MONARCH CORPORATION

ENVIRONMENTAL NOISE IMPACT ASSESSMENT
STONEBRIDGE DEVELOPMENT
PHASE 11 BLOCKS 331, 332 & 333

Project: 25099-5.2.2

JULY 2010

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1. INTRODUCTION

On behalf of our client, a study has been prepared to determine the impact of the roadway traffic on the residential lands of Blocks 331, 332 and 333 in Phase 11 of the Stonebridge Developments subdivision, located in the former City of Nepean. This report deals with the expected noise levels in the development and any required noise control measures.

The area of the study consists of the two private townhouse developments located adjacent to Blackleaf Drive between Sunita Crescent and Dundonald Way and the freehold townhouses on Dundonald Drive between Blackleaf Drive and Greenbank Road.

2. BACKGROUND

2.1 Noise Sources

The study area is primarily subject to road noise along Greenbank Road and Dundonald Drive. Aircraft noise from the Ottawa International Airport and rail noise is not a factor as the airport and rail lines are not in close proximity to the study area.

2.2 Sound Level Limits for Road Traffic

Sound level criteria for road traffic, is taken from the City of Ottawa Environmental Noise Control Guidelines hereafter referred to as the guidelines. Noise levels are expressed in the form L_{eq} (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 of sound.

2.2.1 OUTDOOR SOUND LEVEL CRITERION

As per Table 1.5 of the 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 L_{eq} (16). Sound levels for the OLA are calculated 3 meters from the building face at the centre of the unit or within the centre of the OLA at a height of 1.5m above the ground.

If the L_{eq} sound level is less than or equal to the above criteria then no further action is required by the developer. If the sound level exceeds the criteria by less than 5 dBA then the developer may either provide a warning clause to prospective purchasers or install physical attenuation. For sound levels greater than 5 dBA above the criteria control measures are required to reduce the noise levels as close to 55dBA as technically, economically and administratively possible as outlined in Table 1.10 of the guidelines. Should the sound levels with the barrier in place exceed 55dBA a warning clause is also required.

2.2.2 INDOOR SOUND LEVEL CRITERION

Similar to outdoor noise levels, the recommended indoor sound level criteria from Table 1.6 of the guidelines are:

- bedrooms – 23:00 to 07:00 – 40 dBA L_{eq} (8)
- other areas – 07:00 to 23:00– 45 dBA L_{eq} (16)

For the purpose of assessing indoor sound levels, the outdoor sound levels are observed at the plane of the living room window at 2.5m above the ground for daytime noise and at the plane of the bedroom window 4.5 metres above the ground for nighttime noise.

When the outdoor sound levels are less than or equal to 65dBA at the living room window and/or less then or equal to 60dBA at the bedroom level then the building must be compliant with the Ontario Building Code as per Table 1.8 of the guidelines. Should the outdoor sound levels exceed this criteria then the building component (walls windows etc) must be designed to achieve indoor sound level criteria.

When the outdoor noise levels at the living room are greater than 55dBA and less than or equal to 65dBA and/or greater then 50dBA and less than or equal to 60dBA at the bedroom window then a warning clause is required and forced air heating with provision for central air conditioning is required per Table 1.10 of the guidelines. Should the outdoor sound levels exceed the criteria central air conditions is mandatory and a warning clause is required.

3. ROADWAY NOISE

3.1 Traffic Volume Data

The major source of noise external to the development is the traffic moving along Greenbank Road.

Greenbank Road is presently a two lane undivided rural roadway section allowance for a future road widening to four lanes is provided in the right of way. Traffic parameters are taken for a four lane urban arterial (4-UAU) roadway from Table 1.7 of the guideline, posted speed limits are provided by the City. Dundonald is a two lane urban collector, traffic volumes are taken from the Stonebridge Golf Course Community Phase 10 to 12 traffic impact study as the limits of Dundonald are contained within the Stonebridge community. The traffic volumes in the report represent the "mature state of development" for this road. Drawing No. 8B from the report is included in the appendix which predicts PM peak hour traffic volumes. Using a factor of 10, the AADT is projected at 3,110 vehicles. Please note that an AADT of 4001 is used in the calculations as the Stanson Model cannot calculate noise levels for traffic volumes less than 4001. Table 3.1 summarizes the traffic and road data used in this report.

TABLE 3.1
TRAFFIC AND ROAD DATA SUMMARY

	Greenbank Road	**Dundonald Drive**
Annual Average **D**aily Traffic (AADT)	35,000	3,110
Posted Speed Limit (per/hr)	60	50
% Medium Trucks	7%	7%
% Heavy Trucks	5%	5%
% Daytime Traffic	92%	92%
Road Gradient	varies	varies

3.2 Calculation Methods

Roadway noise was calculated using the STAMSON 5.03 computer program from the Ontario Ministry of the Environment.

Numerous locations are used to calculate the sound levels for the outdoor recreational area and at the building face to determine indoor sound levels. Unattenuated daytime noise levels at the outdoor recreational area and unattenuated daytime and nighttime at the building face (for determining indoor sound levels) for each of the locations are shown in Tables 3.2 and 3.3. Parameters used for calculating the noise levels, the perpendicular distance from source to receiver and the roadway segment angles, are also included in the tables.

TABLE 3.2
UNATTENUATED NOISE LEVELS AT BUILDING FACE

Location		Roadway	Distance	Left Angle	Right Angle	Daytime Noise (dBA)	Night time Noise (dBA)
Block	Unit						
2	12	Greenbank NB SB	20.5 33.0	-85	90	68.67	61.29
2	11	Greenbank NB SB	26.5 39.0	-82	0	63.98	56.66
1	3	Greenbank NB SB	78.5 91.0	-40	0	54.71	47.58
3	13	Greenbank NB SB	27.0 39.5	-80	85	66.88	59.56
3	14	Greenbank NB SB	33.0 45.5	0	75	62.42	55.13
3	18	Greenbank NB SB	57.0 69.5	0	40	56.82	49.61
4	19	Greenbank NB SB	66.5 79.0	0	30	54.66	47.48
7	39	Greenbank NB SB	26.0 38.5	-85	85	67.16	59.84
8	40	Greenbank NB SB	23.0 35.5	-90	90	67.97	60.63
8	41	Greenbank NB SB	29.0 41.5	0	80	63.37	56.06
8	45	Greenbank NB SB	53.0 65.5	0	40	57.29	50.07
9	46	Greenbank NB SB	66.5 79.0	0	30	54.66	47.48
12	67	Greenbank NB SB Dundonald	25.5 38.0 17.0	-80 -80 -90	90 90 90	68.08	60.73
12	66	Greenbank NB SB Dundonald	31.5 44.0 18.0	0 0 -90	85 85 90	64.74	57.40
11	57	Greenbank NB SB Dundonald	90.0 102.5 17.0	0 0 -90	30 30 90	61.12	53.69

As indicated in Table 3.2 the recommended sound levels are exceeded for the majority of the locations.

TABLE 3.3
UNATTENUATED DAYTIME NOISE LEVELS AT OLA

Location		Roadway	Distance	Left Angle	Right Angle	Daytime Noise (dBA)
Block	Unit					
2	12	Greenbank NB SB	20.5 33.0	-85	90	68.56
1	5	Greenbank NB SB	66.5 79.0	-50	4	56.78
1	4	Greenbank NB SB	72.5 85.0	-45	4	55.85
3	13	Greenbank NB SB	27.0 39.5	-80	85	66.74
3	16	Greenbank NB SB	45.0 57.5	-10	47	59.69
3	17	Greenbank NB SB	51.0 63.5	-7	35	57.66
7	35	Greenbank NB SB	46.0 58.0	-50	0	58.90
7	39	Greenbank NB SB	46.0 58.5	0	45	58.49
8	40	Greenbank NB SB	23.0 35.5	-90	90	67.85
8	42	Greenbank NB SB	35.0 47.5	-13	65	62.42
12	67	Greenbank NB SB	25.5 38.0	-80	90	67.12
12	66	Greenbank NB SB	31.5 43.0	-65	20	63.57
12	65	Greenbank NB SB	37.5 49.0	-50	12	61.27

As indicated in Table 3.3 the recommended sound levels are exceeded for the majority of the locations.

4. ABATEMENT MEASURES

4.1 Outdoor Sound Levels

The outdoor noise level in the majority of lots exceeds 60 dBA, requiring physical attenuation. On the noise plan a 2.5 m high noise barrier is proposed adjacent to Greenbank Road. Attenuated noise levels are shown in Table 4.1.

TABLE 4.1
ATTENUATED DAYTIME NOISE LEVELS AT OLA

Location		Roadway	Distance Barrier to Receiver	Left Barrier Angle	Right Barrier Angle	Daytime Noise (dBA)
Block	Unit					
2	12	Greenbank	7.7	-85	90	59.97
1	5	Greenbank	53.7	-12	4	55.46
1	4	Greenbank	59.7	-11	4	54.52
3	13	Greenbank	6.5	-80	85	59.85
3	16	Greenbank	24.5	-10	35	55.55
3	17	Greenbank	30.5	-7	35	53.91
7	35	Greenbank	26.0	-50	-20	56.57
8	40	Greenbank	10.0	-90	90	59.85
8	42	Greenbank	22.0	-13	65	54.53
12	67	Greenbank	12.5	-80	90	59.33
12	66	Greenbank	18.5	-65	20	55.45
12	65	Greenbank	24.5	-50	12	53.36

Sound levels for the majority of units are reduced below 60 dBA but remain above 55 dBA, requiring a warning clause. It is impractical to reduce the noise levels below 55 dBA as it would require noise barriers in excess of 4 meters in height.

4.2 Indoor Sound Levels

At the units directly adjacent to Greenbank Road, the noise levels at the building face exceed 65 dBA daytime requiring central air conditioning, a review of the building components and a type ‘D’ warning clause. At other locations, where the daytime noise is greater than 60 dBA and/or 55 dBA nighttime, alternative means of ventilation are required as well as a type ‘C’ warning clause in the Agreement of Purchase and Sale.

Building components are to be reviewed to determine the sound insulation requirements using the Acoustic Insulation Factor (AIF) method. The AIF method is detailed in the Central Mortgage and Housing Corporation (CMHC) manual “Road and Rail Effects on Housing” and is included in the appendix. In this method, using the architectural drawings for each housing unit, an AIF is determined for each room exposed to the noise. Based on the area of the floors, walls, windows and doors, a required standard of wall, window and door construction is determined.

Block 12 Unit 1, adjacent to Greenbank Road, for example, has a daytime noise level of 68.67 at the living room. Assuming the living room has one exterior wall and one exterior window, the required AIF for a living room with two components is 34 for 69 dBA from Table 6.1 in the appendix. The area of window is compared to the floor area for the room to determine the percentage, then, using Table 6.2 in the appendix, the type of window is determined. Further to the example, if the percentage of window to floor is 16% and the AIF is 34, then Table 6.2 requires a W1-W1 window,

which is composed of two panes of 18 oz. glass separated by 0.8 to 1.5 inches. As each room in each house will have a different percentage of window, door and exterior wall in relation to the floor area, it is not possible to specify which components are required for the building at this stage, but only to require that a building component review is to be undertaken.

5. SUMMARY OF ATTENUATION MEASURES

5.1 Warning Clauses

A clause regarding noise must appear on the Agreement of Purchase and Sale on the title of the lots and townhouse units indicated on Table 5.1 and on the noise plan drawing No. S-N.

TABLE 5.1
WARNING CLAUSE REQUIREMENTS
STONEBRIDGE PHASES 11 & 12

Location			Warning Clause	Provision for Central Air	Central Air Required	Bldg. Component Review Required
Street	**Block**	**Unit**				
Kennacraig Private	2 3 7 8	12 13 35 40	B, D	N/A	Yes	Yes
Kennacraig Private	7	39	A, D	N/A	Yes	Yes
Dundonald Drive	12	67	B, D	N/A	Yes	Yes
Kennacraig Private	7	36-38	D	N/A	Yes	Yes
Kennacraig Private	1 2 3 8	5-6 7-11 14-16 8	B, C	Yes	No	No
Dundonald Drive	12	66	B, C	Yes	No	No
Kennacraig Private	1 3 8	4 17-18 42-45	C	Yes	No	No
Dundonald Drive	11 12	57-62 63-65	C	Yes	No	No

The following warning clauses are taken from Table 1.13 of the guidelines:

Type A	"Purchasers/tenants are advised that sound levels due to increasing Greenbank Road traffic may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the City's and Ministry of the Environments noise criteria."
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 Greenbank Road traffic may on occasion interfere with some activities of the dwelling occupants as the sound levels exceed the City's and the Ministry of the Environment's noise criteria."
Type C	"This dwelling unit has been fitted with a forced air heating system and the ducting, etc. was sized to accommodate central air conditioning. Installation of central air conditioning by the occupant will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the City's and the Ministry of the Environment's noise criteria. (Note: The location and installation of the outdoor air conditioning device should be done so as to comply with noise criteria of MOE Publication NPS-216, Residential Air Conditioning Devices and thus minimize the noise impacts both on and in the immediate vicinity of the subject property."
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 City's and the Ministry of the Environment's noise criteria."

5.2 Air Conditioning and Building Components

Mandatory central air conditioning and an acoustical review of building components (windows, walls, doors) is required at the locations indicated on Table 5.1 and on the Noise Plan.

