0.00	-3.63	-3.42	0.00	0.00	-4.98	51.04*
-70	20	0.57	63.07	0.00	-4.01	-3.55	0.00	0.00	0.00	55.51

* Bright Zone !

Segment Leq : 55.76 dBA

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Results segment # 2: River SB (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	3.23	94.23

ROAD (40.63 + 53.00 + 0.00) = 53.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	-70	0.57	63.07	0.00	-6.52	-15.92	0.00	0.00	0.00	40.63
-70	20	0.42	63.07	0.00	-5.89	-3.42	0.00	0.00	-3.58	50.17*
-70	20	0.57	63.07	0.00	-6.52	-3.55	0.00	0.00	0.00	53.00

* Bright Zone !

Segment Leq : 53.25 dBA

Total Leq All Segments: 57.69 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 58.01
(NIGHT): 57.69

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STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:46:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u3.te Time Period: Day/Night 16/8 hours
Description: block 196 u 3 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -65.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 27.00 / 27.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -55.00 deg Angle2 : 15.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 20.00 / 20.00 m
Source elevation : 90.10 m
Receiver elevation : 91.20 m
Barrier elevation : 91.00 m
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -65.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  39.00 / 39.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -55.00 deg   Angle2 : 15.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  20.00 / 20.00  m
Source elevation           :  90.10 m
Receiver elevation         :  91.20 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

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```
Results segment # 1: River NB (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 !        0.88 !        91.88

ROAD (51.88 + 51.14 + 0.00) = 54.54 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -65    -55   0.66  70.67   0.00  -4.24 -14.55   0.00   0.00   0.00  51.88
-------------------------------------------------------------------------------
   -55     15   0.51  70.67   0.00  -3.85  -4.39   0.00   0.00 -11.28  51.14
-------------------------------------------------------------------------------

Segment Leq : 54.54 dBA
```

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```
Results segment # 2: River SB (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 !        1.13 !        92.13

ROAD (49.23 + 51.70 + 0.00) = 53.65 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -65    -55   0.66  70.67   0.00  -6.89 -14.55   0.00   0.00   0.00  49.23
-------------------------------------------------------------------------------
   -55     15   0.51  70.67   0.00  -6.27  -4.39   0.00   0.00  -8.31  51.70
-------------------------------------------------------------------------------

Segment Leq : 53.65 dBA

Total Leq All Segments: 57.13 dBA
```

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```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m
```

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	1.66	92.66

ROAD (44.78 + 47.66 + 0.00) = 49.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	-55	0.57	63.07	0.00	-4.01	-14.28	0.00	0.00	0.00	44.78
-55	15	0.42	63.07	0.00	-3.63	-4.34	0.00	0.00	-7.44	47.66

Segment Leq : 49.47 dBA

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Results segment # 2: River SB (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	2.60	93.60

ROAD (42.28 + 52.13 + 0.00) = 52.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	-55	0.57	63.07	0.00	-6.52	-14.28	0.00	0.00	0.00	42.28
-55	15	0.42	63.07	0.00	-5.89	-4.34	0.00	0.00	-4.98	47.86*
-55	15	0.57	63.07	0.00	-6.52	-4.42	0.00	0.00	0.00	52.13

* Bright Zone !

Segment Leq : 52.56 dBA

Total Leq All Segments: 54.29 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 57.13
(NIGHT): 54.29
FF
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STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 16:29:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u4.te Time Period: Day/Night 16/8 hours
Description: block 196 u 4 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -55.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 39.00 / 39.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -50.00 deg Angle2 : 15.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 26.00 / 26.00 m
Source elevation : 90.10 m
Receiver elevation : 91.20 m
Barrier elevation : 91.00 m
Reference angle : 0.00

FF

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -55.00 deg 15.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  51.00 / 51.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -50.00 deg   Angle2 : 15.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  26.00 / 26.00  m
Source elevation           :  90.10 m
Receiver elevation         :  91.20 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        0.96 !        91.96

ROAD (46.79 + 50.40 + 0.00) = 51.97 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -55    -50   0.66  70.67   0.00  -6.89 -16.99   0.00   0.00   0.00  46.79
-------------------------------------------------------------------------------
   -50     15   0.51  70.67   0.00  -6.27  -4.66   0.00   0.00  -9.35  50.40
-------------------------------------------------------------------------------

Segment Leq : 51.97 dBA
```

