Noise Impact Assessment
5294 Hazeldean Road
Ottawa, Ontario

Type of Document:
Phase 2 Noise Control Detailed Study
Site Plan Submission

Client:
Hazeldean Crossing Inc.

Project Number:
OTT-00250806-B0

Prepared By: M. Ghadban, EIT.

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Date Submitted:
November 2019

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Legal Notification

This report was prepared by EXP Services Inc. for the account of **Hazeldean Crossing Inc.**

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

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1 Introduction

Hazeldean Crossing Inc. retained EXP Services Inc. (EXP) to undertake a noise impact assessment study in support of a site plan application for a proposed residential development containing 11 blocks of 76 stacked towns and 10 traditional back to back townhome units, located at 5294 Hazeldean Road in the City of Ottawa. The site is situated at the corner of Hazeldean Road and Victor Street. Since the site is located within 100m of Hazeldean Road, which is as an undivided 4-Lane Urban Arterial (4-UAU) roadway, a noise impact assessment due to traffic is required.

This report assesses noise impact from surface transportation sources only. No stationary noise sources were noted at the site which would exceed the sound level criteria, and therefore an assessment of stationary noise sources was not completed as part of project report.

This study was carried out in accordance with the Ministry of the Environment Conservation & Parks (MECP) Environmental Noise Control Guideline NPC-300 and the City of Ottawa's Environmental Noise Control Guidelines (COENCG). The findings of the study will address noise levels, and recommend if noise abatement measures are necessary to bring noise levels to acceptable levels. This noise impact study is prepared to address the following requirements as identified in Section 2.1 of the COENCG and Section 4.8.7 of the City of Ottawa's Official Plan (COOP):

Development proposals for new noise sensitive land uses are required to include a noise feasibility study and/or detailed noise study in the following locations:

- *Mixed Use Centre, Town Centre and Mainstreets as identified on Schedule B;*

or within

- *100 metres from the right-of-way of:*
  - *an existing or proposed arterial, collector or major collector road identified on Schedules E and F; or*
  - *a light rail transit corridor; bus rapid transit, or transit priority corridor identified on Schedule D;*
- *250 metres from the right-of-way of:*
  - *an existing or proposed highway;*
- *300 metres from the right of way of*
  - *a proposed or existing rail corridor or;*
  - *secondary main railway line;*
- *500 metres from the right-of-way of:*
  - *a 400-series provincial highway, freeway or*
  - *a principle main railway line.*

2 References

A summary of the documents that were referenced during the preparation of this report include the following:

- Ministry of the Environment Technical Document, ORNAMENT, Ontario Road Noise Analysis Method for Environment and Transportation, Sept 1999.
- Ministry of the Environment Publication NPC-300, Stationary and Transportation Sources-Approvals and Planning, August 2013.
- City of Ottawa Official Plan (COOP), 2013.
- City of Ottawa Transportation Master Plan (COTMP), November 2013.
- City of Ottawa Environmental Noise Control Guidelines (COENCG), January 2016.

3 Sound Level Criteria

Ministry of the Environment and the City of Ottawa Guidelines place limitations on indoor and outdoor sound levels from road traffic which are summarized in Table 3-1 below. Noise criteria is taken from Tables 2.2a and 2.2b from the COENCG.

Table 3-1: MECP and City of Ottawa Indoor and Outdoor Criteria for Noise from Road Traffic

Location	Space	Time Period	Equivalent Level Leq (dBA)
Indoors	Sleeping quarters of residences, hospitals, schools, nursing / retirement homes, etc.	Nighttime 23:00 to 07:00	40
	Sleeping quarters of hotels/motels	Nighttime 23:00 to 07:00	45
	Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Daytime 07:00 to 23:00	45
	Living/dining, den areas of residences, hospitals, nursing homes, schools, daycare centres, etc.	Nighttime 23:00 to 07:00	40
	General offices, reception areas, retail stores, etc.	Daytime 07:00 to 23:00	50
Outdoors	Outdoor Living Areas	Daytime 07:00 to 23:00	55

The basic physical measurement of noise used in this report is the A-weighted sound level measured in dBA, which is an overall measurement of sound over a full range of frequencies. Because noise from roadway traffic fluctuates over the audible range of hearing, it is convenient to describe noise in terms of an equivalent 24-hour sound level (denoted as Leq). MECP Guidelines require that traffic noise be evaluated in relation to specific locations during certain time periods.

In general, noise levels are predicted for outdoor living areas (generally the backyard of a residential home) during the day and for indoor areas (living areas during the day and bedrooms) during the nighttime. A summary of these requirements is shown in Tables 3-2 through 3-5.

Table 3-2: Outdoor, Ventilation & Warning Clause Requirements Road Noise, Daytime (0700-2300)

ASSESSMENT LOCATION	Leq (16 hr) (dBA)	VENTILATION REQUIREMENTS	OUTDOOR CONTROL MEASURES	WARNING CLAUSE
Outdoor Living Area (OLA)	Less than or equal to 55 dBA	N/A	None required	Not required
	Greater than 55 dBA to less than or equal to 60 dBA	N/A	Control measures (barriers) may not required but should be considered	Required if resultant Leq exceeds 55 dBA, Type A
	Greater than 60 dBA	N/A	Control measures (barriers) required to reduce the Leq to below 60 dBA and as close to 55 dBA as technically, economically and administratively feasible	Required if resultant Leq exceeds 55 dBA, Type B
Plane of Living Room Window	Greater than 50 dBA to less than or equal to 55 dBA	None required	N/A	Not required
	Greater than 55 dBA to less than or equal to 65 dBA	Forced air heating with provision for central air conditioning	N/A	Required Type C
	Greater than 65 dBA	Central air conditioning	N/A	Required Type D

Table 3-3: Ventilation and Warning Clause Requirements Road Noise, Nighttime (2300-0700)

ASSESSMENT LOCATION	L_{eq} (8 hr) (dBA)	VENTILATION REQUIREMENTS	WARNING CLAUSE
Plane of Bedroom Window	Greater than 50 dBA to less or equal to 60 dBA	Forced air heating with provision for central air conditioning	Required Type C
	Greater than 60 dBA	Central air conditioning	Required Type D

Table 3-4: Building Component Requirements Road Noise, Daytime (0700-2300)

ASSESSMENT LOCATION	NOISE SOURCE	L_{eq} (16 hr) (dBA)	WARNING CLAUSE
Plane of Living Room Window	Road	Less than or equal to 65 dBA	Building compliant with Ontario Building Code
		Greater than 65 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria

Table 3-5: Building Component Requirements Road Noise, Nighttime (2300-0700)

ASSESSMENT LOCATION	NOISE SOURCE	L_{eq} (8 hr) (dBA)	WARNING CLAUSE
Plane of Bedroom Window	Road	Less than or equal to 60 dBA	Building compliant with Ontario Building Code
		Greater than 60 dBA	Building components (walls, windows, etc.) must be designed to achieve indoor sound level criteria

The warning clauses referred to above are contained in Table 3-6 below. Ministry of the Environment warning clauses and City of Ottawa specific warning clauses (*red italics*) are shown. Where applicable, these clauses are to be inserted on all Offers/Agreements of Purchase and Sale or Leases to notify potential purchasers and tenants of these environmental concerns. The City of Ottawa warning clauses were taken from Table A1 of the COENCG.

Table 3-6: MECP Warning Clauses

Type A	"Purchasers/tenants are advised that sound levels due to increasing road traffic (rail traffic) (air traffic) may occasionally interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment." *"Purchasers/tenants are advised that sound levels due to increasing road/rail/Light Rail/transitway traffic may occasionally interfere with some outdoor activities as the sound levels may exceed the sound level limits of the City and the Ministry of the Environment."*
Type B	"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road traffic (rail traffic) (air traffic) may on occasions interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the Municipality and the Ministry of the Environment." *"Purchasers/tenants are advised that despite the inclusion of noise control features in the development and within the building units, sound levels due to increasing road/rail/Light Rail/transitway traffic may, on occasion, interfere with some activities of the dwelling occupants as the sound levels exceed the sound level limits of the City and the Ministry of the Environment."*
Type C	"This dwelling unit has been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning by the occupant in low and medium density developments will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment." *"This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."*
Type D	"This dwelling unit has been supplied with a central air conditioning system which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the Municipality and the Ministry of the Environment." *"This dwelling unit has been supplied with a central air conditioning system and other measures which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."*
Type E	*"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times be audible."* *"Purchasers/tenants are advised that due to the proximity of the adjacent industry (facility) (utility), noise from the industry (facility) (utility) may at times interfere with outdoor activities."*

3.1 Vehicular Traffic Noise

The site is located within 100 meters from the right-of-way of an existing 4 lane urban arterial roadway (Hazeldean Road) therefore a noise assessment is required.