5.3 Noise Barrier

A 2.5 m high noise barrier constructed to current City of Ottawa and MOE standards is required at the locations shown on the Noise Plan.

Prepared by:

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Associate

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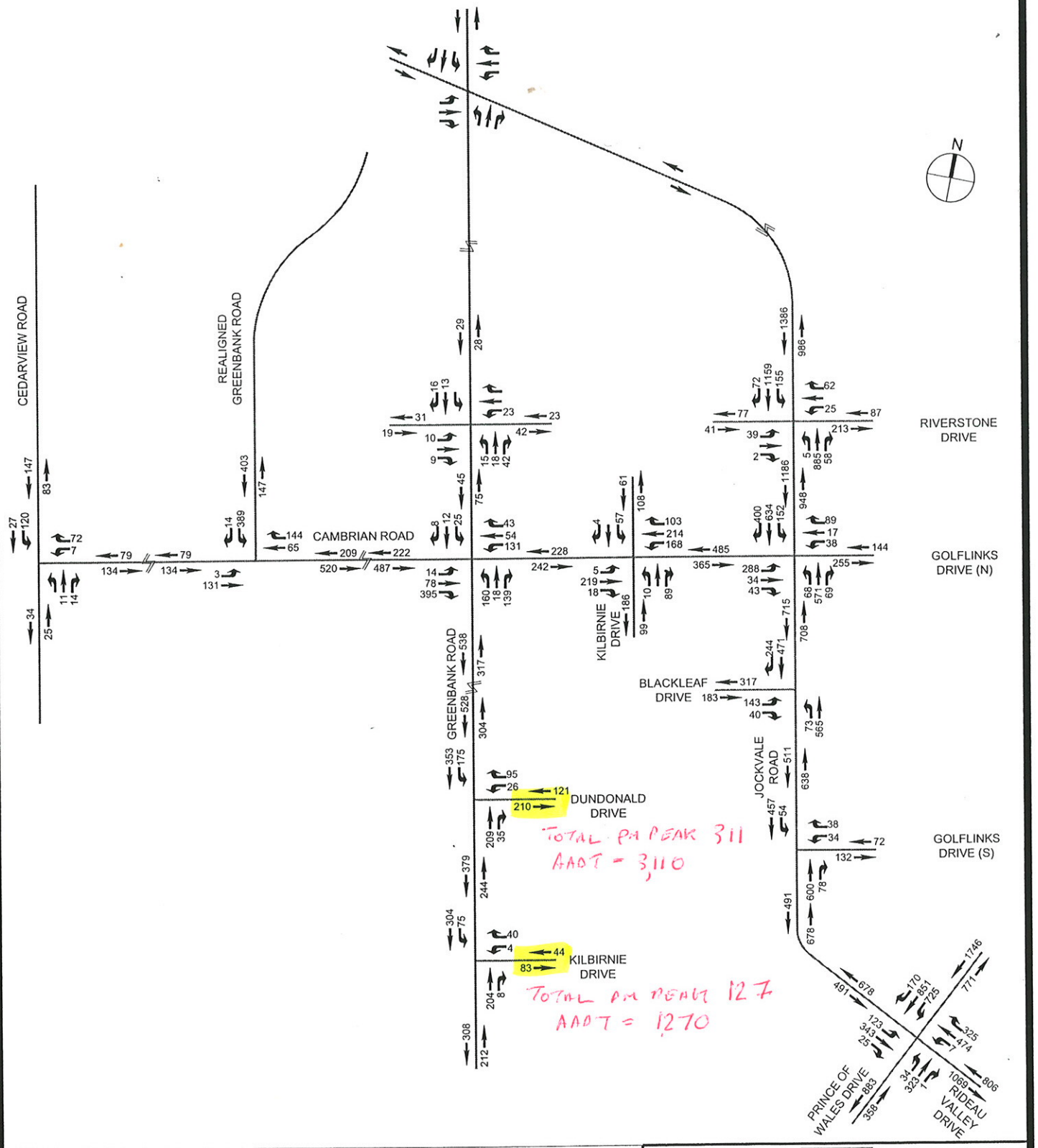
APPENDIX



IBI GROUP

STONEBRIDGE GOLF COMMUNITY
PHASES 10 TO 12
TRANSPORTATION IMPACT STUDY
FUTURE (2018) BACKGROUND PLUS SITE GENERATED TRAFFIC PM PEAK HOUR

DATE	SCALE	DWG. NO.
11-07-07	N.T.S.	8B

J:\15056\5.9 Drawings\59civil\current\TIV_stonebridge_11-07-07.dwg Layout Name: Layout-8B Plot Style: AIA STANDARD-HALF.CTB Plot Scale: 1:1 Plotted At: 8/1/2007 2:22 PM Last Saved By: tyler.shannon Last Saved At: Jul. 23, 07

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STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 19:46:00
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2u12in.te           Time Period: Day/Night 16/8 hours
Description: Block 2 Unit 12 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
----------------------------------------------
Angle1   Angle2           : -85.00 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           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
----------------------------------------------
Angle1   Angle2           : -85.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 67.03 + 0.00) = 67.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.63	70.67	0.00	-2.21	-1.43	0.00	0.00	0.00	67.03

Segment Leq : 67.03 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 63.65 + 0.00) = 63.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.63	70.67	0.00	-5.58	-1.43	0.00	0.00	0.00	63.65

Segment Leq : 63.65 dBA

Total Leq All Segments: 68.67 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 59.61 + 0.00) = 59.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.57	63.07	0.00	-2.13	-1.33	0.00	0.00	0.00	59.61

Segment Leq : 59.61 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 56.36 + 0.00) = 56.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.57	63.07	0.00	-5.38	-1.33	0.00	0.00	0.00	56.36

Segment Leq : 56.36 dBA

Total Leq All Segments: 61.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.67
(NIGHT): 61.29

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STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 20:43:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2ullin.te           Time Period: Day/Night 16/8 hours
Description: Block 2 Unit 11 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -82.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  26.50 / 26.50  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -82.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  39.00 / 39.00  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 62.12 + 0.00) = 62.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	0	0.63	70.67	0.00	-4.03	-4.51	0.00	0.00	0.00	62.12

Segment Leq : 62.12 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 59.39 + 0.00) = 59.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	0	0.63	70.67	0.00	-6.76	-4.51	0.00	0.00	0.00	59.39

Segment Leq : 59.39 dBA

Total Leq All Segments: 63.98 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 54.77 + 0.00) = 54.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-82	0	0.57	63.07	0.00	-3.88	-4.42	0.00	0.00	0.00	54.77

Segment Leq : 54.77 dBA

Results segment # 2: Greenbank SB (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
-82	0	0.57	63.07	0.00	-6.52	-4.42	0.00	0.00	0.00	52.13

Segment Leq : 52.13 dBA

Total Leq All Segments: 56.66 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.98
(NIGHT): 56.66

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STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 20:48:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b1u3in.te            Time Period: Day/Night 16/8 hours
Description: Block 1 Unit 3 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -40.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  78.50 / 78.50  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00

Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -40.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  91.00 / 91.00  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 52.19 + 0.00) = 52.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	0	0.63	70.67	0.00	-11.72	-6.76	0.00	0.00	0.00	52.19

Segment Leq : 52.19 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 51.14 + 0.00) = 51.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	0	0.63	70.67	0.00	-12.76	-6.76	0.00	0.00	0.00	51.14

Segment Leq : 51.14 dBA

Total Leq All Segments: 54.71 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 45.04 + 0.00) = 45.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	0	0.57	63.07	0.00	-11.29	-6.74	0.00	0.00	0.00	45.04

Segment Leq : 45.04 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 44.04 + 0.00) = 44.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-40	0	0.57	63.07	0.00	-12.29	-6.74	0.00	0.00	0.00	44.04

Segment Leq : 44.04 dBA

Total Leq All Segments: 47.58 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.71
(NIGHT): 47.58

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 20:50:59
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3ul3in.te           Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 13 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
----------------------------------------------
Angle1   Angle2           : -80.00 deg   85.00 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           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
----------------------------------------------
Angle1   Angle2           : -80.00 deg   85.00 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           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 65.01 + 0.00) = 65.01 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.63	70.67	0.00	-4.16	-1.50	0.00	0.00	0.00	65.01

Segment Leq : 65.01 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 62.31 + 0.00) = 62.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.63	70.67	0.00	-6.85	-1.50	0.00	0.00	0.00	62.31

Segment Leq : 62.31 dBA

Total Leq All Segments: 66.88 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 57.65 + 0.00) = 57.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.57	63.07	0.00	-4.01	-1.41	0.00	0.00	0.00	57.65

Segment Leq : 57.65 dBA

Results segment # 2: Greenbank SB (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
-80	85	0.57	63.07	0.00	-6.60	-1.41	0.00	0.00	0.00	55.06

Segment Leq : 55.06 dBA

Total Leq All Segments: 59.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.88
(NIGHT): 59.56

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 20:55:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3u14in.te              Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 14 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   75.00 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           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   75.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.50 / 45.50  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 60.40 + 0.00) = 60.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.63	70.67	0.00	-5.58	-4.69	0.00	0.00	0.00	60.40

Segment Leq : 60.40 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 58.12 + 0.00) = 58.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.63	70.67	0.00	-7.86	-4.69	0.00	0.00	0.00	58.12

Segment Leq : 58.12 dBA

Total Leq All Segments: 62.42 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 53.08 + 0.00) = 53.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.57	63.07	0.00	-5.38	-4.61	0.00	0.00	0.00	53.08

Segment Leq : 53.08 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 50.89 + 0.00) = 50.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	75	0.57	63.07	0.00	-7.57	-4.61	0.00	0.00	0.00	50.89

Segment Leq : 50.89 dBA

Total Leq All Segments: 55.13 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.42
(NIGHT): 55.13

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 20:59:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3u18in.te             Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 18 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  57.00 / 57.00  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  69.50 / 69.50  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 54.45 + 0.00) = 54.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.63	70.67	0.00	-9.45	-6.76	0.00	0.00	0.00	54.45

Segment Leq : 54.45 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 53.05 + 0.00) = 53.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.63	70.67	0.00	-10.85	-6.76	0.00	0.00	0.00	53.05

Segment Leq : 53.05 dBA

Total Leq All Segments: 56.82 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 47.23 + 0.00) = 47.23 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	-9.10	-6.74	0.00	0.00	0.00	47.23

Segment Leq : 47.23 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 45.87 + 0.00) = 45.87 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	-10.46	-6.74	0.00	0.00	0.00	45.87

Segment Leq : 45.87 dBA

Total Leq All Segments: 49.61 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.82
(NIGHT): 49.61

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 21:01:44
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b4u19in.te Time Period: Day/Night 16/8 hours
Description: Block 4 Unit 19 indoor

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: 0.00 deg	30.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 66.50 / 66.50	m
Receiver height	: 2.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: 0.00 deg	30.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 79.00 / 79.00	m
Receiver height	: 2.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 52.21 + 0.00) = 52.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.63	70.67	0.00	-10.54	-7.91	0.00	0.00	0.00	52.21

Segment Leq : 52.21 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 51.00 + 0.00) = 51.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.63	70.67	0.00	-11.76	-7.91	0.00	0.00	0.00	51.00

Segment Leq : 51.00 dBA

Total Leq All Segments: 54.66 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 45.02 + 0.00) = 45.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.57	63.07	0.00	-10.15	-7.90	0.00	0.00	0.00	45.02

Segment Leq : 45.02 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 43.84 + 0.00) = 43.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.57	63.07	0.00	-11.33	-7.90	0.00	0.00	0.00	43.84

Segment Leq : 43.84 dBA

Total Leq All Segments: 47.48 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.66
(NIGHT): 47.48

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 21:12:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b7u39in.te           Time Period: Day/Night 16/8 hours
Description: Block 7 Unit 39 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
----------------------------------------------
Angle1   Angle2           : -85.00 deg   85.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  38.50 / 38.50  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
----------------------------------------------
Angle1   Angle2           : -85.00 deg   85.00 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           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 62.54 + 0.00) = 62.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	85	0.63	70.67	0.00	-6.67	-1.45	0.00	0.00	0.00	62.54

Segment Leq : 62.54 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 65.32 + 0.00) = 65.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	85	0.63	70.67	0.00	-3.89	-1.45	0.00	0.00	0.00	65.32

Segment Leq : 65.32 dBA

Total Leq All Segments: 67.16 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 55.29 + 0.00) = 55.29 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	85	0.57	63.07	0.00	-6.43	-1.36	0.00	0.00	0.00	55.29

Segment Leq : 55.29 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 57.96 + 0.00) = 57.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	85	0.57	63.07	0.00	-3.75	-1.36	0.00	0.00	0.00	57.96

Segment Leq : 57.96 dBA

Total Leq All Segments: 59.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.16
(NIGHT): 59.84

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 21:14:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u40in.te           Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 40 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  23.00 / 23.00  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  35.50 / 35.50  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 66.23 + 0.00) = 66.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	70.67	0.00	-3.03	-1.41	0.00	0.00	0.00	66.23

Segment Leq : 66.23 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 63.16 + 0.00) = 63.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	70.67	0.00	-6.10	-1.41	0.00	0.00	0.00	63.16