FF

```
Results segment # 2: River SB (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 !        1.14 !        92.14

ROAD (44.86 + 50.25 + 0.00) = 51.35 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -55    -50   0.66  70.67   0.00  -8.82 -16.99   0.00   0.00   0.00  44.86
-------------------------------------------------------------------------------
   -50     15   0.51  70.67   0.00  -8.03  -4.66   0.00   0.00  -7.74  50.25
-------------------------------------------------------------------------------

Segment Leq : 51.35 dBA

Total Leq All Segments: 54.68 dBA
```

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```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m
```

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	1.96	92.96

ROAD (39.76 + 46.83 + 0.00) = 47.60 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-50	0.57	63.07	0.00	-6.52	-16.79	0.00	0.00	0.00	39.76
-50	15	0.42	63.07	0.00	-5.89	-4.62	0.00	0.00	-5.73	46.83

Segment Leq : 47.60 dBA

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Results segment # 2: River SB (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	2.61	93.61

ROAD (37.93 + 50.04 + 0.00) = 50.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-55	-50	0.57	63.07	0.00	-8.34	-16.79	0.00	0.00	0.00	37.93
-50	15	0.42	63.07	0.00	-7.55	-4.62	0.00	0.00	-4.98	45.93*
-50	15	0.57	63.07	0.00	-8.34	-4.68	0.00	0.00	0.00	50.04

* Bright Zone !

Segment Leq : 50.30 dBA

Total Leq All Segments: 52.17 dBA

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TOTAL Leq FROM ALL SOURCES (DAY): 54.68
(NIGHT): 52.17

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STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:13:53
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u6.te Time Period: Day/Night 16/8 hours
Description: block 196 u 6 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -45.00 deg 10.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 51.00 / 51.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -40.00 deg Angle2 : 10.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 38.00 / 38.00 m
Source elevation : 90.10 m
Receiver elevation : 91.25 m
Barrier elevation : 91.00 m
Reference angle : 0.00

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -45.00 deg 10.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  63.00 / 63.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -40.00 deg   Angle2 : 10.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  38.00 / 38.00  m
Source elevation           :  90.10 m
Receiver elevation         :  91.25 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        0.89 !        91.89

ROAD (45.41 + 47.51 + 0.00) = 49.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45    -40   0.66  70.67   0.00  -8.82 -16.44   0.00   0.00   0.00  45.41
-------------------------------------------------------------------------------
   -40     10   0.51  70.67   0.00  -8.03  -5.71   0.00   0.00  -9.42  47.51
-------------------------------------------------------------------------------

Segment Leq : 49.59 dBA
```

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```
Results segment # 2: River SB (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 !        1.05 !        92.05

ROAD (43.88 + 47.83 + 0.00) = 49.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -45    -40   0.66  70.67   0.00 -10.35 -16.44   0.00   0.00   0.00  43.88
-------------------------------------------------------------------------------
   -40     10   0.51  70.67   0.00  -9.41  -5.71   0.00   0.00  -7.71  47.83
-------------------------------------------------------------------------------

Segment Leq : 49.30 dBA

Total Leq All Segments: 52.46 dBA
```

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```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m
```

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	1.65	92.65

ROAD (38.41 + 43.25 + 0.00) = 44.48 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	-40	0.57	63.07	0.00	-8.34	-16.32	0.00	0.00	0.00	38.41
-40	10	0.42	63.07	0.00	-7.55	-5.69	0.00	0.00	-6.58	43.25

Segment Leq : 44.48 dBA

FF
Results segment # 2: River SB (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	2.24	93.24

ROAD (36.96 + 43.42 + 0.00) = 44.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	-40	0.57	63.07	0.00	-9.79	-16.32	0.00	0.00	0.00	36.96
-40	10	0.42	63.07	0.00	-8.85	-5.69	0.00	0.00	-5.11	43.42

Segment Leq : 44.31 dBA

Total Leq All Segments: 47.41 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 52.46
(NIGHT): 47.41
FF
FF

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:14:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u7.te Time Period: Day/Night 16/8 hours
Description: block 196 u 7 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -40.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 61.50 / 61.50 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -40.00 deg Angle2 : 5.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 48.50 / 48.50 m
Source elevation : 90.10 m
Receiver elevation : 91.30 m
Barrier elevation : 91.00 m
Reference angle : 0.00

FF

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -40.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  73.50 / 73.50  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -40.00 deg   Angle2 : 5.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  48.50 / 48.50  m
Source elevation           :  90.10 m
Receiver elevation         :  91.30 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        0.85 !        91.85