Figure 2 in Appendix A illustrates the noise source and receiver locations used. In general, noise levels are predicted at the: 1) building façade or plane of window (POW) during the daytime and nighttime.

The predicted noise levels were used to dictate the action required to achieve the recommended sound abatement requirements. The mitigation of the indoor sound levels is achieved by selection of building architectural components (walls, windows, doors), based on the noise reduction required to meet the

indoor noise level criteria. The 16-hour daytime and 8-hour nighttime sound levels were calculated at seventeen (17) locations around the site. The results of the predicted noise levels at these locations stipulate the ventilation, building code and associated warning clause requirements. There were no receiver locations that were assessed as outdoor living areas as there were no outdoor amenity areas that met the requirements to be considered as an Outdoor Living Area (OLA).

STAMSON file names used were denoted based on the receiver used location.

3.2 Aircraft/Airport Noise

The site is located outside the Airport Vicinity Development Zone and outside the Airport Operating Influence Zone as per Schedule K of the Ottawa Official Plan. The site is also outside both the 25 NEF and NEP contours therefore noise from air traffic does not impact this site.

3.3 Stationary Noise

A review of the surrounding building uses and the zoning of adjacent properties were completed to determine if there was a potential impact or influence from stationary noise sources. Typically, industrial and commercial land uses can be a potential stationary noise source. Stationary sources of noise include all sources of sound and vibration that will exist or operate within the site, excluding construction noise. The noise level criteria for stationary noise sources is the higher value between the exclusion limit values prescribed by the MECP (and City of Ottawa) or the corresponding minimum hourly background /ambient sound level due to traffic. For OLA during the daytime and POW during the daytime or nighttime the exclusion limit values are 50 dBa and 45 dBa, respectively.

From our observations, there are no significant stationary noise sources have been identified that are likely to cause noise levels exceeding the MECP or City of Ottawa requirements.

4 Road Noise Prediction Procedures

All noise levels have been predicted using MECP's software and methodology. STAMSON Version 5.03 (1999), which is based on the Ontario Road Noise Analysis Method for Environment and Transportation ("ORNAMENT") Model, was used for all calculations in this report. Detailed output files are attached in Appendix D for reference. In addition to the traffic data that was used in the analysis, theoretical noise predictions were based on the following information:

- Truck traffic on Second Lind Rd consists of 5% heavy trucks, 7% medium trucks.
- The Day/Night split used was 92% and 8%.
- Intermediate surfaces between the source and receiver locations were assessed as an absorptive ground surface.
- Topography was assessed as flat/gentle slope between the noise source and the receivers.
- Road pavement and road gradient was assessed as typical asphalt or concrete and flat grade.

Traffic information used for this study was obtained from the review of the City of Ottawa's Noise Control Guidelines. Road and traffic parameters used in our analysis are summarized in Table 4-1 below.

Table 4-1: Traffic and Road Parameters

Traffic Parameters	Hazeldean Road
R.O.W. WIDTH (m)	Approx. 32-35 m
Roadway Type	4 Lane Undivided Arterial (4-UAU)
Posted Speed Limit (km/hr)	60 km/hr
Passenger Cars	88%
Medium trucks (%)	7%
Heavy trucks (%)	5%
A.A.D.T. (veh/day) both directions	30,000
Day/night split (%)	92 / 8
Vehicles day/night split (total)	24,288 / 2,112 (26,400)
Medium trucks day/night split (total)	1,932 / 168 (2,100)
Heavy trucks day/night split (total)	1,380 / 120 (1,500)

Based on the proposed site, the ground between the proposed blocks and Hazeldean Road would be considered as a reflective surface due to the surface being comprised of mostly asphalt and concrete.

Different receiver heights will be considered as these units are not considered as typical homes, where the stacked town homes have 3 floors, including a living space on the top floor as well as the basement.

Since the site is being modeled under reflective conditions, the height of the receiver location does not matter as the noise levels will remain the same at any height when modeling with Stamson. However, it is affected when there is a noise wall which is situation with an existing noise wall adjacent to the west side of the site. The receiver height that is highest for either living room areas and bedroom areas shall be used in order to obtain the worst-case scenario.

Noise levels are assessed at different receiver heights since the limits are stacked having 3 above grade floors. Receiver heights were assessed at the center of the windows for modelling with Stamson, source and receiver were assumed to be elevated with a reflective surface. This ensures that no ground absorption is applied to the mediated results. Therefore, when ground absorption is applied, the height of the receiver, and the results are the same for all floors. Thus a conservative assumption amplifies the prediction of sound levels on all floors.

5 Summary of Results

The anticipated noise levels at the assessed receiver locations range from approximately 56.5 – 71.9 dBa during the daytime and between 48.9 – 64.3 dBa during the nighttime.

A summary of predicted noise levels for various assessment locations is summarized below in Table 5-1 below. Detailed results and output from STAMSON Version 5.03 are contained in Appendix D.

Note that unattenuated results are based on an existing 3.0m high existing Durisol noise attenuation barrier located along a portion of the west property line.

Noise levels were only assessed at the building façade, as there were no amenity areas that met the definition of an OLA.

Table 5-1: Summary of Anticipated Noise Levels

Receiver Location	Block Number	Receptor Type	Unattenuated Noise Level Leq (dBa)	
			Daytime (07:00 – 23:00)	Nightime (23:00– 07:00)
R1	Block 10	Façade	71.71	64.11
R2	Block 7	Façade	71.85	64.25
R3	Block 11	Façade	67.80	60.21
R4	Block 12	Façade	68.39	60.79
R5	Block 12	Façade	66.27	58.67
R6	Block 7	Façade	67.81	60.22
R7	Block 6	Façade	65.91	58.31
R8	Block 6	Façade	63.35	57.70
R9	Block 9	Façade	62.52	56.96
R10	Block 4	Façade	57.61	50.02
R11	Block 6	Façade	63.68	57.10
R12	Block 3	Façade	60.19	52.60
R13	Block 1	Façade	58.61	51.01
R14	Block 1	Façade	56.47	48.87
R15	Block 1	Façade	63.65	56.05
R16	Block 1	Façade	65.34	57.74
R17	Block 1	Façade	63.51	55.91

6 Mitigation Measures

Noise mitigation measures are proposed through the incorporation of building components and ventilation requirements into the buildings to meet MECP guidelines. The proposed indoor noise control measures are discussed in the proceeding section of the report.

Table 6-1 below summarizes the requirements for ventilation, outdoor control measures and building components for all assessment locations.