Segment Leq : 63.16 dBA

Total Leq All Segments: 67.97 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 58.85 + 0.00) = 58.85 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	-2.91	-1.30	0.00	0.00	0.00	58.85

Segment Leq : 58.85 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 55.89 + 0.00) = 55.89 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	-5.87	-1.30	0.00	0.00	0.00	55.89

Segment Leq : 55.89 dBA

Total Leq All Segments: 60.63 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.97
(NIGHT): 60.63

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 21:16:01
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u41in.te              Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 41 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   80.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  29.00 / 29.00  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   80.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  41.50 / 41.50  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 61.44 + 0.00) = 61.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.63	70.67	0.00	-4.67	-4.56	0.00	0.00	0.00	61.44

Segment Leq : 61.44 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 58.91 + 0.00) = 58.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.63	70.67	0.00	-7.20	-4.56	0.00	0.00	0.00	58.91

Segment Leq : 58.91 dBA

Total Leq All Segments: 63.37 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 54.10 + 0.00) = 54.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.57	63.07	0.00	-4.50	-4.47	0.00	0.00	0.00	54.10

Segment Leq : 54.10 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 51.66 + 0.00) = 51.66 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	80	0.57	63.07	0.00	-6.94	-4.47	0.00	0.00	0.00	51.66

Segment Leq : 51.66 dBA

Total Leq All Segments: 56.06 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.37
(NIGHT): 56.06

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 21:21:17
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u45in.te              Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 45 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  53.00 / 53.00  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  65.50 / 65.50  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

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
0	40	0.63	70.67	0.00	-8.94	-6.76	0.00	0.00	0.00	54.97

Segment Leq : 54.97 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 53.47 + 0.00) = 53.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	40	0.63	70.67	0.00	-10.44	-6.76	0.00	0.00	0.00	53.47

Segment Leq : 53.47 dBA

Total Leq All Segments: 57.29 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 47.72 + 0.00) = 47.72 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	-8.61	-6.74	0.00	0.00	0.00	47.72

Segment Leq : 47.72 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 46.28 + 0.00) = 46.28 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	-10.05	-6.74	0.00	0.00	0.00	46.28

Segment Leq : 46.28 dBA

Total Leq All Segments: 50.07 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.29
(NIGHT): 50.07

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 21:22:19
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b9u46in.te           Time Period: Day/Night 16/8 hours
Description: Block 9 Unit 46 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  66.50 / 66.50  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  79.00 / 79.00  m
Receiver height           :   2.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 52.21 + 0.00) = 52.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.63	70.67	0.00	-10.54	-7.91	0.00	0.00	0.00	52.21

Segment Leq : 52.21 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 51.00 + 0.00) = 51.00 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.63	70.67	0.00	-11.76	-7.91	0.00	0.00	0.00	51.00

Segment Leq : 51.00 dBA

Total Leq All Segments: 54.66 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 45.02 + 0.00) = 45.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.57	63.07	0.00	-10.15	-7.90	0.00	0.00	0.00	45.02

Segment Leq : 45.02 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 43.84 + 0.00) = 43.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.57	63.07	0.00	-11.33	-7.90	0.00	0.00	0.00	43.84

Segment Leq : 43.84 dBA

Total Leq All Segments: 47.48 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.66
(NIGHT): 47.48

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 21:28:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u67in.te          Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 67 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.50 / 25.50  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   90.00 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           :   2.50 / 4.50   m
```

```
Topography                  :      1       (Flat/gentle slope; no barrier)
Reference angle             :   0.00

Road data, segment # 3: Dundonald (day/night)
-------------------------------------------
Car traffic volume  :  3239/282   veh/TimePeriod  *
Medium truck volume :   258/22    veh/TimePeriod  *
Heavy truck volume  :   184/16    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4001
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Dundonald (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    :  17.00 / 17.00  m
Receiver height             :   2.50 / 4.50   m
Topography                  :      1       (Flat/gentle slope; no barrier)
Reference angle             :   0.00

Results segment # 1: Greenbank NB (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 65.43 + 0.00) = 65.43 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80     90   0.63  70.67   0.00  -3.76  -1.48   0.00   0.00   0.00  65.43
-------------------------------------------------------------------------------

Segment Leq : 65.43 dBA

Results segment # 2: Greenbank SB (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 62.61 + 0.00) = 62.61 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -80     90   0.63  70.67   0.00  -6.58  -1.48   0.00   0.00   0.00  62.61
-------------------------------------------------------------------------------

Segment Leq : 62.61 dBA
```

Results segment # 3: Dundonald (day)

Source height = 1.50 m

ROAD (0.00 + 60.45 + 0.00) = 60.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	62.74	0.00	-0.89	-1.41	0.00	0.00	0.00	60.45

Segment Leq : 60.45 dBA

Total Leq All Segments: 68.08 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 58.07 + 0.00) = 58.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.57	63.07	0.00	-3.62	-1.38	0.00	0.00	0.00	58.07

Segment Leq : 58.07 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 55.35 + 0.00) = 55.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.57	63.07	0.00	-6.34	-1.38	0.00	0.00	0.00	55.35

Segment Leq : 55.35 dBA

Results segment # 3: Dundonald (night)

Source height = 1.50 m

ROAD (0.00 + 52.97 + 0.00) = 52.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	55.13	0.00	-0.85	-1.30	0.00	0.00	0.00	52.97

Segment Leq : 52.97 dBA

Total Leq All Segments: 60.73 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.08
(NIGHT): 60.73

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 21:30:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u66in.te           Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 66 indoor

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   85.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  31.50 / 31.50  m
Receiver height           :   2.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           :   0.00 deg   85.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  44.00 / 44.00  m
Receiver height           :   2.50 / 4.50   m
```

```
Topography                  :      1       (Flat/gentle slope; no barrier)
Reference angle             :   0.00

Road data, segment # 3: Dundonald (day/night)
-------------------------------------------
Car traffic volume  :  3239/282   veh/TimePeriod  *
Medium truck volume :   258/22    veh/TimePeriod  *
Heavy truck volume  :   184/16    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4001
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Dundonald (day/night)
-------------------------------------------
Angle1   Angle2             : -90.00 deg   90.00 deg
Wood depth                  :      0       (No woods.)
No of house rows            :      0 / 0
Surface                     :      1       (Absorptive ground surface)
Receiver source distance    :  18.00 / 18.00  m
Receiver height             :   2.50 / 4.50   m
Topography                  :      1       (Flat/gentle slope; no barrier)
Reference angle             :   0.00

Results segment # 1: Greenbank NB (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 60.95 + 0.00) = 60.95 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     85   0.63  70.67   0.00  -5.25  -4.46   0.00   0.00   0.00  60.95
-------------------------------------------------------------------------------

Segment Leq : 60.95 dBA

Results segment # 2: Greenbank SB (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 58.59 + 0.00) = 58.59 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     85   0.63  70.67   0.00  -7.62  -4.46   0.00   0.00   0.00  58.59
-------------------------------------------------------------------------------

Segment Leq : 58.59 dBA
```

Results segment # 3: Dundonald (day)

Source height = 1.50 m

ROAD (0.00 + 60.04 + 0.00) = 60.04 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	62.74	0.00	-1.29	-1.41	0.00	0.00	0.00	60.04

Segment Leq : 60.04 dBA

Total Leq All Segments: 64.74 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 53.64 + 0.00) = 53.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	85	0.57	63.07	0.00	-5.06	-4.37	0.00	0.00	0.00	53.64

Segment Leq : 53.64 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 51.37 + 0.00) = 51.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	85	0.57	63.07	0.00	-7.34	-4.37	0.00	0.00	0.00	51.37

Segment Leq : 51.37 dBA

Results segment # 3: Dundonald (night)

Source height = 1.50 m

ROAD (0.00 + 52.58 + 0.00) = 52.58 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	55.13	0.00	-1.24	-1.30	0.00	0.00	0.00	52.58

Segment Leq : 52.58 dBA

Total Leq All Segments: 57.40 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 64.74
(NIGHT): 57.40

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 21:34:39
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b11u57in.te Time Period: Day/Night 16/8 hours
Description: Block 11 Unit 57 indoor

Road data, segment # 1: Greenbank 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 : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Angle1 Angle2 : 0.00 deg 30.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 90.00 / 90.00 m
Receiver height : 2.50 / 4.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00
Road data, segment # 2: Greenbank 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 : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Angle1 Angle2 : 0.00 deg 30.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 102.50 / 102.50 m
Receiver height : 2.50 / 4.50 m

```
Topography                  :      1       (Flat/gentle slope; no barrier)
Reference angle             :   0.00

Road data, segment # 3: Dundonald (day/night)
----------------------------------------------
Car traffic volume  :  3239/282   veh/TimePeriod  *
Medium truck volume :   258/22    veh/TimePeriod  *
Heavy truck volume  :   184/16    veh/TimePeriod  *
Posted speed limit  :    50 km/h
Road gradient       :     1 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):   4001
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 3: Dundonald (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    :  17.00 / 17.00  m
Receiver height             :   2.50 / 4.50   m
Topography                  :      1       (Flat/gentle slope; no barrier)
Reference angle             :   0.00

Results segment # 1: Greenbank NB (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 50.07 + 0.00) = 50.07 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     30   0.63  70.67   0.00 -12.68  -7.91   0.00   0.00   0.00  50.07
-------------------------------------------------------------------------------

Segment Leq : 50.07 dBAResults segment # 2: Greenbank SB (day)


---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.15 + 0.00) = 49.15 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
     0     30   0.63  70.67   0.00 -13.61  -7.91   0.00   0.00   0.00  49.15
-------------------------------------------------------------------------------

Segment Leq : 49.15 dBA
```

Results segment # 3: Dundonald (day)

Source height = 1.50 m

ROAD (0.00 + 60.45 + 0.00) = 60.45 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.63	62.74	0.00	-0.89	-1.41	0.00	0.00	0.00	60.45

Segment Leq : 60.45 dBA

Total Leq All Segments: 61.12 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 42.95 + 0.00) = 42.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.57	63.07	0.00	-12.22	-7.90	0.00	0.00	0.00	42.95

Segment Leq : 42.95 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 42.07 + 0.00) = 42.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	30	0.57	63.07	0.00	-13.10	-7.90	0.00	0.00	0.00	42.07

Segment Leq : 42.07 dBA

Results segment # 3: Dundonald (night)

Source height = 1.50 m

ROAD (0.00 + 52.97 + 0.00) = 52.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	55.13	0.00	-0.85	-1.30	0.00	0.00	0.00	52.97

Segment Leq : 52.97 dBA

Total Leq All Segments: 53.69 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.12
(NIGHT): 53.69

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 14:05:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2ul2ola.te          Time Period: Day/Night 16/8 hours
Description: Block 2 Unit 12 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -85.00 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
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -85.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  33.00 / 33.00  m
Receiver height           :   1.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 66.94 + 0.00) = 66.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.66	70.67	0.00	-2.25	-1.48	0.00	0.00	0.00	66.94

Segment Leq : 66.94 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 63.50 + 0.00) = 63.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.66	70.67	0.00	-5.68	-1.48	0.00	0.00	0.00	63.50

Segment Leq : 63.50 dBA

Total Leq All Segments: 68.56 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 59.61 + 0.00) = 59.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.57	63.07	0.00	-2.13	-1.33	0.00	0.00	0.00	59.61

Segment Leq : 59.61 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 56.36 + 0.00) = 56.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.57	63.07	0.00	-5.38	-1.33	0.00	0.00	0.00	56.36

Segment Leq : 56.36 dBA

Total Leq All Segments: 61.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.56
(NIGHT): 61.29

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:08:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2u5ola.te Time Period: Day/Night 16/8 hours
Description: Block 1 Unit 5 OLA

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -50.00 deg	4.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 66.50 / 66.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -50.00 deg	4.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 79.00 / 79.00	m
Receiver height	: 1.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 54.35 + 0.00) = 54.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	4	0.66	70.67	0.00	-10.74	-5.58	0.00	0.00	0.00	54.35

Segment Leq : 54.35 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 53.11 + 0.00) = 53.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	4	0.66	70.67	0.00	-11.98	-5.58	0.00	0.00	0.00	53.11

Segment Leq : 53.11 dBA

Total Leq All Segments: 56.78 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 47.38 + 0.00) = 47.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	4	0.57	63.07	0.00	-10.15	-5.53	0.00	0.00	0.00	47.38

Segment Leq : 47.38 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 46.21 + 0.00) = 46.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	4	0.57	63.07	0.00	-11.33	-5.53	0.00	0.00	0.00	46.21

Segment Leq : 46.21 dBA

Total Leq All Segments: 49.84 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.78
(NIGHT): 49.84

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:21:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2u4ola.te Time Period: Day/Night 16/8 hours
Description: Block 1 Unit 4 OLA

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -45.00 deg	4.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 72.50 / 72.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -45.00 deg	4.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 85.00 / 85.00	m
Receiver height	: 1.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 53.38 + 0.00) = 53.38 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	4	0.66	70.67	0.00	-11.36	-5.93	0.00	0.00	0.00	53.38

Segment Leq : 53.38 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 52.23 + 0.00) = 52.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	4	0.66	70.67	0.00	-12.51	-5.93	0.00	0.00	0.00	52.23