ROAD (0.00 + 45.85 + 0.00) = 45.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -40      5   0.51  70.67   0.00  -9.25  -6.19   0.00   0.00  -9.37  45.85
-------------------------------------------------------------------------------

Segment Leq : 45.85 dBA
```

FF

```
Results segment # 2: River SB (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 !        1.01 !        92.01

ROAD (0.00 + 46.41 + 0.00) = 46.41 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -40      5   0.51  70.67   0.00 -10.42  -6.19   0.00   0.00  -7.65  46.41
-------------------------------------------------------------------------------

Segment Leq : 46.41 dBA

Total Leq All Segments: 49.15 dBA
```

FF

```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m

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

```
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.48 !        92.48

ROAD (0.00 + 41.15 + 0.00) = 41.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -40      5   0.42  63.07   0.00  -8.70  -6.16   0.00   0.00  -7.05  41.15
-------------------------------------------------------------------------------

Segment Leq : 41.15 dBA

FF
Results segment # 2: River SB (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        2.03 !        93.03

ROAD (0.00 + 41.78 + 0.00) = 41.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -40      5   0.42  63.07   0.00  -9.80  -6.16   0.00   0.00  -5.33  41.78
-------------------------------------------------------------------------------

Segment Leq : 41.78 dBA

Total Leq All Segments: 44.49 dBA

FF



TOTAL Leq FROM ALL SOURCES (DAY): 49.15
                           (NIGHT): 44.49
FF
FF
```

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:15:41
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u8.te Time Period: Day/Night 16/8 hours
Description: block 196 u 8 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -30.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 67.50 / 67.50 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -30.00 deg Angle2 : 5.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 54.50 / 54.50 m
Source elevation : 90.10 m
Receiver elevation : 91.30 m
Barrier elevation : 91.00 m
Reference angle : 0.00

FF

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -30.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  79.50 / 79.50  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -30.00 deg   Angle2 : 5.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  54.50 / 54.50  m
Source elevation           :  90.10 m
Receiver elevation         :  91.30 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        0.83 !        91.83

ROAD (0.00 + 44.11 + 0.00) = 44.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -30      5   0.51  70.67   0.00  -9.86  -7.20   0.00   0.00  -9.50  44.11
-------------------------------------------------------------------------------

Segment Leq : 44.11 dBA
```

FF

```
Results segment # 2: River SB (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 !        0.97 !        91.97

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
-------------------------------------------------------------------------------
   -30      5   0.51  70.67   0.00 -10.94  -7.20   0.00   0.00  -7.73  44.80
-------------------------------------------------------------------------------

Segment Leq : 44.80 dBA

Total Leq All Segments: 47.48 dBA
```

FF

```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m

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

```
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.41 !        92.41

ROAD (0.00 + 39.25 + 0.00) = 39.25 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -30      5   0.42  63.07   0.00  -9.28  -7.19   0.00   0.00  -7.35  39.25
-------------------------------------------------------------------------------

Segment Leq : 39.25 dBA

FF
Results segment # 2: River SB (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.92 !        92.92

ROAD (0.00 + 40.12 + 0.00) = 40.12 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -30      5   0.42  63.07   0.00 -10.29  -7.19   0.00   0.00  -5.48  40.12
-------------------------------------------------------------------------------

Segment Leq : 40.12 dBA

Total Leq All Segments: 42.72 dBA

FF



TOTAL Leq FROM ALL SOURCES (DAY): 47.48
                           (NIGHT): 42.72
FF
FF
```

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 15:16:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u9.te Time Period: Day/Night 16/8 hours
Description: block 196 u 9 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -25.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 73.50 / 73.50 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -25.00 deg Angle2 : 5.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 60.50 / 60.50 m
Source elevation : 90.10 m
Receiver elevation : 91.30 m
Barrier elevation : 91.00 m
Reference angle : 0.00

FF
Road data, segment # 2: River SB (day/night)

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -25.00 deg 5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  85.50 / 85.50  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -25.00 deg   Angle2 : 5.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  60.50 / 60.50  m
Source elevation           :  90.10 m
Receiver elevation         :  91.30 m
Barrier elevation          :  91.00 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        0.81 !        91.81

ROAD (0.00 + 42.85 + 0.00) = 42.85 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -25      5   0.51  70.67   0.00 -10.42  -7.84   0.00   0.00  -9.55  42.85
-------------------------------------------------------------------------------

Segment Leq : 42.85 dBA
```

FF

```
Results segment # 2: River SB (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 !        0.95 !        91.95