Table 6-1: Summary of Requirements based on Receiver Location

Receiver Location	Outdoor Control Measures Warning Clause	Ventilation Requirement		*Building Component Requirement	
		Plane of Living Room Windows (Daytime)	Plane of Bedroom Windows (Nighttime)	Plane of Living Room Windows (Daytime)	Plane of Bedroom Windows (Nighttime)
R1	N/A	Type D	Type D	Type D	Non-Compliant
R2	N/A	Type D	Type D	Type D	Non-Compliant
R3	N/A	Type D	Type D	Type D	Non-Compliant
R4	N/A	Type D	Type D	Type D	Non-Compliant
R5	N/A	Type D	Type C	Type D	Non-Compliant
R6	N/A	Type D	Type D	Type D	Non-Compliant
R7	N/A	Type D	Type C	Type D	Non-Compliant
R8	N/A	Type C	Type C	Type C	Compliant
R9	N/A	Type C	Type C	Type C	Compliant
R10	N/A	Type C	Type C	Type C	Compliant
R11	N/A	Type C	Type C	Type C	Compliant
R12	N/A	Type C	Type C	Type C	Compliant
R13	N/A	Type C	Type C	Type C	Compliant
R14	N/A	Type C	None	Type C	Compliant
R15	N/A	Type C	Type C	Type C	Compliant
R16	N/A	Type D	Type C	Type D	Non-Compliant
R17	N/A	Type C	Type C	Type C	Compliant

**Building Code Requirements.*
Required = Building components must be designed to achieve indoor sound levels criteria, or
Compliant = Building compliant with Ontario Building Code

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7 Indoor Noise Control Measures

When noise levels exceed 65 dBA during the daytime or 60 dBA during the nighttime as noted Tables 5-1 at the Plane of Window (POW) locations as noted in Table 5-1, then the building envelope (or building components) must be acoustically designed to ensure the indoor noise criteria is achieved. The indoor noise level required is 45 dBA during the daytime or 40 dBA during the nighttime as noted in Table 3-1. The appropriate building components are selected based on the Acoustic Insulation Factor (AIF), which is related to the difference in indoor and outdoor levels. The Acoustic Insulation Factor (AIF) needed to control the road traffic noise is calculated as follows:

AIF = L_{eq} outdoor façade – L_{eq} indoor + 10 log C + *2*

where:

Leq outdoor façade =	Outdoor façade sound level
Leq indoor =	Indoor objective sound level
C =	Number of building components forming envelope of room (typically equals 3 for a corner room and 2 for other rooms)

Table 7-1 below outlines the AIF required for various road traffic sound levels as well as the glazing requirements to meet MECP guidelines. Based on the values below the nighttime sound levels require that both window and wall treatment comply with the Ontario Building Code.

Table 7-1 – AIF Values and Typical Building Treatments for Road Traffic Sound Levels

Daytime Façade Sound Level (dBa)	Nighttime Facade Sound Level (dBa)	Air Conditioning Requirement	AIF Required	Window Treatments	Wall Treatments
55 or less	50 or less	None	17 or less	None (OBC)	EW1
56 to 65	51 to 60	Provision	18 to 27	None (OBC)	EW1
66 to 68	61 to 63	Required	28 to 30	None (OBC)	EW2
69 to 70	64 to 65	Required	31 to 32	STC 31 to 32	EW3
71 to 72	66 to 67	Required	33 to 34	STC 33 to 34	EW4
73 to 78	68 to 73	Required	35 to 40	STC 35 to 40	EW5
79	74	Required	41	STC 41	EW5

Source: "Road and Rail Noise: Effects on Housing", NHA 5156, 08/86 CMHC, 1986
Building treatments are based upon an assumed window/floor ratio of 25% and wall/floor ratio of 80%.
AIF is based on 3 components (i.e. corner room location. For 2 components (ie only one exterior wall) AIF would be 2 points lower.
OBC window: Requires Ontario Building Code compliant construction.
EW1 denotes a typical metal or vinyl clad siding exterior wall. EW1R denotes an EW1 exterior wall with interior drywall mounted on resilient channels.EW2 denotes an EW1 exterior wall with an additional 25mm of rigid insulation. EW4 denotes a typical 20mm stucco clad exterior wall. EW5 denotes a typical brick veneer clad exterior wall.

Based on a 25% window/floor and 80% wall/floor ratio the wall and window component requirements were estimated based on the predicted sound levels at the building facade. Once detailed building architectural plans are finalized, it is recommended that an acoustical consultant review and/or design the building components to ensure that indoor noise levels will meet the requirements.

Based on the results of Table 5-1 and the above, the minimum AIF for the exterior building components were estimated. The following table summarizes the recommended building component requirements for all residential unattenuated blocks which require their building components to above OBC.

Table 7-2 – AIF Values Required for Building Components

Block Number	Corresponding Receiver Location	[1]Side of Building	[2]AIF Required
6	R11	North	25
	R7, R8	West	28
7	R2	North	34
	R6	East	30
	R16	West	27
8	R2	North	34
	R16	East	27
	R17	West	25
9	R2	North	34
	R17	East	25
	R17	West	25
10	R1	North	33
	R17	East	25
	R17	West	25
11	R1	North	33
	R17	East	25
	R17	West	25
12	R4	North	30
	R5	East	28

Notes:
1-Side of buildings are based on a Construction North as shown in Figure A2 of Appendix A
2-AIF Calculations based on 3 components
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Building components (windows, walls, doors) shall be required to reduce noise levels to acceptable levels as per city and provincial guidelines. The Acoustical Insulation Factor (AIF) requirements for Blocks 6 to 12 are noted in Table 7-2 above.

It is also recommended that an acoustical consultant review the final building plans and provide recommendations on the required building components. The AIF requirements may result in a cost premium to the exterior door, window and building components for the residential Blocks noted above.

8 Recommendations

We recommend that this application for the proposed development at 5924 Hazeldean Road be approved from a "Noise Study" assessment perspective, based on the following:

As the anticipated nighttime noise levels exceeding acceptable levels due to road traffic, building components for windows/walls etc., will need to be designed to reduce indoor noise levels to acceptable levels. The recommended AIF requirements for the exterior window and walls of individual residential blocks is provided in Table 7-2. It is also recommended that a qualified acoustic consultant inspect the building plans to certify that construction will be adequate in this regard.

Block 6-12 as Identified in Figure A2

A requirement for Central Air Conditioning Type "D" Warning Clause for the indoor areas is required for these units. The following Notices on Title for these residential lots shall be included in all Agreements of Purchase and Sale in accordance with the terms specified by the Development Agreement:

Type D Warning Clause: "This dwelling unit has been supplied with a central air conditioning system and other measures which will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."

Blocks 1-5 as Identified in Figure A2

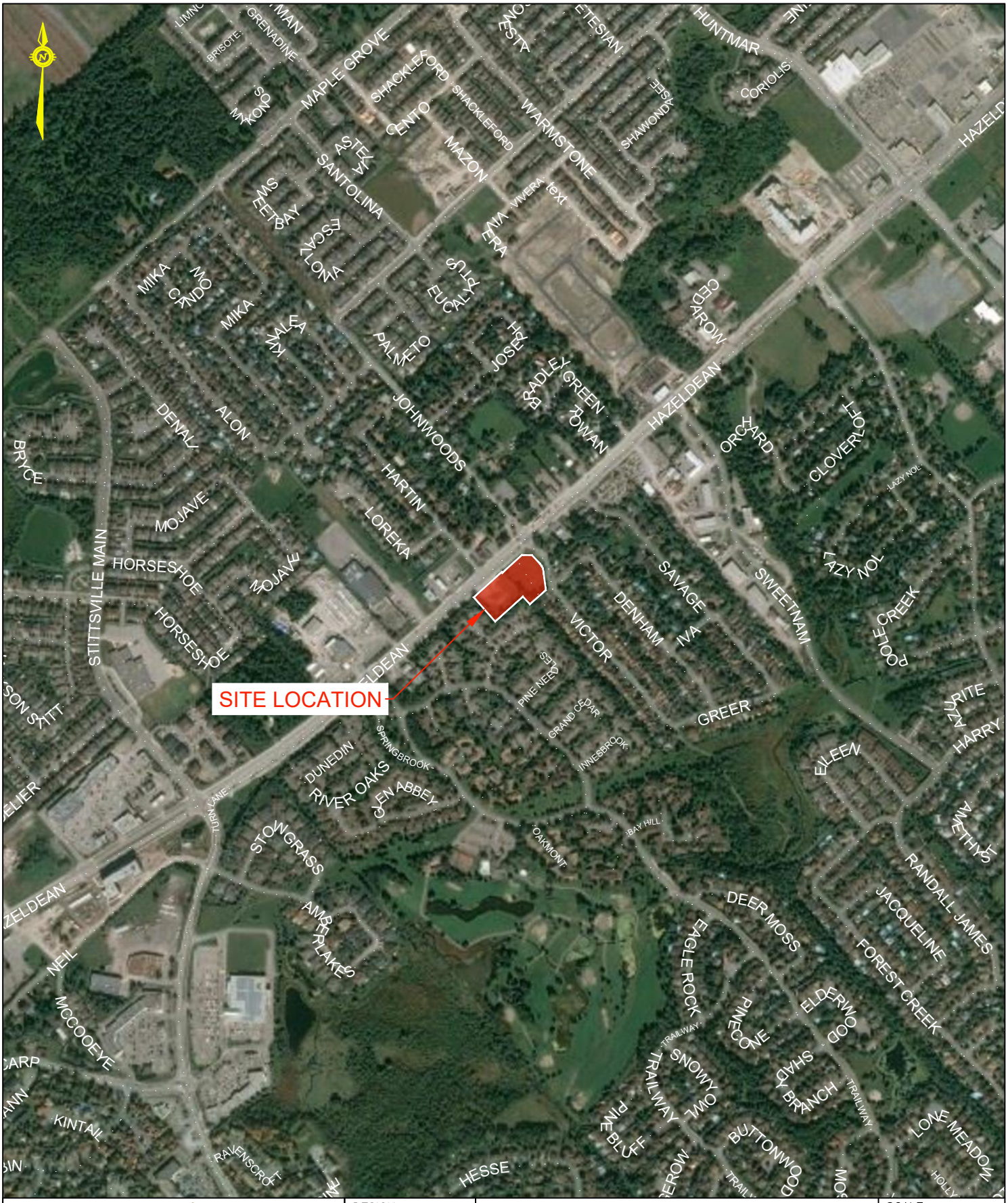
A requirement for Central Air Conditioning Type "C" Warning Clause for the indoor areas is required for these units. The following Notices on Title for these residential lots shall be included in all Agreements of Purchase and Sale in accordance with the terms specified by the Development Agreement:

Type C Warning Clause: "This dwelling unit has also been designed with the provision for adding central air conditioning at the occupant's discretion. Installation of central air conditioning will allow windows and exterior doors to remain closed, thereby ensuring that the indoor sound levels are within the sound level limits of the City and the Ministry of the Environment."

Appendix A – Figures

Figure A1 – Site Location Plan

Figure A2 – Source/Receiver Locations for Building Facade



exp Services Inc. 100-2650 Queensview Drive Ottawa, ON K2B 8H6 www.exp.com	DESIGN MZG DRAWN MZG DATE MAY 2019 FILE NO 250806	HAZELDEAN CROSSING 5924 HAZELDEAN ROAD SITE LOCATION PLAN	SCALE 1:10000 SKETCH NO FIG A1

exp Services Inc.
100-2650 Queensview Drive
Ottawa, ON K2B 8H6

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0 5m 10m 20m
HORIZONTAL 1:500

CONSTRUCTION NORTH

DESIGN	MZG
DRAWN	MZG
DATE	MAY 2019
FILE NO	250806

5924 HAZELDEAN NOISE STUDY

SOURCE/RECIEVER LOCATIONS

SCALE 1:500

FIGURE NO FIG A2

Appendix B – Tables

Table B1- Noise Source/Receiver Data

Table B2- Summary of Warning Clauses

TABLE B1 - SOURCE/Combined Stamson DATA

Location	Assessment Location	Noise Source	Block Number	Angles		Angles		Source to Receiver Dist East Bound (m)	Source to Receiver Dist West Bound (m)	Source Ground Elev E/B (m)	Source Ground Elev W/B (m)	Receiver Ground Elev (m)	Source-Reciever Ground, e (m)	Receiver Height (m) (DayTime)	Receiver Height (m) (Night Time)	*Barrier to Receiver Dist (m)	*Barrier Base Elev (m)	*Barrier Height	Combined Equivalent Noise Level Leq (dBa)	
				From	To	From	To												Daytime (7:00-23:00)	Nighttime (23:00-7:00)
R1	**Façade**	**Hazeldean**	**Block 10**	**-90**			**90**	**15.8**	**28.1**	**114.15**	**114.00**	**114.35**	**0.35**	**6**	**9.25**			**3.00**	**71.71**	**64.11**
R2	**Façade**		**Block 7**	**-90**			**90**	**15.2**	**27.5**	**114.69**	**114.64**	**115**	**0.36**	**6**	**9.25**			**3.00**	**71.85**	**64.25**
R3	**Façade**		**Block 11**	**0**			**90**	**20.1**	**32.5**	**113.78**	**113.68**	**114.45**	**0.77**	**6.2**	**9.25**			**3.00**	**67.80**	**60.21**
R4	**Façade**		**Block 12**	**-45**			**90**	**27.5**	**40.0**	**113.68**	**113.58**	**114.5**	**0.92**	**6.2**	**9.25**			**3.00**	**68.39**	**60.79**
R5	**Façade**		**Block 12**	**0**			**90**	**30.2**	**42.8**	**113.44**	**113.40**	**114.5**	**1.10**	**6**	**9.25**			**3.00**	**66.27**	**58.67**
R6	**Façade**		**Block 7**	**-90**	**-22**	**-22**	**0**	**20.2**	**32.1**	**114.75**	**114.64**	**115.10**	**0.46**	**6.2**	**9.25**	**7.68**	**114.91**	**3.00**	**67.81**	**60.22**
R7	**Façade**		**Block 6**	**-90**	**-8**	**-8**	**0**	**33.4**	**45.3**	**114.75**	**114.64**	**115.40**	**0.76**	**6**	**9.25**	**20.9**	**114.91**	**3.00**	**65.91**	**58.31**
R8	**Façade**		**Block 6**	**-90**	**-6**	**-6**	**0**	**39.1**	**51.0**	**114.75**	**114.64**	**115.40**	**0.76**	**6**	**9.25**	**26.6**	**114.91**	**3.00**	**63.35**	**57.70**
R9	**Façade**		**Block 9**	**-90**	**-5**	**-5**	**0**	**47.2**	**59.0**	**114.44**	**114.37**	**115.50**	**1.13**	**6**	**9.25**	**34.6**	**114.91**	**3.00**	**62.52**	**56.96**
R10	**Façade**		**Block 4**	**-48**			**67**	**57.5**	**69.4**	**114.48**	**114.27**	**115.2**	**0.93**	**6**	**9.25**			**3.00**	**57.61**	**50.02**
R11	**Façade**		**Block 6**	**-90**	**-40**	**73**	**90**	**34.0**	**42.6**	**114.70**	**114.61**	**115.00**	**0.39**	**6.2**	**9.25**	**18.2**	**114.91**	**3.00**	**63.68**	**57.10**
R12	**Façade**		**Block 3**	**-80**			**88**	**43.5**	**55.7**	**114.18**	**114.05**	**114.2**	**0.15**	**6.2**	**9.25**			**3.00**	**60.19**	**52.60**
R13	**Façade**		**Block 1**	**-87**			**-33**	**45.2**	**57.4**	**114.43**	**113.64**	**114.25**	**0.61**	**4.35**	**7.5**			**3.00**	**58.61**	**51.01**
R14	**Façade**		**Block 1**	**-61**			**30**	**59.8**	**71.3**	**113.76**	**113.71**	**114.25**	**0.54**	**4.35**	**7.5**			**3.00**	**56.47**	**48.87**
R15	**Façade**		**Block 1**	**15**			**90**	**50.0**	**58.6**	**113.44**	**113.34**	**114.25**	**0.91**	**4.35**	**7.5**			**3.00**	**63.65**	**56.05**
R16	**Façade**		**Block 8**	**-51**			**0**	**20.1**	**32.5**	**114.40**	**114.35**	**115.01**	**0.66**	**6.2**	**9.25**			**3.00**	**65.34**	**57.74**
R17	**Façade**		**Block 9**	**-34**			**0**	**20.5**	**32.8**	**114.35**	**114.16**	**115.01**	**0.85**	**6.2**	**9.25**			**3.00**	**63.51**	**55.91**