Segment Leq : 52.23 dBA

Total Leq All Segments: 55.85 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 46.43 + 0.00) = 46.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	4	0.57	63.07	0.00	-10.74	-5.89	0.00	0.00	0.00	46.43

Segment Leq : 46.43 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 45.35 + 0.00) = 45.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	4	0.57	63.07	0.00	-11.83	-5.89	0.00	0.00	0.00	45.35

Segment Leq : 45.35 dBA

Total Leq All Segments: 48.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.85
(NIGHT): 48.93

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 14:25:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3u15bar.te           Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 13 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
----------------------------------------------
Angle1   Angle2           : -80.00 deg   85.00 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
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
----------------------------------------------
Angle1   Angle2           : -80.00 deg   85.00 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

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 64.89 + 0.00) = 64.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.66	70.67	0.00	-4.24	-1.54	0.00	0.00	0.00	64.89

Segment Leq : 64.89 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 62.14 + 0.00) = 62.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.66	70.67	0.00	-6.98	-1.54	0.00	0.00	0.00	62.14

Segment Leq : 62.14 dBA

Total Leq All Segments: 66.74 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 57.65 + 0.00) = 57.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.57	63.07	0.00	-4.01	-1.41	0.00	0.00	0.00	57.65

Segment Leq : 57.65 dBA

Results segment # 2: Greenbank SB (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
-80	85	0.57	63.07	0.00	-6.60	-1.41	0.00	0.00	0.00	55.06

Segment Leq : 55.06 dBA

Total Leq All Segments: 59.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.74
(NIGHT): 59.56

```
STAMSON 5.0         NORMAL REPORT         Date: 02-08-2010 14:30:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3u12bar.te           Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 16 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -10.00 deg   47.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  45.00 / 45.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -10.00 deg   47.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  57.50 / 57.50  m
Receiver height           :   1.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 57.47 + 0.00) = 57.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	47	0.66	70.67	0.00	-7.92	-5.27	0.00	0.00	0.00	57.47

Segment Leq : 57.47 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 55.71 + 0.00) = 55.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	47	0.66	70.67	0.00	-9.69	-5.27	0.00	0.00	0.00	55.71

Segment Leq : 55.71 dBA

Total Leq All Segments: 59.69 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 50.34 + 0.00) = 50.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	47	0.57	63.07	0.00	-7.49	-5.23	0.00	0.00	0.00	50.34

Segment Leq : 50.34 dBA
Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 48.67 + 0.00) = 48.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	47	0.57	63.07	0.00	-9.16	-5.23	0.00	0.00	0.00	48.67

Segment Leq : 48.67 dBA

Total Leq All Segments: 52.60 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.69
(NIGHT): 52.60

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:33:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3u11bar.te Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 17 OLA

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -7.00 deg	35.00 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	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -7.00 deg	35.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 63.50 / 63.50	m
Receiver height	: 1.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 55.37 + 0.00) = 55.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	35	0.66	70.67	0.00	-8.82	-6.47	0.00	0.00	0.00	55.37

Segment Leq : 55.37 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 53.79 + 0.00) = 53.79 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	35	0.66	70.67	0.00	-10.40	-6.47	0.00	0.00	0.00	53.79

Segment Leq : 53.79 dBA

Total Leq All Segments: 57.66 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 48.27 + 0.00) = 48.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	35	0.57	63.07	0.00	-8.34	-6.45	0.00	0.00	0.00	48.27

Segment Leq : 48.27 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 46.78 + 0.00) = 46.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	35	0.57	63.07	0.00	-9.84	-6.45	0.00	0.00	0.00	46.78

Segment Leq : 46.78 dBA

Total Leq All Segments: 50.60 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 57.66
(NIGHT): 50.60

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:37:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b7u35bar.te Time Period: Day/Night 16/8 hours
Description: Block 7 Unit 35 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  46.00 / 46.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)
```

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

```
    24 hr Traffic Volume (AADT or SADT):  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: Greenbank 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  :  58.00 / 58.00  m
Receiver height           :   1.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 56.64 + 0.00) = 56.64 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	-8.08	-5.94	0.00	0.00	0.00	56.64

Segment Leq : 56.64 dBA

Results segment # 2: Greenbank SB (day)

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
-50	0	0.66	70.67	0.00	-9.75	-5.94	0.00	0.00	0.00	54.97

Segment Leq : 54.97 dBA

Total Leq All Segments: 58.90 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 49.53 + 0.00) = 49.53 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	-7.64	-5.89	0.00	0.00	0.00	49.53

Segment Leq : 49.53 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 47.95 + 0.00) = 47.95 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	-9.22	-5.89	0.00	0.00	0.00	47.95

Segment Leq : 47.95 dBA

Total Leq All Segments: 51.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.90
(NIGHT): 51.82

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:39:05
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b7u39ola.te Time Period: Day/Night 16/8 hours
Description: Block 7 Unit 39 OLA

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: 0.00 deg	45.00 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	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: 0.00 deg	45.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 58.50 / 58.50	m
Receiver height	: 1.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 56.26 + 0.00) = 56.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.66	70.67	0.00	-8.08	-6.33	0.00	0.00	0.00	56.26

Segment Leq : 56.26 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 54.53 + 0.00) = 54.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.66	70.67	0.00	-9.81	-6.33	0.00	0.00	0.00	54.53

Segment Leq : 54.53 dBA

Total Leq All Segments: 58.49 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 49.14 + 0.00) = 49.14 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.57	63.07	0.00	-7.64	-6.29	0.00	0.00	0.00	49.14

Segment Leq : 49.14 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 47.50 + 0.00) = 47.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	45	0.57	63.07	0.00	-9.28	-6.29	0.00	0.00	0.00	47.50

Segment Leq : 47.50 dBA

Total Leq All Segments: 51.41 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 58.49
(NIGHT): 51.41

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:44:13
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u40bar.te Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 40 OLA
Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	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: Greenbank 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	: 23.00 / 20.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	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: Greenbank 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	: 35.50 / 33.00	m
Receiver height	: 1.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 66.13 + 0.00) = 66.13 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	-3.08	-1.46	0.00	0.00	0.00	66.13

Segment Leq : 66.13 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 63.00 + 0.00) = 63.00 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	-6.21	-1.46	0.00	0.00	0.00	63.00

Segment Leq : 63.00 dBA

Total Leq All Segments: 67.85 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m
ROAD (0.00 + 59.64 + 0.00) = 59.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-2.13	-1.30	0.00	0.00	0.00	59.64

Segment Leq : 59.64 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 56.39 + 0.00) = 56.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.57	63.07	0.00	-5.38	-1.30	0.00	0.00	0.00	56.39

Segment Leq : 56.39 dBA

Total Leq All Segments: 61.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.85
(NIGHT): 61.32

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:47:38
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u42bar.te Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 42 OLA

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -13.00 deg	65.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 35.00 / 35.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 1	(Flat/gentle slope; no barrier)
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -13.00 deg	65.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 47.50 / 47.50	m
Receiver height	: 1.50 / 4.50	m

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (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
-13	65	0.66	70.67	0.00	-6.11	-4.19	0.00	0.00	0.00	60.37

Segment Leq : 60.37 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 58.17 + 0.00) = 58.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.66	70.67	0.00	-8.31	-4.19	0.00	0.00	0.00	58.17

Segment Leq : 58.17 dBA

Total Leq All Segments: 62.42 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 53.17 + 0.00) = 53.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.57	63.07	0.00	-5.78	-4.12	0.00	0.00	0.00	53.17

Segment Leq : 53.17 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 51.09 + 0.00) = 51.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.57	63.07	0.00	-7.86	-4.12	0.00	0.00	0.00	51.09

Segment Leq : 51.09 dBA

Total Leq All Segments: 55.26 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.42
(NIGHT): 55.26

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 14:54:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u67ba.te          Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 67 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   90.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  25.50 / 25.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -80.00 deg   90.00 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

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 65.32 + 0.00) = 65.32 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.66	70.67	0.00	-3.83	-1.52	0.00	0.00	0.00	65.32

Segment Leq : 65.32 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 62.44 + 0.00) = 62.44 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.66	70.67	0.00	-6.70	-1.52	0.00	0.00	0.00	62.44

Segment Leq : 62.44 dBA

Total Leq All Segments: 67.12 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 58.07 + 0.00) = 58.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.57	63.07	0.00	-3.62	-1.38	0.00	0.00	0.00	58.07

Segment Leq : 58.07 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 55.35 + 0.00) = 55.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.57	63.07	0.00	-6.34	-1.38	0.00	0.00	0.00	55.35

Segment Leq : 55.35 dBA

Total Leq All Segments: 59.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.12
(NIGHT): 59.93

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 14:57:47
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u66ba.te          Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 66 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
-----------------------------------------------
Angle1   Angle2           : -65.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  31.50 / 31.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
-----------------------------------------------
Angle1   Angle2           : -65.00 deg   20.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  43.00 / 43.00  m
Receiver height           :   1.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 61.54 + 0.00) = 61.54 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.66	70.67	0.00	-5.35	-3.78	0.00	0.00	0.00	61.54

Segment Leq : 61.54 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 59.30 + 0.00) = 59.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.66	70.67	0.00	-7.59	-3.78	0.00	0.00	0.00	59.30

Segment Leq : 59.30 dBA

Total Leq All Segments: 63.57 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 54.30 + 0.00) = 54.30 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.57	63.07	0.00	-5.06	-3.71	0.00	0.00	0.00	54.30

Segment Leq : 54.30 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 52.18 + 0.00) = 52.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.57	63.07	0.00	-7.18	-3.71	0.00	0.00	0.00	52.18

Segment Leq : 52.18 dBA

Total Leq All Segments: 56.38 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.57
(NIGHT): 56.38

```
STAMSON 5.0        NORMAL REPORT        Date: 02-08-2010 15:00:31
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u65ba.te          Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 65 OLA

Road data, segment # 1: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank NB (day/night)
----------------------------------------------
Angle1   Angle2           : -50.00 deg   12.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  37.50 / 37.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
Road data, segment # 2: Greenbank 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       :     0 %
Road pavement       :     1 (Typical asphalt or concrete)

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

    24 hr Traffic Volume (AADT or SADT):  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: Greenbank SB (day/night)
----------------------------------------------
Angle1   Angle2           : -50.00 deg   12.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  49.00 / 49.00  m
Receiver height           :   1.50 / 4.50   m
```

Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

ROAD (0.00 + 59.12 + 0.00) = 59.12 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.66	70.67	0.00	-6.61	-4.94	0.00	0.00	0.00	59.12

Segment Leq : 59.12 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

ROAD (0.00 + 57.19 + 0.00) = 57.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.66	70.67	0.00	-8.53	-4.94	0.00	0.00	0.00	57.19

Segment Leq : 57.19 dBA

Total Leq All Segments: 61.27 dBA

Results segment # 1: Greenbank NB (night)

Source height = 1.50 m

ROAD (0.00 + 51.92 + 0.00) = 51.92 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.57	63.07	0.00	-6.25	-4.90	0.00	0.00	0.00	51.92

Segment Leq : 51.92 dBA

Results segment # 2: Greenbank SB (night)

Source height = 1.50 m

ROAD (0.00 + 50.10 + 0.00) = 50.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.57	63.07	0.00	-8.07	-4.90	0.00	0.00	0.00	50.10

Segment Leq : 50.10 dBA

Total Leq All Segments: 54.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 61.27
(NIGHT): 54.11

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:04:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2u12bar.te Time Period: Day/Night 16/8 hours
Description: Block 2 Unit 12 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0 %		
Road pavement	: 1 (Typical asphalt or concrete)		

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

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

Angle1 Angle2	: -85.00 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	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -85.00 deg	Angle2 : 90.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 7.70 / 7.70	m
Source elevation	: 95.34 m	
Receiver elevation	: 95.40 m	
Barrier elevation	: 95.85 m	
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %		
Road pavement	: 1 (Typical asphalt or concrete)		

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

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

Angle1 Angle2	: -85.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 33.00 / 33.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -85.00 deg	Angle2 : 90.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 7.70 / 7.70	m
Source elevation	: 95.34 m	
Receiver elevation	: 95.40 m	
Barrier elevation	: 95.85 m	
Reference angle	: 0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.03	96.88

ROAD (0.00 + 58.05 + 0.00) = 58.05 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.51	70.67	0.00	-2.05	-1.22	0.00	0.00	-9.34	58.05

Segment Leq : 58.05 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.03	96.88

ROAD (0.00 + 55.49 + 0.00) = 55.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.51	70.67	0.00	-5.17	-1.22	0.00	0.00	-8.78	55.49

Segment Leq : 55.49 dBA

Total Leq All Segments: 59.97 dBA

Results segment # 1: Greenbank 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	2.90	98.75

ROAD (0.00 + 59.61 + 0.00) = 59.61 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.42	63.07	0.00	-1.93	-1.06	0.00	0.00	-4.41	55.68*
-85	90	0.57	63.07	0.00	-2.13	-1.33	0.00	0.00	0.00	59.61

* Bright Zone !

Segment Leq : 59.61 dBA

Results segment # 2: Greenbank 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	3.33	99.18

ROAD (0.00 + 56.36 + 0.00) = 56.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-85	90	0.42	63.07	0.00	-4.86	-1.06	0.00	0.00	-2.29	54.86*
-85	90	0.57	63.07	0.00	-5.38	-1.33	0.00	0.00	0.00	56.36

* Bright Zone !

Segment Leq : 56.36 dBA

Total Leq All Segments: 61.29 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.97
(NIGHT): 61.29

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:07:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2u5bar.te Time Period: Day/Night 16/8 hours
Description: Block 1 Unit 5 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -50.00 deg	4.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 66.50 / 66.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -12.00 deg	Angle2 : 4.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 53.70 / 53.70	m
Source elevation	: 95.34 m	
Receiver elevation	: 95.35 m	
Barrier elevation	: 95.85 m	
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