ROAD (0.00 + 43.64 + 0.00) = 43.64 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -25      5   0.51  70.67   0.00 -11.41  -7.84   0.00   0.00  -7.77  43.64
-------------------------------------------------------------------------------

Segment Leq : 43.64 dBA

Total Leq All Segments: 46.27 dBA
```

FF

```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m

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

```
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.34 !        92.34

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
-------------------------------------------------------------------------------
   -25      5   0.42  63.07   0.00  -9.80  -7.83   0.00   0.00  -7.58  37.86
-------------------------------------------------------------------------------

Segment Leq : 37.86 dBA

FF
Results segment # 2: River SB (night)
-------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        4.50 !        1.82 !        92.82

ROAD (0.00 + 38.87 + 0.00) = 38.87 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -25      5   0.42  63.07   0.00 -10.73  -7.83   0.00   0.00  -5.63  38.87
-------------------------------------------------------------------------------

Segment Leq : 38.87 dBA

Total Leq All Segments: 41.40 dBA

FF



TOTAL Leq FROM ALL SOURCES (DAY): 46.27
                           (NIGHT): 41.40
FF
FF
```

STAMSON 5.0 NORMAL REPORT Date: 13-05-2022 13:06:58
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: 196u19.te Time Period: Day/Night 16/8 hours
Description: block 196 u 19 ola w barrier

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River NB (day/night)

Angle1 Angle2 : -35.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 26.00 / 26.00 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -35.00 deg Angle2 : 70.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 13.00 / 13.00 m
Source elevation : 90.29 m
Receiver elevation : 91.20 m
Barrier elevation : 90.65 m
Reference angle : 0.00

FF

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

Car traffic volume : 14168/1232 veh/TimePeriod *
Medium truck volume : 1127/98 veh/TimePeriod *
Heavy truck volume : 805/70 veh/TimePeriod *
Posted speed limit : 60 km/h
Road gradient : 1 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 17500
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: River SB (day/night)

Angle1 Angle2 : -35.00 deg 75.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  38.00 / 38.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -35.00 deg   Angle2 : 70.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  13.00 / 13.00  m
Source elevation           :  90.29 m
Receiver elevation         :  91.20 m
Barrier elevation          :  90.65 m
Reference angle            :   0.00
```

FF

```
Results segment # 1: River NB (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 !        1.59 !        92.24

ROAD (0.00 + 57.02 + 47.69) = 57.50 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -35     70   0.51  70.67   0.00  -3.61  -2.80   0.00   0.00  -7.24  57.02
-------------------------------------------------------------------------------
    70     75   0.66  70.67   0.00  -3.97 -19.01   0.00   0.00   0.00  47.69
-------------------------------------------------------------------------------

Segment Leq : 57.50 dBA
```

FF

```
Results segment # 2: River SB (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 !        1.74 !        92.39

ROAD (0.00 + 55.45 + 44.95) = 55.83 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -35     70   0.51  70.67   0.00  -6.10  -2.80   0.00   0.00  -6.32  55.45
-------------------------------------------------------------------------------
    70     75   0.66  70.67   0.00  -6.70 -19.01   0.00   0.00   0.00  44.95
-------------------------------------------------------------------------------

Segment Leq : 55.83 dBA

Total Leq All Segments: 59.76 dBA
```

FF

```
Results segment # 1: River NB (night)
-------------------------------------

Source height = 1.50 m
```

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	3.09	93.74

ROAD (0.00 + 56.47 + 40.78) = 56.59 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	70	0.42	63.07	0.00	-3.39	-2.72	0.00	0.00	-3.72	53.23*
-35	70	0.57	63.07	0.00	-3.75	-2.85	0.00	0.00	0.00	56.47
70	75	0.57	63.07	0.00	-3.75	-18.54	0.00	0.00	0.00	40.78

* Bright Zone !

Segment Leq : 56.59 dBA

FF

Results segment # 2: River SB (night)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	4.50	3.71	94.36

ROAD (0.00 + 53.88 + 38.19) = 54.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-35	70	0.42	63.07	0.00	-5.73	-2.72	0.00	0.00	-0.41	54.20*
-35	70	0.57	63.07	0.00	-6.34	-2.85	0.00	0.00	0.00	53.88
70	75	0.57	63.07	0.00	-6.34	-18.54	0.00	0.00	0.00	38.19

* Bright Zone !

Segment Leq : 54.00 dBA

Total Leq All Segments: 58.50 dBA

FF

TOTAL Leq FROM ALL SOURCES (DAY): 59.76
(NIGHT): 58.50

FF
FF