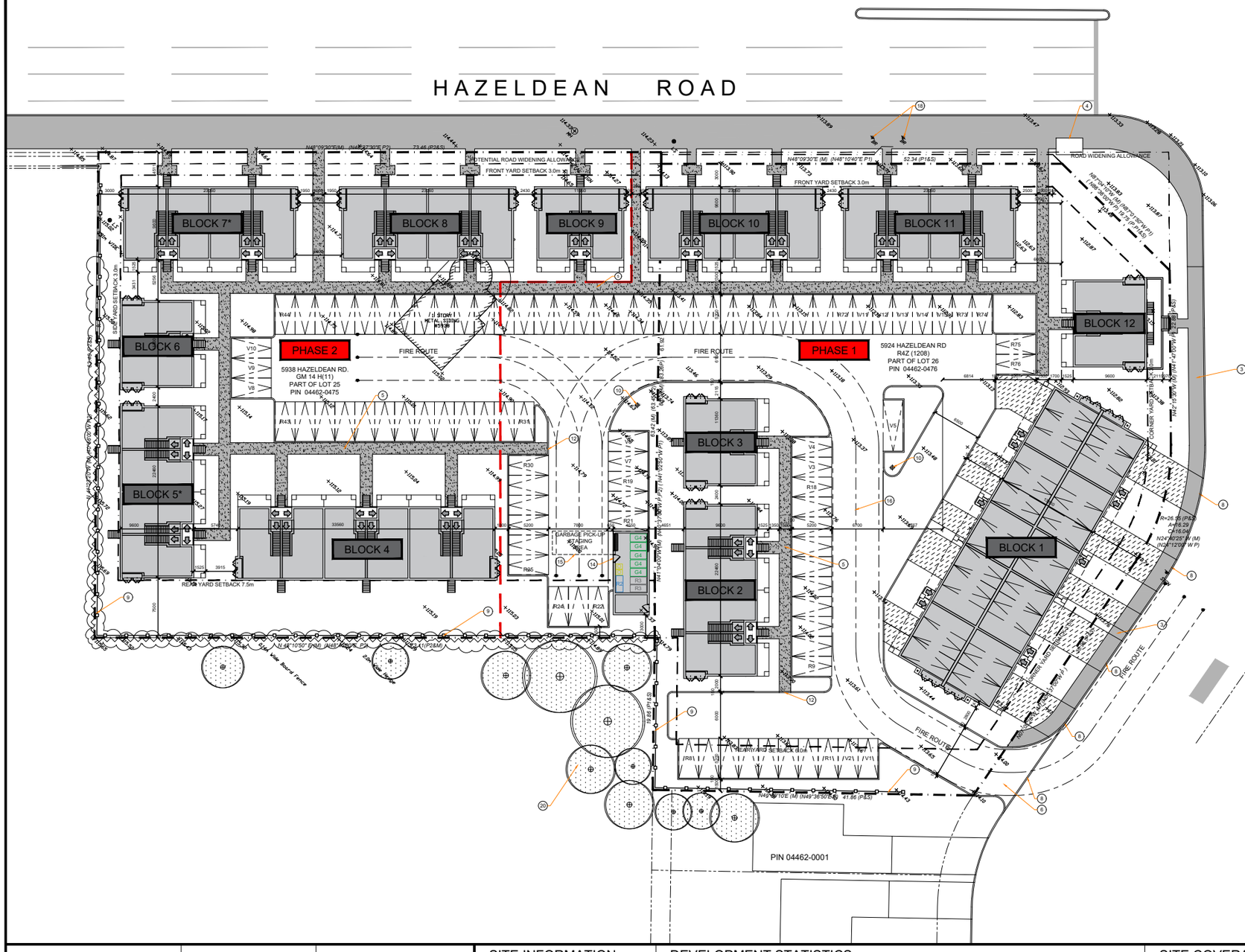
*Based on an existing 3m high sound barrier adjacent to the property
AADT = 30,000
Speed limmit = 60km/hr

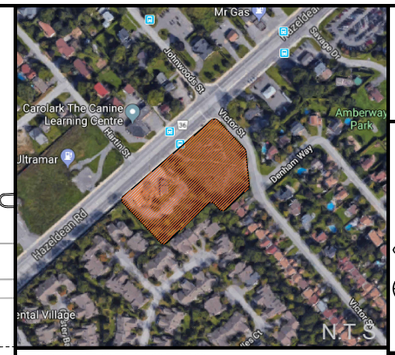
TABLE B2- SUMMARY OF WARNING CLAUSES - SORTED BY RECEIVER LOCATIONS

Receiver Location	Outdoor Control Measures Warning Clause	Ventilation Requirement			*Building Component Requirement		
		Plane of Living Room Windows (Daytime)	Plane of Bedroom Windows (Nighttime)	Governing Warning Clause Requirement	Plane of Living Room Windows (Daytime)	Plane of Bedroom Windows (Nighttime)	Governing BC Requirement
R1	N/A	Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R2	N/A	Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R3	N/A	Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R4	N/A	Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R5	N/A	Type D	Type C	Type D	Non-Compliant	Compliant	Non-Compliant
R6	N/A	Type D	Type D	Type D	Non-Compliant	Non-Compliant	Non-Compliant
R7	N/A	Type D	Type C	Type D	Non-Compliant	Compliant	Non-Compliant
R8	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R9	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R10	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R11	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R12	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R13	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R14	N/A	Type C	None	Type C	Compliant	Compliant	Compliant
R15	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant
R16	N/A	Type D	Type C	Type D	Non-Compliant	Compliant	Non-Compliant
R17	N/A	Type C	Type C	Type C	Compliant	Compliant	Compliant

*Compliant - compliant with Ontario Building Code
*Non-Compliant - not compliant with Ontario Building Code

Appendix C - Architectural Plan





IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

NOTATION SYMBOLS:

- (00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- <00> INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
- 00 INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- 000 INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- DETAIL NUMBER
- 00 TITLE SCALE
- DETAIL REFERENCE PAGE
- DETAIL CROSS REFERENCE PAGE

PROJECT NOTES

1. --
2. --
3. NEW CONCRETE SIDEWALK BUILT TO CITY OF OTTAWA STANDARDS
4. BUS SHELTER RELOCATED 2200mm NE
5. NEW PRIVATELY OWNED SIDEWALK
6. SITE APPROACH (SUBJECT TO APPROVAL OF MINOR VARIANCE)
7. --
8. 150mm WIDE MOUNTABLE CURB
9. 2.5m. HIGH PRIVACY FENCE
10. NEW FIRE HYDRANT (EXACT LOCATION TO BE CONFIRMED BY CIVIL ENGINEER)
11. --
12. PROVIDE DEPRESSED SIDEWALK
13. ELECTRICAL ROOM CONNECTED TO GARBAGE SHED
14. GARBAGE STORAGE SHED (TO SERVICE 86 UNITS) C/W ROLLING STEEL DOOR, PROVIDE BINS ON CASTERS, MATCH TYPICAL FINISH MATERIALS, PROVIDE ELECTRICAL CONNECTION FOR LIGHTING
15. PROVIDE CONCRETE PAD FOR GARBAGE PICK-UP STAGING AREA
16. PROVIDE PAVED PATHWAY DESIGNED TO SUPPORT FULLY LOADED GARBAGE TRUCK (35,000 lbs.)
17. TRANSFORMER AND SWITCHGEAR, TO BE SPECIFIED BY ELECTRICAL ENGINEER
18. EXISTING BIKE RACK, RELOCATE IF NECESSARY
19. EXISTING LIGHT STANDARD TO BE RELOCATED IF NECESSARY (RELOCATED BY ELECTRICAL ENGINEER)
20. GROUP OF EXISTING TREES TO BE PROTECTED DURING CONSTRUCTION (EXACT LOCATION, SIZE AND NUMBER TO BE DETERMINED BY SURVEYOR)

GENERAL NOTES:

- A. REFER TO TYPICAL ASSEMBLIES SHEET FOR WALL, PARTITION, ROOF CEILING & FLOOR TYPES.
- B. FOR DOOR TYPES AND HARDWARE REQUIREMENTS REFER TO DOOR SCHEDULE ON A900 SERIES.
- C. ALL INTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF STUD
- D. ALL EXTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF STUD
- E. ALL EXTERIOR WALLS ARE TO BE TYPE 'W1' UNLESS NOTED OTHER WISE.
- F. ALL INTERIOR PARTITIONS ARE TO BE TYPE 'P1' UNLESS NOTED OTHER WISE.
- G. ALL REINFORCED CONCRETE SUSPENDED SLABS, COLUMNS & BEAMS HAVE A MIN. FRR OF 1.5 HRS (AS DETERMINED BY OBC SB-2) UNLESS OTHERWISE STATED.