```
Angle1   Angle2           : -50.00 deg   4.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      1       (Absorptive ground surface)
Receiver source distance   :  79.00 / 79.00  m
Receiver height            :   1.50 / 4.50   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -12.00 deg   Angle2 : 4.00 deg
Barrier height             :   2.50 m
Barrier receiver distance  :  53.70 / 53.70  m
Source elevation           :  95.34 m
Receiver elevation         :  95.35 m
Barrier elevation          :  95.85 m
Reference angle            :   0.00
```

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.99	96.84

ROAD (52.67 + 41.33 + 0.00) = 52.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-12	0.66	70.67	0.00	-10.74	-7.26	0.00	0.00	0.00	52.67
-12	4	0.51	70.67	0.00	-9.77	-10.52	0.00	0.00	-9.05	41.33

Segment Leq : 52.98 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.99	96.84

ROAD (51.43 + 41.49 + 0.00) = 51.85 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-12	0.66	70.67	0.00	-11.98	-7.26	0.00	0.00	0.00	51.43
-12	4	0.51	70.67	0.00	-10.90	-10.52	0.00	0.00	-7.75	41.49

Segment Leq : 51.85 dBA

Total Leq All Segments: 55.46 dBA

Results segment # 1: Greenbank 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	1.57	97.42

ROAD (45.72 + 36.48 + 0.00) = 46.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-12	0.57	63.07	0.00	-10.15	-7.19	0.00	0.00	0.00	45.72
-12	4	0.42	63.07	0.00	-9.18	-10.52	0.00	0.00	-6.89	36.48

Segment Leq : 46.21 dBA

Results segment # 2: Greenbank 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	1.95	97.80

ROAD (44.55 + 36.86 + 0.00) = 45.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-12	0.57	63.07	0.00	-11.33	-7.19	0.00	0.00	0.00	44.55
-12	4	0.42	63.07	0.00	-10.25	-10.52	0.00	0.00	-5.44	36.86

Segment Leq : 45.23 dBA

Total Leq All Segments: 48.76 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.46
(NIGHT): 48.76

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:19:20
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b2u4bar.te Time Period: Day/Night 16/8 hours
Description: Block 1 Unit 4 OLA with barrier

Road data, segment # 1: Greenbank 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 : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Angle1 Angle2 : -45.00 deg 4.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 1 (Absorptive ground surface)
Receiver source distance : 72.50 / 72.50 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -11.00 deg Angle2 : 4.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 59.70 / 59.70 m
Source elevation : 95.34 m
Receiver elevation : 95.35 m
Barrier elevation : 95.85 m
Reference angle : 0.00

Road data, segment # 2: Greenbank 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 : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

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

Angle1 Angle2	: -45.00 deg	4.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 85.00 / 85.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -11.00 deg	Angle2 : 4.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 59.70 / 59.70	m
Source elevation	: 95.34 m	
Receiver elevation	: 95.35 m	
Barrier elevation	: 95.85 m	
Reference angle	: 0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.99	96.84

ROAD (51.67 + 40.53 + 0.00) = 51.99 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	-11	0.66	70.67	0.00	-11.36	-7.64	0.00	0.00	0.00	51.67
-11	4	0.51	70.67	0.00	-10.33	-10.80	0.00	0.00	-9.00	40.53

Segment Leq : 51.99 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	0.99	96.84

ROAD (50.52 + 40.80 + 0.00) = 50.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	-11	0.66	70.67	0.00	-12.51	-7.64	0.00	0.00	0.00	50.52
-11	4	0.51	70.67	0.00	-11.38	-10.80	0.00	0.00	-7.69	40.80

Segment Leq : 50.96 dBA

Total Leq All Segments: 54.52 dBA

Results segment # 1: Greenbank 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	1.52	97.37

ROAD (44.74 + 35.53 + 0.00) = 45.23 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	-11	0.57	63.07	0.00	-10.74	-7.59	0.00	0.00	0.00	44.74
-11	4	0.42	63.07	0.00	-9.72	-10.80	0.00	0.00	-7.02	35.53

Segment Leq : 45.23 dBA

Results segment # 2: Greenbank 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	1.88	97.73

ROAD (43.65 + 36.03 + 0.00) = 44.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	-11	0.57	63.07	0.00	-11.83	-7.59	0.00	0.00	0.00	43.65
-11	4	0.42	63.07	0.00	-10.70	-10.80	0.00	0.00	-5.54	36.03

Segment Leq : 44.35 dBA

Total Leq All Segments: 47.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.52
(NIGHT): 47.82

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:24:36
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3u15bar.te Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 13 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -80.00 deg	85.00 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	: -80.00 deg	Angle2 : 85.00 deg
Barrier height	: 2.50	m
Barrier receiver distance	: 6.50 / 6.50	m
Source elevation	: 95.56	m
Receiver elevation	: 95.75	m
Barrier elevation	: 95.70	m
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	:	-80.00 deg	85.00 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	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-80.00 deg	Angle2 : 85.00 deg
Barrier height	:	2.50 m	
Barrier receiver distance	:	6.50 / 6.50	m
Source elevation	:	95.56 m	
Receiver elevation	:	95.75 m	
Barrier elevation	:	95.70 m	
Reference angle	:	0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.50	97.20

ROAD (0.00 + 57.82 + 0.00) = 57.82 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.51	70.67	0.00	-3.85	-1.31	0.00	0.00	-7.68	57.82

Segment Leq : 57.82 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.52	97.22

ROAD (0.00 + 55.57 + 0.00) = 55.57 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.51	70.67	0.00	-6.35	-1.31	0.00	0.00	-7.43	55.57

Segment Leq : 55.57 dBA

Total Leq All Segments: 59.85 dBA

Results segment # 1: Greenbank 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	3.78	99.48

ROAD (0.00 + 57.65 + 0.00) = 57.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	85	0.42	63.07	0.00	-3.63	-1.17	0.00	0.00	-0.33	57.95*
-80	85	0.57	63.07	0.00	-4.01	-1.41	0.00	0.00	0.00	57.65

* Bright Zone !

Segment Leq : 57.65 dBA

Results segment # 2: Greenbank 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	4.02	99.72

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
-80	85	0.42	63.07	0.00	-5.97	-1.17	0.00	0.00	-0.20	55.73*
-80	85	0.57	63.07	0.00	-6.60	-1.41	0.00	0.00	0.00	55.06

* Bright Zone !

Segment Leq : 55.06 dBA

Total Leq All Segments: 59.56 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.85
(NIGHT): 59.56

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:29:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3ul2bar.te Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 16 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -10.00 deg	47.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 45.00 / 45.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -10.00 deg	Angle2 : 35.00 deg
Barrier height	: 2.50	m
Barrier receiver distance	: 24.50 / 24.50	m
Source elevation	: 95.56	m
Receiver elevation	: 95.75	m
Barrier elevation	: 95.70	m
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -10.00 deg	47.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 57.50 / 57.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -10.00 deg	Angle2 : 35.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 24.50 / 24.50	m
Source elevation	: 95.56 m	
Receiver elevation	: 95.75 m	
Barrier elevation	: 95.70 m	
Reference angle	: 0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.44	97.14

ROAD (0.00 + 50.22 + 50.17) = 53.21 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	35	0.51	70.67	0.00	-7.21	-6.13	0.00	0.00	-7.10	50.22
35	47	0.66	70.67	0.00	-7.92	-12.57	0.00	0.00	0.00	50.17

Segment Leq : 53.21 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.47	97.17

ROAD (0.00 + 49.06 + 48.40) = 51.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	35	0.51	70.67	0.00	-8.81	-6.13	0.00	0.00	-6.66	49.06
35	47	0.66	70.67	0.00	-9.69	-12.57	0.00	0.00	0.00	48.40

Segment Leq : 51.75 dBA

Total Leq All Segments: 55.55 dBA

Results segment # 1: Greenbank 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	2.81	98.51

ROAD (0.00 + 49.43 + 43.11) = 50.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	35	0.42	63.07	0.00	-6.78	-6.11	0.00	0.00	-4.78	45.40*
-10	35	0.57	63.07	0.00	-7.49	-6.15	0.00	0.00	0.00	49.43
35	47	0.57	63.07	0.00	-7.49	-12.46	0.00	0.00	0.00	43.11

* Bright Zone !

Segment Leq : 50.34 dBA

Results segment # 2: Greenbank 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	3.19	98.89

ROAD (0.00 + 47.76 + 41.44) = 48.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-10	35	0.42	63.07	0.00	-8.29	-6.11	0.00	0.00	-4.09	44.58*
-10	35	0.57	63.07	0.00	-9.16	-6.15	0.00	0.00	0.00	47.76
35	47	0.57	63.07	0.00	-9.16	-12.46	0.00	0.00	0.00	41.44

* Bright Zone !

Segment Leq : 48.67 dBA

Total Leq All Segments: 52.60 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.55
(NIGHT): 52.60

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:32:52
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b3ullbar.te Time Period: Day/Night 16/8 hours
Description: Block 3 Unit 17 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -7.00 deg	35.00 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	: -7.00 deg	Angle2 : 25.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 30.50 / 30.50	m
Source elevation	: 95.56 m	
Receiver elevation	: 95.75 m	
Barrier elevation	: 95.70 m	
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	:	-7.00 deg	35.00 deg
Wood depth	:	0	(No woods.)
No of house rows	:	0 / 0	
Surface	:	1	(Absorptive ground surface)
Receiver source distance	:	63.50 / 63.50	m
Receiver height	:	1.50 / 4.50	m
Topography	:	2	(Flat/gentle slope; with barrier)
Barrier angle1	:	-7.00 deg	Angle2 : 25.00 deg
Barrier height	:	2.50 m	
Barrier receiver distance	:	30.50 / 30.50	m
Source elevation	:	95.56 m	
Receiver elevation	:	95.75 m	
Barrier elevation	:	95.70 m	
Reference angle	:	0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.43	97.13

ROAD (0.00 + 48.06 + 48.87) = 51.50 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	25	0.51	70.67	0.00	-8.03	-7.56	0.00	0.00	-7.02	48.06
25	35	0.66	70.67	0.00	-8.82	-12.97	0.00	0.00	0.00	48.87

Segment Leq : 51.50 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.46	97.16

ROAD (0.00 + 47.09 + 47.29) = 50.20 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	25	0.51	70.67	0.00	-9.46	-7.56	0.00	0.00	-6.56	47.09
25	35	0.66	70.67	0.00	-10.40	-12.97	0.00	0.00	0.00	47.29

Segment Leq : 50.20 dBA

Total Leq All Segments: 53.91 dBA

Results segment # 1: Greenbank 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	2.64	98.34

ROAD (0.00 + 47.16 + 41.81) = 48.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	25	0.42	63.07	0.00	-7.55	-7.55	0.00	0.00	-4.96	43.01*
-7	25	0.57	63.07	0.00	-8.34	-7.56	0.00	0.00	0.00	47.16
25	35	0.57	63.07	0.00	-8.34	-12.91	0.00	0.00	0.00	41.81

* Bright Zone !

Segment Leq : 48.27 dBA

Results segment # 2: Greenbank 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	3.02	98.72

ROAD (0.00 + 45.66 + 40.32) = 46.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-7	25	0.42	63.07	0.00	-8.90	-7.55	0.00	0.00	-4.55	42.07*
-7	25	0.57	63.07	0.00	-9.84	-7.56	0.00	0.00	0.00	45.66
25	35	0.57	63.07	0.00	-9.84	-12.91	0.00	0.00	0.00	40.32

* Bright Zone !

Segment Leq : 46.78 dBA

Total Leq All Segments: 50.60 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.91
(NIGHT): 50.60

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:36:24
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b7u35bar.te Time Period: Day/Night 16/8 hours
Description: Block 7 Unit 35 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	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: Greenbank 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	: 46.00 / 46.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -50.00 deg	Angle2 : -20.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 26.00 / 26.00	m
Source elevation	: 95.56 m	
Receiver elevation	: 95.80 m	
Barrier elevation	: 95.70 m	
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

24 hr Traffic Volume (AADT or SADT)	:	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: Greenbank 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  :  58.00 / 58.00  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -50.00 deg   Angle2 : -20.00 deg
Barrier height            :   2.50 m
Barrier receiver distance :  26.00 / 26.00  m
Source elevation          :  95.56 m
Receiver elevation        :  95.80 m
Barrier elevation         :  95.70 m
Reference angle           :   0.00
```

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.46	97.16

ROAD (0.00 + 48.30 + 52.99) = 54.26 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-20	0.51	70.67	0.00	-7.35	-8.26	0.00	0.00	-6.76	48.30
-20	0	0.66	70.67	0.00	-8.08	-9.60	0.00	0.00	0.00	52.99

Segment Leq : 54.26 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.49	97.19

ROAD (0.00 + 47.18 + 51.31) = 52.73 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-20	0.51	70.67	0.00	-8.87	-8.26	0.00	0.00	-6.36	47.18
-20	0	0.66	70.67	0.00	-9.75	-9.60	0.00	0.00	0.00	51.31

Segment Leq : 52.73 dBA

Total Leq All Segments: 56.57 dBA

Results segment # 1: Greenbank 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	2.77	98.47

ROAD (0.00 + 47.12 + 45.83) = 49.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-20	0.42	63.07	0.00	-6.91	-8.17	0.00	0.00	-4.87	43.12*
-50	-20	0.57	63.07	0.00	-7.64	-8.31	0.00	0.00	0.00	47.12
-20	0	0.57	63.07	0.00	-7.64	-9.59	0.00	0.00	0.00	45.83

* Bright Zone !