LEGEND

- UNIT ENTRY POINT
- TRAFFIC FLOW
- 3 YRD. GARBAGE BIN (G3)
- 4 YRD. GARBAGE BIN (G4)
- 3 YRD. FIBROUS RECYCLING BIN (R3)
- 2 YRD. GLASS AND PLASTIC RECYCLING BIN (R2)
- TYPICAL PARKING SPACE (2600 / 5200)
- ORGANICS BIN (O)
- EXISTING TREES
- FIRE HYDRANT
- NEW LIGHT STANDARD
- EXISTING LIGHT STANDARD (LS)
- VISITOR PARKING (V#)
- RESIDENT PARKING (R#)
- GEODETIC ELEVATION MARKER (+115.03)
- PROPERTY LINE
- SETBACK LINE
- PHASING LINE
- FIRE TRUCK AND GARBAGE PICK UP ROUTE (FIRE ROUTE)
- PROPOSED BUILDING OUTLINE
- NEW PRIVACY FENCE
- EXISTING BOARD FENCE
- NEW PRIVATE DRIVEWAY
- NEW PRIVATE SIDEWALKS
- NEW PUBLIC SIDEWALKS

ADDITIONAL NOTES

- * BLOCKS 5 AND 7 WILL REQUIRE THE REDUCTION OF UNPROTECTED OPENINGS TO 17.25 % (LIMITING DISTANCE 5.5m)
- ** 6000mm DRIVE AISLES WILL BE SUBJECT TO APPROVAL OF A MINOR VARIANCE ALLOWING DRIVE AISLES NARROWER THAN 6700mm
- *** BLOCK 1 AND 4 WILL BE SUBJECT TO THE APPROVAL OF A MINOR VARIANCE ALLOWING MORE THAN 8 UNITS PER BLOCK OF TOWNHOUSES

DRAFT

No.	DESCRIPTION	DATE
	REVISIONS:	

ARCHITECT SEAL: F:\RLA Standards\RLA STAMP & SEAL.jpg — SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT: ...\0A24\Correspondence\Files\000\Drawings\GNDR developments.jpg

ARCHITECT: F:\RLA logos\RLA LOGO FINAL address medium.jpg

PROJECT TITLE: HAZELDEAN CROSSING TOWNS — OTTAWA ONTARIO

SHEET TITLE: SITE PLAN

DRAWN: L.M. | CHECKED: R.V.

SCALE: 1:150 | SHEET No. SP-0

PROJECT No. 1831

PLOT DATE: Tuesday, May 21, 2019

Plan No.: #_____

D0

PROJECT DEVELOPER
GNCR DEVELOPMENTS

Konaklar Mh. Akasyalı Sk.
No:26 34330
Beşiktaş İstanbul Turkey

PHONE: +90 212 212 60 60
FAX: +90 212 284 82 77

CIVIL ENGINEER
EXP SERVICES INC.

2650 QUEENSVIEW DRIVE
SUITE 100
OTTAWA, ONTARIO
K2B 8H6

PHONE: 613 688 1899

TRAFFIC ENGINEER
EXP SERVICES INC.

2650 QUEENSVIEW DRIVE
SUITE 100
OTTAWA, ONTARIO
K2B 8H6

PHONE: 613 688 1899

LANDSCAPE ARCHITECT
JAMES B. LENNOX AND ASSOCIATES INC

3332 CARLING AVE.
OTTAWA, ONTARIO, CANADA
K2H 5A8

PHONE: 613 722 5168
FAX: 1 866 343 3942

SURVEYOR
FAIRHALL MOFFATT & WOODLAND LTD.

3332 CARLING AVE.
OTTAWA, ONTARIO, CANADA
K2H 5A8

PHONE: 613 722 5168
FAX: 1 866 343 3942

SITE INFORMATION

ZONING (5924)	R4Z [1208]
MAX BUILDING HEIGHT	14.5 M.
LOT AREA	4931.0 SQ. M.
5924 HAZELDEAN RD STITTSVILLE, ONTARIO, CANADA K2S1B9	

ZONING (5938)	GM14 H[11]
MAX BUILDING HEIGHT	11.0 M.
LOT AREA	4647.0 SQ. M.
5938 HAZELDEAN RD STITTSVILLE, ONTARIO, CANADA K2S1B9	

SITE AREA	
TOTAL SITE AREA	9,578.0 SQ. M.

RESIDENTIAL UNITS	
STACKED TOWNHOUSES:	76
TRADITIONAL TOWNHOUSES:	10
TOTAL UNITS:	86

DEVELOPMENT STATISTICS

SITE SETBACKS (5924)	REQUIRED	PROVIDED
FRONT YARD (HAZELDEAN)	3.0m	3.0m
CORNER SIDE YARD (VICTOR)	3.0m	3.0m
REAR YARD	6.0m	14.85m*

SITE SETBACKS (5938)	REQUIRED	PROVIDED
FRONT YARD (HAZELDEAN)	3.0m	3.0m
REAR YARD	7.5m	7.5m
INTERIOR SIDE YARD (SW ONLY)	3.0m	3.0m

BUILDING STATISTICS	AREA	# OF UNITS	TOTAL UNIT AREA
STACKED TOWN TYPE A (1A) -	1,077 SQFT	22	23,716 SQFT
STACKED TOWN TYPE B (2A) -	968 SQFT	16	15,488 SQFT
STACKED TOWN TYPE C (1B) -	1,278 SQFT	22	28,116 SQFT
STACKED TOWN TYPE D (2B) -	1,168 SQFT	16	18,688 SQFT
TRADITIONAL TOWN TYPE A -	1,524 SQFT	4	6,096 SQFT
TRADITIONAL TOWN TYPE B -	1,506 SQFT	4	6,024 SQFT
TRADITIONAL TOWN TYPE C -	1,154 SQFT	2	2,308 SQFT
TOTAL -		86	100,436 SQFT (9,205.2 SQM)