Segment Leq : 49.53 dBA

Results segment # 2: Greenbank 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	3.15	98.85

ROAD (0.00 + 45.54 + 44.25) = 47.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	-20	0.42	63.07	0.00	-8.34	-8.17	0.00	0.00	-4.35	42.21*
-50	-20	0.57	63.07	0.00	-9.22	-8.31	0.00	0.00	0.00	45.54
-20	0	0.57	63.07	0.00	-9.22	-9.59	0.00	0.00	0.00	44.25

* Bright Zone !

Segment Leq : 47.95 dBA

Total Leq All Segments: 51.82 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 56.57
(NIGHT): 51.82

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:43:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u40bar.te Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 40 OLA with barrier

Road data, segment # 1: Greenbank 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 : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 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: Greenbank 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 : 23.00 / 20.50 m
Receiver height : 1.50 / 4.50 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : 90.00 deg
Barrier height : 2.50 m
Barrier receiver distance : 10.00 / 7.70 m
Source elevation : 95.88 m
Receiver elevation : 95.85 m
Barrier elevation : 96.35 m
Reference angle : 0.00

Road data, segment # 2: Greenbank 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 : 0 %
Road pavement : 1 (Typical asphalt or concrete)

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

24 hr Traffic Volume (AADT or SADT): 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: Greenbank 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   :   35.50 / 33.00   m
Receiver height            :    1.50 / 4.50    m
Topography                 :       2        (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg    Angle2 : 90.00 deg
Barrier height             :    2.50 m
Barrier receiver distance  :   10.00 / 7.70    m
Source elevation           :   95.88 m
Receiver elevation         :   95.85 m
Barrier elevation          :   96.35 m
Reference angle            :    0.00
```

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.01	97.36

ROAD (0.00 + 57.84 + 0.00) = 57.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.51	70.67	0.00	-2.80	-1.19	0.00	0.00	-8.83	57.84

Segment Leq : 57.84 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.01	97.36

ROAD (0.00 + 55.53 + 0.00) = 55.53 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.51	70.67	0.00	-5.65	-1.19	0.00	0.00	-8.29	55.53

Segment Leq : 55.53 dBA

Total Leq All Segments: 59.85 dBA

Results segment # 1: Greenbank 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	2.88	99.23

ROAD (0.00 + 59.64 + 0.00) = 59.64 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.42	63.07	0.00	-1.93	-1.02	0.00	0.00	-4.47	55.65*
-90	90	0.57	63.07	0.00	-2.13	-1.30	0.00	0.00	0.00	59.64

* Bright Zone !

Segment Leq : 59.64 dBA

Results segment # 2: Greenbank 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	3.31	99.66

ROAD (0.00 + 56.39 + 0.00) = 56.39 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.42	63.07	0.00	-4.86	-1.02	0.00	0.00	-2.59	54.60*
-90	90	0.57	63.07	0.00	-5.38	-1.30	0.00	0.00	0.00	56.39

* Bright Zone !

Segment Leq : 56.39 dBA

Total Leq All Segments: 61.32 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.85
(NIGHT): 61.32

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:46:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b8u42bar.te Time Period: Day/Night 16/8 hours
Description: Block 8 Unit 42 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -13.00 deg	65.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 35.00 / 35.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -13.00 deg	Angle2 : 65.00 deg
Barrier height	: 2.50	m
Barrier receiver distance	: 22.00 / 22.00	m
Source elevation	: 95.88	m
Receiver elevation	: 95.85	m
Barrier elevation	: 96.35	m
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

```
Angle1   Angle2           : -13.00 deg   65.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      1       (Absorptive ground surface)
Receiver source distance  :  47.50 / 47.50  m
Receiver height           :   1.50 / 4.50   m
Topography                :      2       (Flat/gentle slope; with barrier)
Barrier angle1            : -13.00 deg   Angle2 : 65.00 deg
Barrier height            :   2.50 m
Barrier receiver distance :  22.00 / 22.00  m
Source elevation          :  95.88 m
Receiver elevation        :  95.85 m
Barrier elevation         :  96.35 m
Reference angle           :   0.00
```

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.02	97.37

ROAD (0.00 + 52.02 + 0.00) = 52.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.51	70.67	0.00	-5.56	-4.07	0.00	0.00	-9.02	52.02

Segment Leq : 52.02 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.01	97.36

ROAD (0.00 + 50.96 + 0.00) = 50.96 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.51	70.67	0.00	-7.56	-4.07	0.00	0.00	-8.08	50.96

Segment Leq : 50.96 dBA

Total Leq All Segments: 54.53 dBA

Results segment # 1: Greenbank 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	2.13	98.48

ROAD (0.00 + 48.49 + 0.00) = 48.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.42	63.07	0.00	-5.23	-4.00	0.00	0.00	-5.35	48.49

Segment Leq : 48.49 dBA

Results segment # 2: Greenbank 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	2.62	98.97

ROAD (0.00 + 51.09 + 0.00) = 51.09 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-13	65	0.42	63.07	0.00	-7.11	-4.00	0.00	0.00	-4.97	46.99*
-13	65	0.57	63.07	0.00	-7.86	-4.12	0.00	0.00	0.00	51.09

* Bright Zone !

Segment Leq : 51.09 dBA

Total Leq All Segments: 52.99 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 54.53
(NIGHT): 52.99

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:53:37
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u67ba.te Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 67 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -80.00 deg	90.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 25.50 / 25.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -80.00 deg	Angle2 : 90.00 deg
Barrier height	: 2.50	m
Barrier receiver distance	: 12.50 / 12.50	m
Source elevation	: 95.94	m
Receiver elevation	: 95.85	m
Barrier elevation	: 96.35	m
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