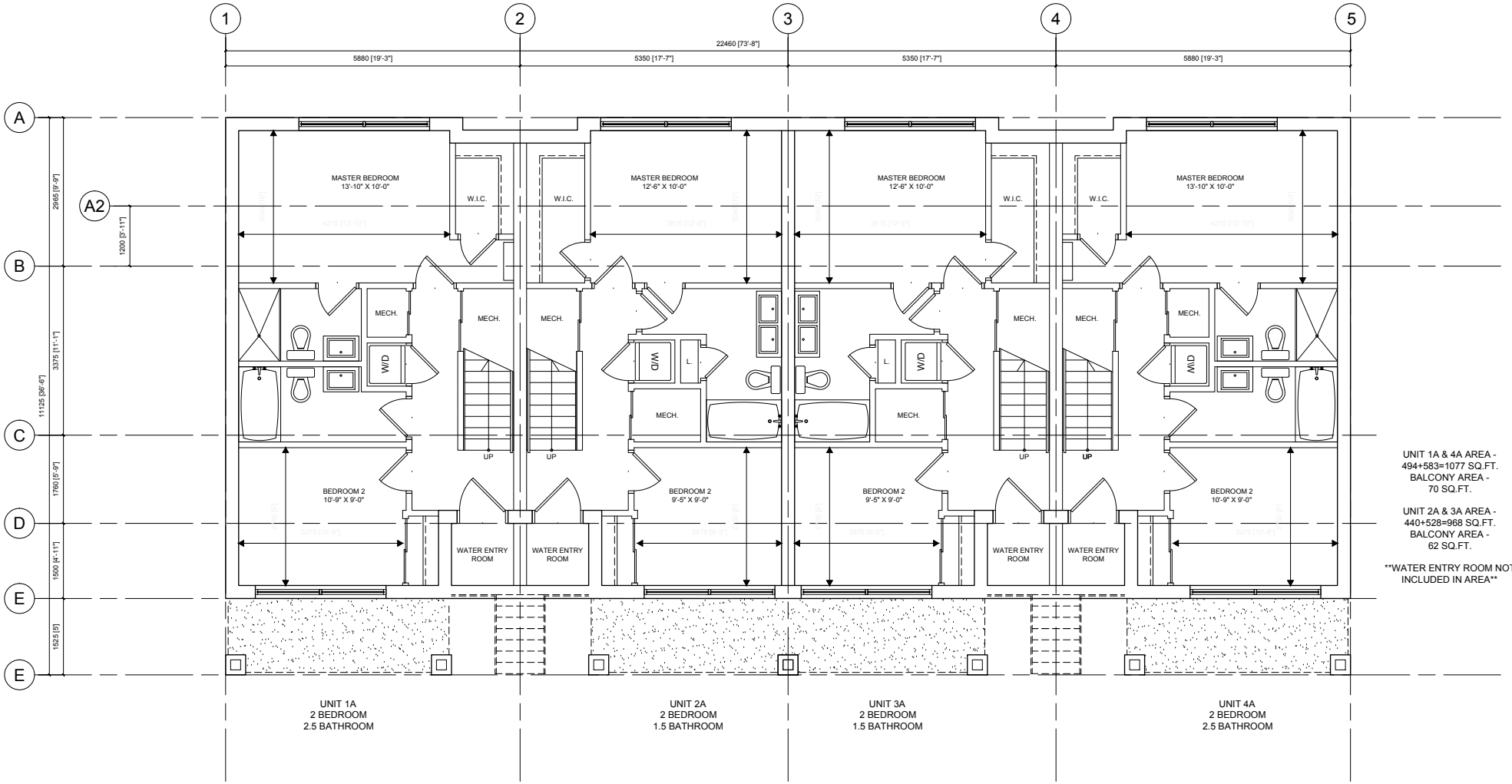
PARKING	REQUIRED	PROVIDED
STACKED TOWNS		
RESIDENTIAL:	1.2 PER DWELLING	
VISITOR:	0.2 PER DWELLING	
TRADITIONAL TOWNS		
RESIDENTIAL:	1.0 PER DWELLING	
VISITOR:	0.2 PER DWELLING	

PARKING	REQUIRED	PROVIDED
STACKED TOWNS		
RESIDENTIAL:	91	76
VISITOR:	15	15
TRADITIONAL TOWNS		
RESIDENTIAL:	10	14
VISITOR:	2	10

PHASING	UNITS
PHASE 1	
STACKED:	32
TRADITIONAL TOWN:	10
PHASE 2	
STACKED:	44
TRADITIONAL TOWN:	0
TOTAL:	86

SITE COVERAGE

SPACE		AREA (sq.m.)
BUILDING FOOTPRINT	-	2,968.5
PARKING LOT	-	2,996.2
SIDEWALKS	-	542.3
DRIVEWAYS	-	262.5
LOT AREA		
PHASE 1	-	5,123.9
PHASE 2	-	4,454.1
TOTAL	-	9,578.0
LANDSCAPE SPACE	-	3,350.8
TOTAL LANDSCAPE SPACE (%)	-	35.0



UNIT 1A & 4A AREA -
494+583=1077 SQ.FT.
BALCONY AREA -
70 SQ.FT.

UNIT 2A & 3A AREA -
440+528=968 SQ.FT.
BALCONY AREA -
62 SQ.FT.

WATER ENTRY ROOM NOT INCLUDED IN AREA

rla/architecture

BASEMENT FLOOR PLAN

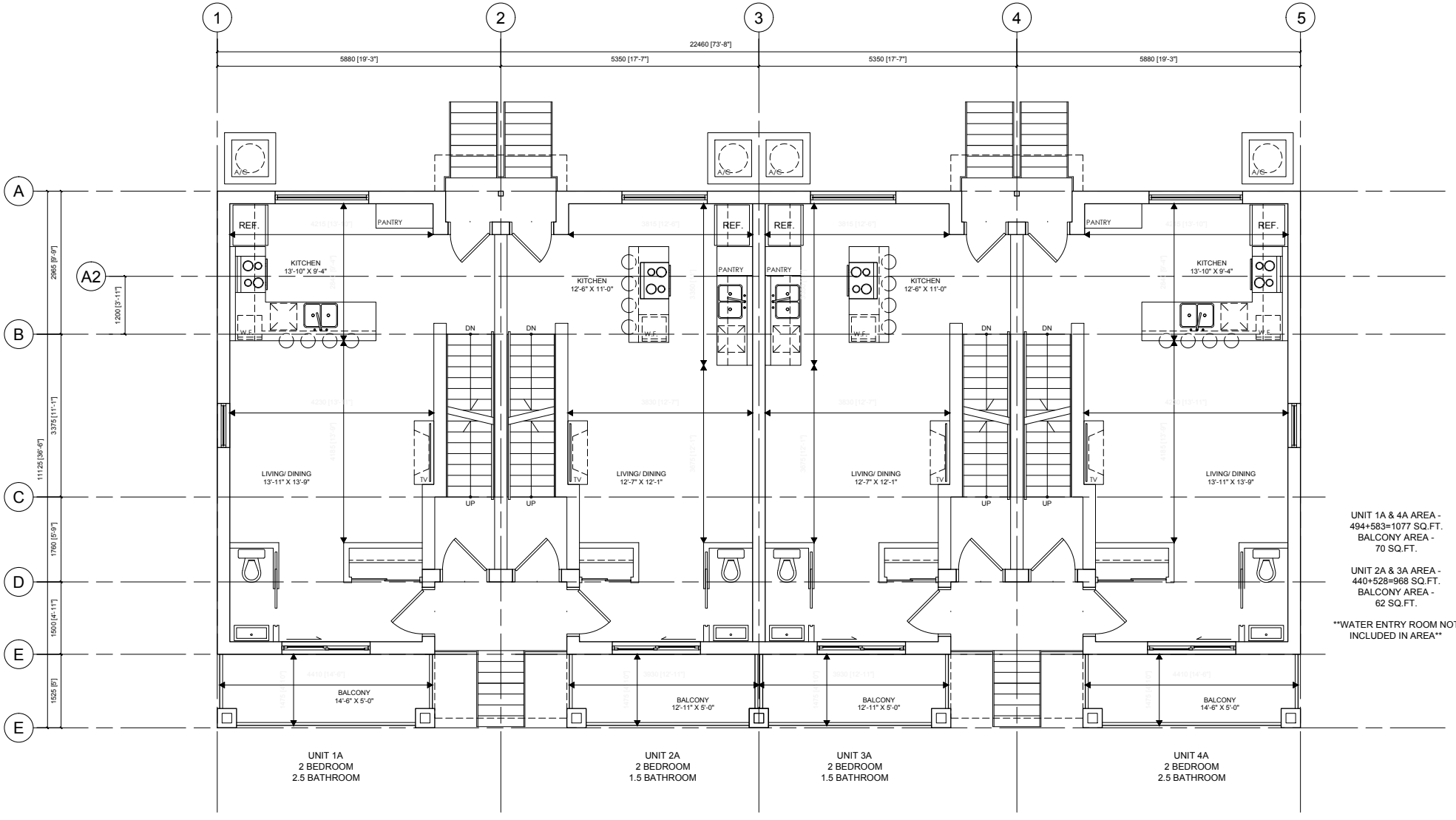
DATE:15-02-2019

SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

01



UNIT 1A & 4A AREA -
494+583=1077 SQ.FT.
BALCONY AREA -
70 SQ.FT.

UNIT 2A & 3A AREA -
440+528=968 SQ.FT.
BALCONY AREA -
62 SQ.FT.