```
Angle1   Angle2           : -80.00 deg   90.00 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            : -80.00 deg   Angle2 : 90.00 deg
Barrier height            :   2.50 m
Barrier receiver distance :  12.50 / 12.50  m
Source elevation          :  95.94 m
Receiver elevation        :  95.85 m
Barrier elevation         :  96.35 m
Reference angle           :   0.00
```

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.04	97.39

ROAD (0.00 + 57.22 + 0.00) = 57.22 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.51	70.67	0.00	-3.48	-1.28	0.00	0.00	-8.69	57.22

Segment Leq : 57.22 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.03	97.38

ROAD (0.00 + 55.19 + 0.00) = 55.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.51	70.67	0.00	-6.10	-1.28	0.00	0.00	-8.10	55.19

Segment Leq : 55.19 dBA

Total Leq All Segments: 59.33 dBA

Results segment # 1: Greenbank 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	98.92

ROAD (0.00 + 58.07 + 0.00) = 58.07 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.42	63.07	0.00	-3.27	-1.13	0.00	0.00	-4.99	53.68*
-80	90	0.57	63.07	0.00	-3.62	-1.38	0.00	0.00	0.00	58.07

* Bright Zone !

Segment Leq : 58.07 dBA

Results segment # 2: Greenbank 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	3.04	99.39

ROAD (0.00 + 55.35 + 0.00) = 55.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-80	90	0.42	63.07	0.00	-5.73	-1.13	0.00	0.00	-4.34	51.87*
-80	90	0.57	63.07	0.00	-6.34	-1.38	0.00	0.00	0.00	55.35

* Bright Zone !

Segment Leq : 55.35 dBA

Total Leq All Segments: 59.93 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 59.33
(NIGHT): 59.93

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:56:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u66ba.te Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 66 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -65.00 deg	20.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 31.50 / 31.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -65.00 deg	Angle2 : 20.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 18.50 / 18.50	m
Source elevation	: 95.94 m	
Receiver elevation	: 95.85 m	
Barrier elevation	: 96.35 m	
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0 %	
Road pavement	: 1 (Typical asphalt or concrete)	

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

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

Angle1 Angle2	: -65.00 deg	20.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 43.00 / 43.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -65.00 deg	Angle2 : 20.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 18.50 / 18.50	m
Source elevation	: 95.94 m	
Receiver elevation	: 95.85 m	
Barrier elevation	: 96.35 m	
Reference angle	: 0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.05	97.40

ROAD (0.00 + 53.02 + 0.00) = 53.02 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.51	70.67	0.00	-4.87	-3.67	0.00	0.00	-9.12	53.02

Segment Leq : 53.02 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.04	97.39

ROAD (0.00 + 51.78 + 0.00) = 51.78 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.51	70.67	0.00	-6.91	-3.67	0.00	0.00	-8.31	51.78

Segment Leq : 51.78 dBA

Total Leq All Segments: 55.45 dBA

Results segment # 1: Greenbank 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	2.29	98.64

ROAD (0.00 + 49.77 + 0.00) = 49.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.42	63.07	0.00	-4.58	-3.60	0.00	0.00	-5.13	49.77

Segment Leq : 49.77 dBA

Results segment # 2: Greenbank 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	2.75	99.10

ROAD (0.00 + 52.18 + 0.00) = 52.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-65	20	0.42	63.07	0.00	-6.50	-3.60	0.00	0.00	-4.87	48.10*
-65	20	0.57	63.07	0.00	-7.18	-3.71	0.00	0.00	0.00	52.18

* Bright Zone !

Segment Leq : 52.18 dBA

Total Leq All Segments: 54.15 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 55.45
(NIGHT): 54.15

STAMSON 5.0 NORMAL REPORT Date: 02-08-2010 14:59:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: b12u65ba.te Time Period: Day/Night 16/8 hours
Description: Block 12 Unit 65 OLA with barrier

Road data, segment # 1: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -50.00 deg	12.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 37.50 / 37.50	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -50.00 deg	Angle2 : 12.00 deg
Barrier height	: 2.50	m
Barrier receiver distance	: 24.50 / 24.50	m
Source elevation	: 95.94	m
Receiver elevation	: 95.85	m
Barrier elevation	: 96.35	m
Reference angle	: 0.00	

Road data, segment # 2: Greenbank 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	: 0	%
Road pavement	: 1	(Typical asphalt or concrete)

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

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

Angle1 Angle2	: -50.00 deg	12.00 deg
Wood depth	: 0	(No woods.)
No of house rows	: 0 / 0	
Surface	: 1	(Absorptive ground surface)
Receiver source distance	: 49.00 / 49.00	m
Receiver height	: 1.50 / 4.50	m
Topography	: 2	(Flat/gentle slope; with barrier)
Barrier angle1	: -50.00 deg	Angle2 : 12.00 deg
Barrier height	: 2.50 m	
Barrier receiver distance	: 24.50 / 24.50	m
Source elevation	: 95.94 m	
Receiver elevation	: 95.85 m	
Barrier elevation	: 96.35 m	
Reference angle	: 0.00	

Results segment # 1: Greenbank NB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.06	97.41

ROAD (0.00 + 50.75 + 0.00) = 50.75 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.51	70.67	0.00	-6.01	-4.87	0.00	0.00	-9.04	50.75

Segment Leq : 50.75 dBA

Results segment # 2: Greenbank SB (day)

Source height = 1.50 m

Barrier height for grazing incidence

Source Height (m)	Receiver Height (m)	Barrier Height (m)	Elevation of Barrier Top (m)
1.50	1.50	1.04	97.39

ROAD (0.00 + 49.91 + 0.00) = 49.91 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.51	70.67	0.00	-7.76	-4.87	0.00	0.00	-8.13	49.91

Segment Leq : 49.91 dBA

Total Leq All Segments: 53.36 dBA

Results segment # 1: Greenbank 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	2.10	98.45

ROAD (0.00 + 47.15 + 0.00) = 47.15 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.42	63.07	0.00	-5.65	-4.83	0.00	0.00	-5.44	47.15

Segment Leq : 47.15 dBA

Results segment # 2: Greenbank 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	2.54	98.89

ROAD (0.00 + 50.10 + 0.00) = 50.10 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-50	12	0.42	63.07	0.00	-7.30	-4.83	0.00	0.00	-5.00	45.94*
-50	12	0.57	63.07	0.00	-8.07	-4.90	0.00	0.00	0.00	50.10

* Bright Zone !

Segment Leq : 50.10 dBA

Total Leq All Segments: 51.88 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 53.36
(NIGHT): 51.88

Part 6
Sound Insulation Requirements

Contents

Section A — Sound Insulation Requirements

Introduction

Where the noise levels are between 55 dB and 75 dB, the provision of adequate sound insulation in new buildings is required. In addition, provision must be made for suitable outdoor amenity space with a noise level of 55 dB or less.

"Adequate sound insulation" is defined as the sound insulation provided in a dwelling unit in accordance with the Corporation's policy established in this document.

Conventional roof designs meeting "Residential Standards" provide sufficient noise reduction so that roofs may be ignored in calculations for this guideline. The other components of the outer shell or "envelope" of a building include windows, doors and walls. To achieve the required noise reduction, each of these components must provide an appropriate degree of sound insulation.

The National Research Council has developed the following method which, when the noise level in dB has been determined, enables building components to be selected which will provide adequate sound insulation. These building components are termed "appropriate building components".

The method for selecting appropriate building components is based on an Acoustic Insulation Factor (AIF) which takes into account the type of room under consideration, the number of components forming the room envelope and the exterior noise level.

Because the building will at least partially screen several walls from any traffic route, a room might have two or more exterior walls with different noise levels. To take advantage of the lower noise levels on the sheltered walls, the design procedure considers each wall separately.

Method of Calculation

The appropriate building components for each exterior wall of any room in a dwelling may be determined by the following procedure:

Step 1:
Calculate the outdoor noise level for each wall, following the procedures detailed in Sections E, F and G.

Step 2:
Determine the room category:

- bedroom
- living room, dining room, recreation room
- kitchen, bathroom, hallways, utility rooms, etc.

ep 3:

termine the number of components which make up the exterior elope of the room. Note that:

where any wall of a building is shielded from noise, as lained in Part 5, and the noise level is 55 dB or less, the nponents of that wall are not included in the calculation.

he actual number of doors or windows does not affect the ermination of the AIF, since the AIF is related to the total area nat component for each wall.

here a room has more than one exterior wall, the number of nponents for each exterior wall is determined and these nbers are added to obtain the number of components for the om.

o 4:

each exterior wall, obtain the required Acoustic Insulation tor (using the total number of components for the room and exterior noise level for that wall) from the appropriate section able 6.1.

p 5:

ect the appropriate types of window, exterior wall and exterior r from Tables 6.2, 6.3 and 6.4 respectively, using the AIF otained. Where the calculated AIF does not correspond directly n AIF value given in the tables, the next highest value should used. All the components so indicated are the minimum eptable to the Corporation.

e of the tables requires evaluating the total area of each nponent in each exterior wall as a percentage of floor area of room. Having calculated the appropriate areas, the centages are obtained from Table 6.5.

les 6.2, 6.3 and 6.4 have been compiled by the National esearch Council from laboratory and field tests on various nponents. They may be revised from time to time as methods standards of construction change and as the results of litional field tests become available and are evaluated.

Associated Ventilation Requirements

The AIF values in the tables apply to closed fully weatherstripped doors and windows. Because the noise insulation criteria cannot be met by conventional windows when they are open to provide ventilation, the Corporation requires alternative means of ventilation if the noise level at that wall is above 55 dB. Special window designs to meet the AIF value when open are being studied by the National Research Council.

Alternative Procedures

Where a proponent wishes to give more detailed consideration to the problem of noise and the subject of sound insulation, he is advised to consult a person suitably qualified in acoustics. The Corporation recognizes there are other and more detailed methods of calculating sound insulation. Substantiated proposals based upon other methods may be acceptable to the Corporation in lieu of proposals adhering strictly to the method of calculation outlined in this publication.

Table 6.1 — Required acoustic insulation factor

Noise level at building wall (dB)	Bedrooms								Living, dining, recreation								Kitchen, bathroom							
	Number of components forming the room envelope																							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
55	22	25	27	28	29	30	31	31	17	20	22	23	24	25	26	26	12	15	17	18	19	20	21	21
56	23	26	28	29	30	31	32	32	18	21	23	24	25	26	27	27	13	16	18	19	20	21	22	22
57	24	27	29	30	31	32	33	33	19	22	24	25	26	27	28	28	14	17	19	20	21	22	23	23
58	25	28	30	31	32	33	34	34	20	23	25	26	27	28	29	29	15	18	20	21	22	23	24	24
59	26	29	31	32	33	34	35	35	21	24	26	27	28	29	30	30	16	19	21	22	23	24	25	25
60	27	30	32	33	34	35	36	36	22	25	27	28	29	30	31	31	17	20	22	23	24	25	26	26
61	28	31	33	34	35	36	37	37	23	26	28	29	30	31	32	32	18	21	23	24	25	26	27	27
62	29	32	34	35	36	37	38	38	24	27	29	30	31	32	33	33	19	22	24	25	26	27	28	28
63	30	33	35	36	37	38	39	39	25	28	30	31	32	33	34	34	20	23	25	26	27	28	29	29
64	31	34	36	37	38	39	40	40	26	29	31	32	33	34	35	35	21	24	26	27	28	29	30	30
65	32	35	37	38	39	40	41	41	27	30	32	33	34	35	36	36	22	25	27	28	29	30	31	31
66	33	36	38	39	40	41	42	42	28	31	33	34	35	36	37	37	23	26	28	29	30	31	32	32
67	34	37	39	40	41	42	43	43	29	32	34	35	36	37	38	38	24	27	29	30	31	32	33	33
68	35	38	40	41	42	43	44	44	30	33	35	36	37	38	39	39	25	28	30	31	32	33	34	34
69	36	39	41	42	43	44	45	45	31	34	36	37	38	39	40	40	26	29	31	32	33	34	35	35
70	37	40	42	43	44	45	46	46	32	35	37	38	39	40	41	41	27	30	32	33	34	35	36	36
71	38	41	43	44	45	46	47	47	33	36	38	39	40	41	42	42	28	31	33	34	35	36	37	37
72	39	42	44	45	46	47	48	48	34	37	39	40	41	42	43	43	29	32	34	35	36	37	38	38
73	40	43	45	46	47	48	49	49	35	38	40	41	42	43	44	44	30	33	35	36	37	38	39	39
74	41	44	46	47	48	49	50	50	36	39	41	42	43	44	45	45	31	34	36	37	38	39	40	40
75	42	45	47	48	49	50	51	51	37	40	42	43	44	45	46	46	32	35	37	38	39	40	41	41

Table 6.2 — Acoustic insulation factor (AIF) for various types of windows

Percentage of window area to total floor area of room													Type of window				
	4	5	6.3	8	10	12.5	16	20	25	32	40	50	Single glazing, or factory-sealed double glazing	Double window with indicated space (inches) between glass			
														0.8 to 1.5	1.6 to 2.5	2.6 to 3.5	3.6 up
Acoustic insulation factor	35	34	33	32	31	30	29	28	27	26	25	24	W1				
	36	35	34	33	32	31	30	29	28	27	26	25	WT1				
	37	36	35	34	33	32	31	30	29	28	27	26	W2				
	38	37	36	35	34	33	32	31	30	29	28	27	WT2				
	40	39	38	37	36	35	34	33	32	31	30	29	W3 or W4	W1 – W1			
	41	40	39	38	37	36	35	34	33	32	31	30	W5	W2 – W2			
	42	41	40	39	38	37	36	35	34	33	32	31			W1 – W1		
	43	42	41	40	39	38	37	36	35	34	33	32		W2 – W3	W1 – W2	W1 – W1	
	44	43	42	41	40	39	38	37	36	35	34	33		W3 – W3	W2 – W2	W1 – W2	
	45	44	43	42	41	40	39	38	37	36	35	34		W2 – W5		W2 – W2	W1 – W1
	46	45	44	43	42	41	40	39	38	37	36	35	W6 (sealed)		W2 – W3 or WT1 – W1		W1 – W2
	47	46	45	44	43	42	41	40	39	38	37	36			W3 – W3	W2 – W3	W2 – W2
	48	47	46	45	44	43	42	41	40	39	38	37	W7 (sealed)		W5 – W5	W3 – W3 or W4 – W4	
	49	48	47	46	45	44	43	42	41	40	39	38			WT2 – W1	W5 – W5	WT1 – W1 or W2 – W3
	50	49	48	47	46	45	44	43	42	41	40	39			WT1 – W5	WT2 – W1	W3 – W3 or W4 – W4
	51	50	49	48	47	46	45	44	43	42	41	40			W5 – W6 or WT2 – W5	WT1 – W5	W5 – W5 or WT2 – W1
	52	51	50	49	48	47	46	45	44	43	42	41				WT2 – W5	WT1 – W5
	53	52	51	50	49	48	47	46	45	44	43	42					WT2 – W5

NOTE: Where the calculated percentage window area is not presented as a column heading, the nearest percentage column in the table should be used.

SOURCE: National Research Council, Ottawa, February 1977.

Explanatory notes:

1) Glazing: 1 denotes 18 oz. glass
2 denotes 24 oz. glass
3 denotes 32 oz. glass
4 denotes 3/16" glass
5 denotes 1/4" glass
6 denotes 3/8" glass
7 denotes 1/2" laminated glass

2) W denotes single glazed windows (e.g. W3 denotes a single pane of 32 oz. glass)
WT denotes factory-sealed double glazing with panes separated 0.75 in. or less (e.g. WT1 has two panes of 18 oz. glass.)
W-W denotes double glazing (e.g. W2-W3 denotes double glazing with one pane of 24 oz. glass and one pane of 32 oz. glass with spacing between the panes as indicated at the top of the column).
WT-W denotes factory-sealed double glazed unit plus storm window (e.g. WT1-W2 denotes a factory-sealed unit with two panes of 18 oz. glass plus a storm window of 24 oz. glass with space between as indicated at the top of the column).

3) Except as noted, data are for well-fitted weatherstripped units that can be opened. The AIF applies only when all windows are closed.

4) Window types W6 and W7 are for fixed units sealed to the frame. For any other type of window fixed and sealed to the frame, add three (3) to the AIF given in the table.

Table 6.3 — Acoustic insulation factor (AIF) for various types of exterior wall

	Percentage of exterior wall area to total floor area of room											Type of exterior wall
	16	20	25	32	40	50	63	80	100	125	160	
Acoustic insulation factor	45	44	43	42	41	40	39	38	37	36	35	EW1
	46	45	44	43	42	41	40	39	38	37	36	EW2
	47	46	45	44	43	42	41	40	39	38	37	EW3
	48	47	46	45	44	43	42	41	40	39	38	EW4
	55	54	53	52	51	50	49	48	47	46	45	EW5 or EW1R
	56	55	54	53	52	51	50	49	48	47	46	EW2R or EW3R
	57	56	55	54	53	52	51	50	49	48	47	EW4R
	58	57	56	55	54	53	52	51	50	49	48	EW6
	59	58	57	56	55	54	53	52	51	50	49	EW7
	61	60	59	58	57	56	55	54	53	52	51	EW5R
	63	62	61	60	59	58	57	56	55	54	53	EW8 or EW6R
	64	63	62	61	60	59	58	57	56	55	54	EW7R

NOTE: Where the calculated percentage wall area is not presented as a column heading, the nearest percentage column in the table should be used.

SOURCE: National Research Council, Ottawa, November 1976.

Explanatory notes:

1) EW1 denotes exterior wall as in Note 2), plus sheathing, plus 3/4" wood siding or metal siding and fibre backer board.
   EW2 denotes exterior wall as in Note 2), plus rigid insulation (1" to 2"), and 3/4" wood siding or metal siding and fibre backer board.
   EW3 denotes simulated mansard with structure as in Note 2), plus sheathing, 2" x 4" framing, sheathing, and asphalt roofing material.
   EW4 denotes exterior wall as in Note 2), plus sheathing and 3/4" stucco.
   EW5 denotes exterior wall as in Note 2), plus sheathing, 1" air space, 4" brick veneer.
   EW6 denotes exterior wall composed of 1/2" gypsum board, rigid insulation (1" to 2"), 4" back-up block, 4" face brick.
   EW7 denotes exterior wall composed of 1/2" gypsum board, rigid insulation (1" to 2"), 6" back-up block, 4" face brick.
   EW8 denotes exterior wall composed of 1/2" gypsum board, rigid insulation (1" to 2"), 8" concrete.

2) The common structure of walls EW1 to EW5 is composed of 1/2" gypsum board, vapour barrier, 2" x 4" studs, and 2" (or thicker) mineral wool or glass fibre batts.

3) R signifies the mounting of the interior gypsum board on resilient clips.

4) An exterior wall conforming to rainscreen design principles and composed of 1/2" gypsum board, 4" concrete block, rigid insulation (1" to 2"), 1" air space, and 4" brick veneer has the same AIF as EW5.

5) An exterior wall as described in EW1, with the addition of rigid insulation (1" to 2") between the sheathing and the external finish, has the same AIF as EW3.

Table 6.4 — Acoustic insulation factor for various types of exterior doors

	Percentage of total door area to total floor area of room									Exterior door type
	4	5	6.3	8	10	12.5	16	20	25	
Acoustic insulation factor	33	32	31	30	29	28	27	26	25	D1
	37	36	35	34	33	32	31	30	29	D2
	39	38	37	36	35	34	33	32	31	D3
	40	39	38	37	36	35	34	33	32	D4
	41	40	39	38	37	36	35	34	33	D5
	42	41	40	39	38	37	36	35	34	D1 – sd
	45	44	43	42	41	40	39	38	37	D2 – sd
	47	46	45	44	43	42	41	40	39	D3 – sd
	48	47	46	45	44	43	42	41	40	D4 – sd
	49	48	47	46	45	44	43	42	41	D5 – sd
	51	50	49	48	47	46	45	44	43	D3 – D3
	53	52	51	50	49	48	47	46	45	D5 – D5

NOTE: Where the calculated percentage door area is not presented as a column heading, the nearest percentage column in the table should be used.

SOURCE: National Research Council, Ottawa, November 1976.

Explanatory notes:

1) All prime doors must be fully weatherstripped.

2) D1 denotes 1-3/4" hollow core wood door (up to 10% of area glazed).
D2 denotes 1-3/4" glass-fibre reinforced plastic door with foam or glass-fibre insulated core (up to 5% of area glazed).
D3 denotes 1-3/8" solid slab wood door.
D4 denotes 1-3/4" steel door with foam or glass-fibre insulated core.
D5 denotes 1-3/4" solid slab door.

3) Except as noted specifically above, doors shall not have inset glazing.

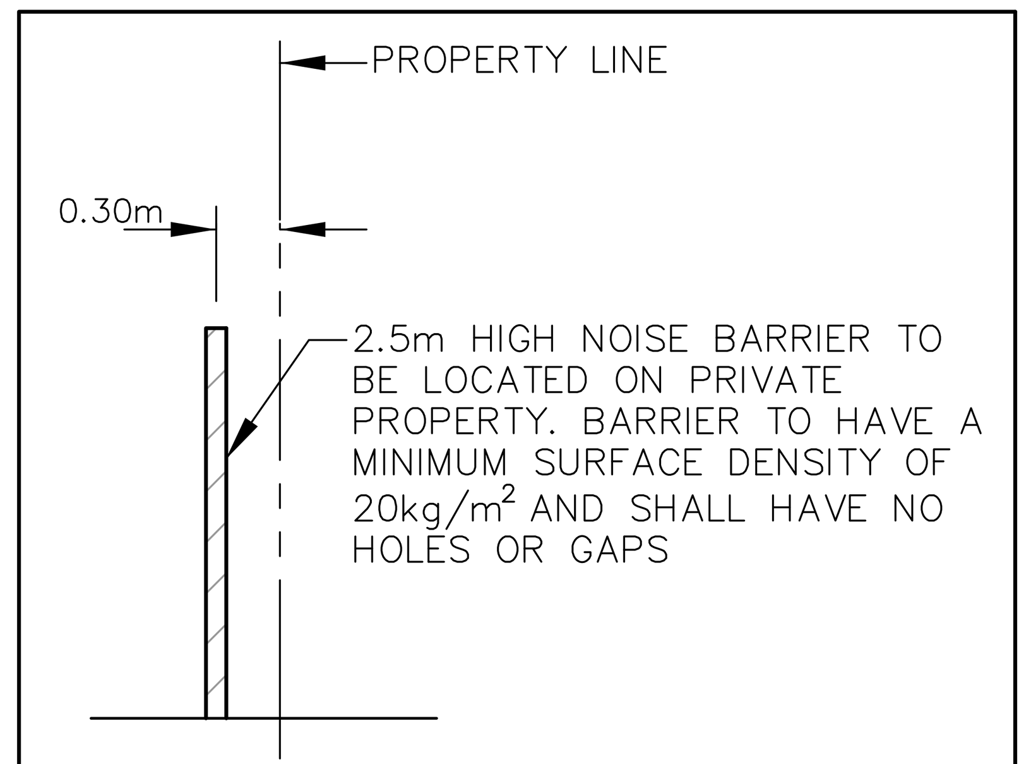
4) sd denotes storm door. The AIF values apply when the glazed sections are closed.

Table 6.5 — Component area percentages relative to total floor area of a room

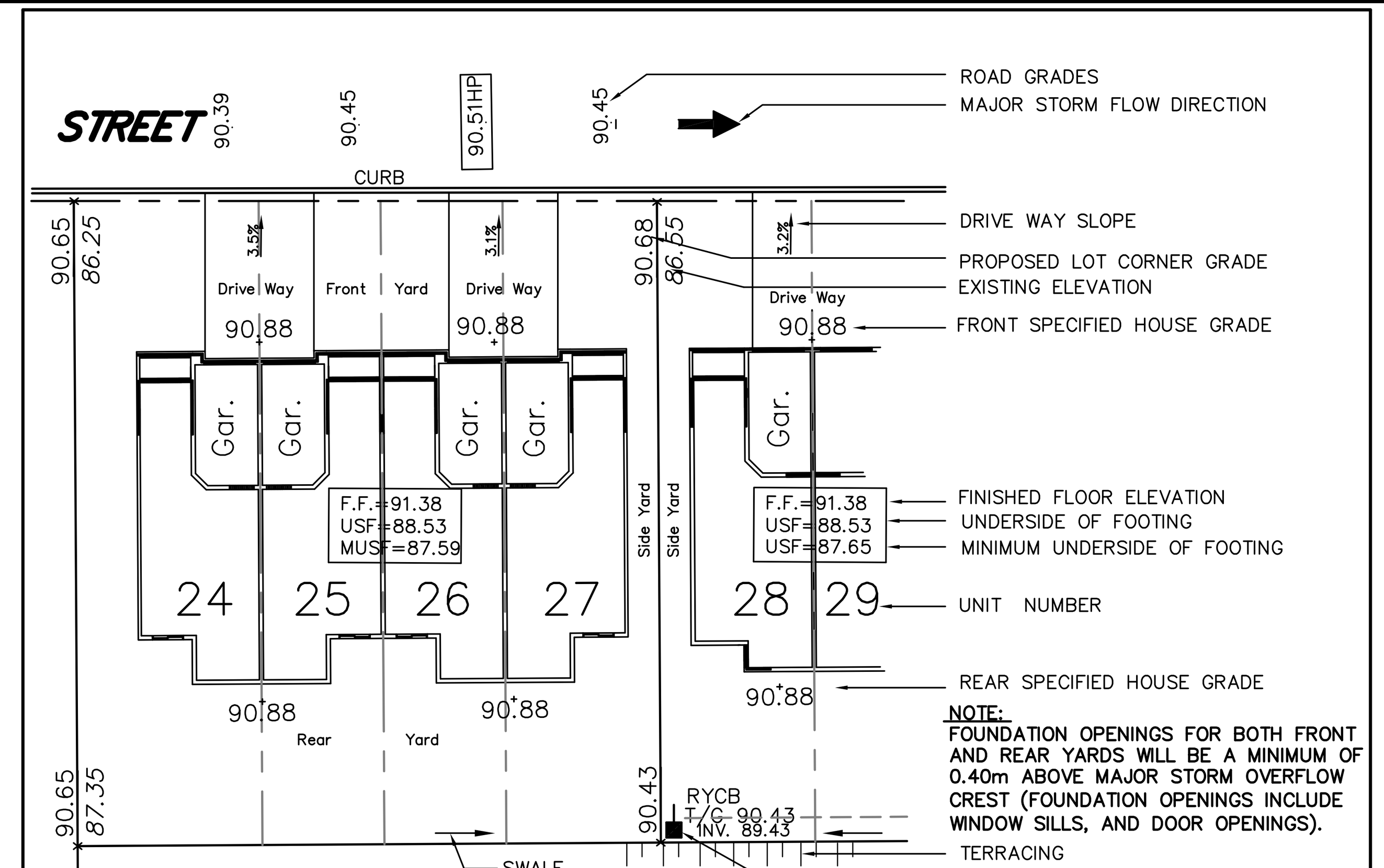
Total area of windows, or doors, or exterior walls in square feet	Total floor area of room in square feet														
	29 to 35	36 to 44	45 to 56	57 to 71	72 to 89	90 to 112	113 to 140	141 to 179	180 to 224	225 to 280	281 to 356	357 to 445	446 to 561	562 to 707	708 to 897
4.5 – 5.6	16	12.5	10	8	6.3	5	4								
5.7 – 7.1	20	16	12.5	10	8	6.3	5	4							
7.2 – 8.9	25	20	16	12.5	10	8	6.3	5	4						
9.0 –11.2	32	25	20	16	12.5	10	8	6.3	5	4					
11.3 – 14	40	32	25	20	16	12.5	10	8	6.3	5	4				
14.1 – 18	50	40	32	25	20	16	12.5	10	8	6.3	5	4			
18.1 – 22	63	50	40	32	25	20	16	12.5	10	8	6.3	5	4		
23 – 28	80	63	50	40	32	25	20	16	12.5	10	8	6.3	5	4	
29 – 35	100	80	63	50	40	32	25	20	16	12.5	10	8	6.3	5	4
36 – 44	125	100	80	63	50	40	32	25	20	16	12.5	10	8	6.3	5
45 – 56	160	125	100	80	63	50	40	32	25	20	16	12.5	10	8	6.3
57 – 71		160	125	100	80	63	50	40	32	25	20	16	12.5	10	8
72 – 89			160	125	100	80	63	50	40	32	25	20	16	12.5	10
90 – 112				160	125	100	80	63	50	40	32	25	20	16	12.5
113 – 140					160	125	100	80	63	50	40	32	25	20	16
141 – 179						160	125	100	80	63	50	40	32	25	20
180 – 224							160	125	100	80	63	50	40	32	25
225 – 280								160	125	100	80	63	50	40	32
281 – 356									160	125	100	80	63	50	40
357 – 445										160	125	100	80	63	50
446 – 551											160	125	100	80	63

LEGEND:

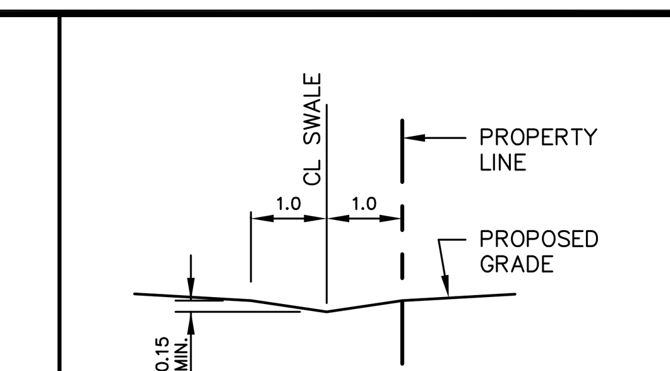
- ▽ SINGLE SERVICE LOCATION
- ☐ DRIVEWAY LOCATION
- ■CB STANDARD STREET CATCHBASIN
- ■RYCB REARYARD CB C/W TOP OF GRATE
- SC SINGLE CONNECTION BETWEEN PAIRS OF STREET CATCHBASINS
- A CB WITH INLET CONTROL DEVICE
- ICD
  - TYPE A IPEX/PEDRO
  - TYPE B IPEX/PEDRO
  - TYPE C IPEX/PEDRO
  - TYPE X PEDRO
- BARRIER CURB
- MOUNTABLE CURB
- ⇨ MAJOR STORM ROUTE



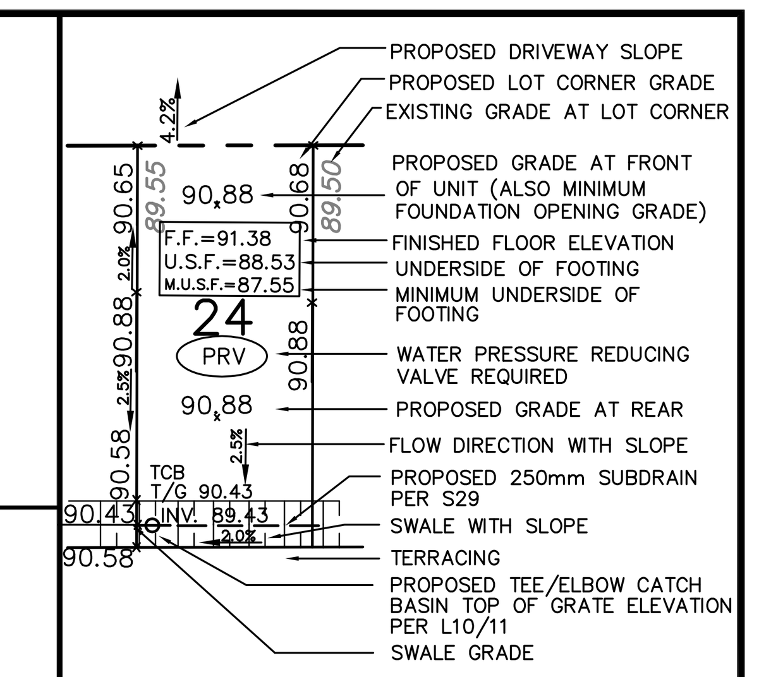
NOISE FENCE DETAIL
N.T.S.



TYPICAL UNIT
N.T.S.



SECTION A:A
N.T.S.



LEGEND:

- - - - 2.4m HIGH NOISE BARRIER
- * CENTRAL AIR AND BUILDING COMPONENT REVIEW REQUIRED
- △D NOISE WARNING CLAUSE

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3			
2			
1	ISSUED FOR SITE PLAN APPROVAL	LME	10:08:04

Monarch

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Project Title
STONEBRIDGE
PHASE 11

LICENSED PROFESSIONAL ENGINEER
L. M. ERION
PROVINCE OF ONTARIO

Drawing Title
SITE NOISE PLAN
BLOCK 331 AND 332

Scale
1:500

Design	Date
LME	JULY 2010
Drawn	Checked
DPS	LME
Project No.	Drawing No.
25099	S-N