WATER ENTRY ROOM NOT INCLUDED IN AREA

rla/architecture

GROUND FLOOR PLAN

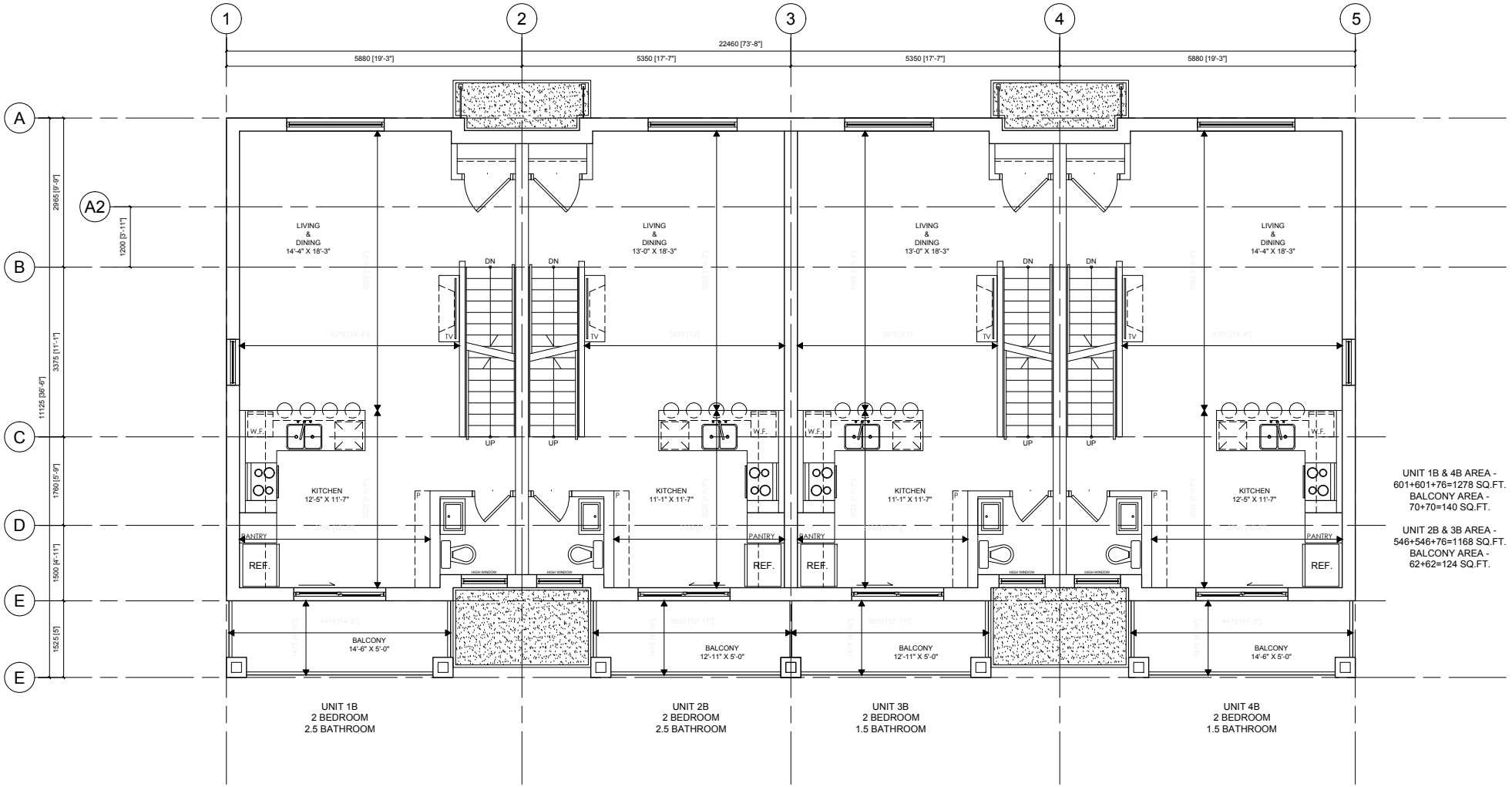
DATE:15-02-2019

SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

02



UNIT 1B & 4B AREA -
601+601+76=1278 SQ.FT.
BALCONY AREA -
70+70=140 SQ.FT.

UNIT 2B & 3B AREA -
546+546+76=1168 SQ.FT.
BALCONY AREA -
62+62=124 SQ.FT.

rla/architecture

SECOND FLOOR PLAN

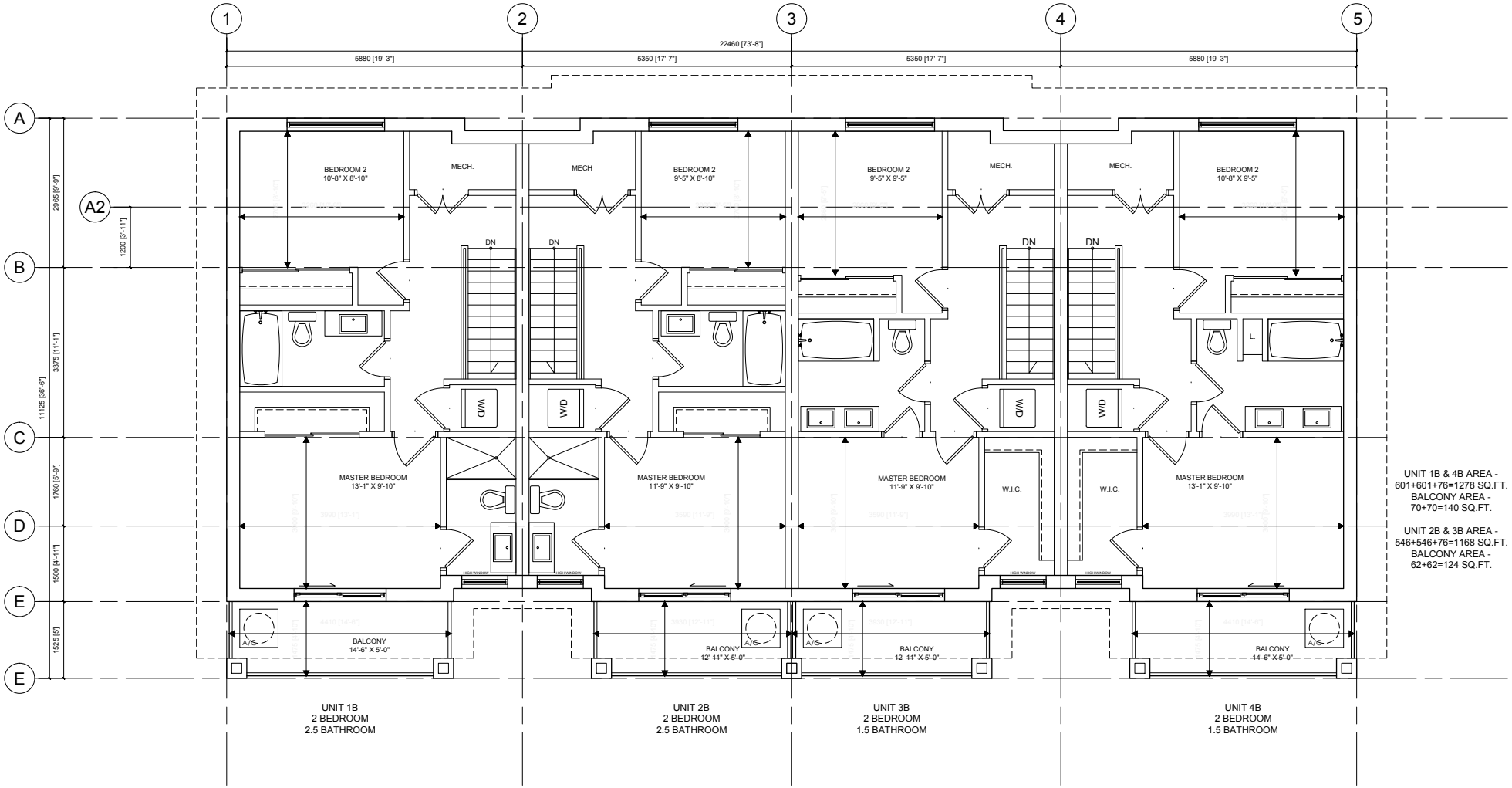
DATE:15-02-2019

SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

03



UNIT 1B & 4B AREA -
601+601+76=1278 SQ.FT.
BALCONY AREA -
70+70=140 SQ.FT.

UNIT 2B & 3B AREA -
546+546+76=1168 SQ.FT.
BALCONY AREA -
62+62=124 SQ.FT.

rla/architecture

3RD FLOOR PLAN

DATE:15-02-2019

SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

04

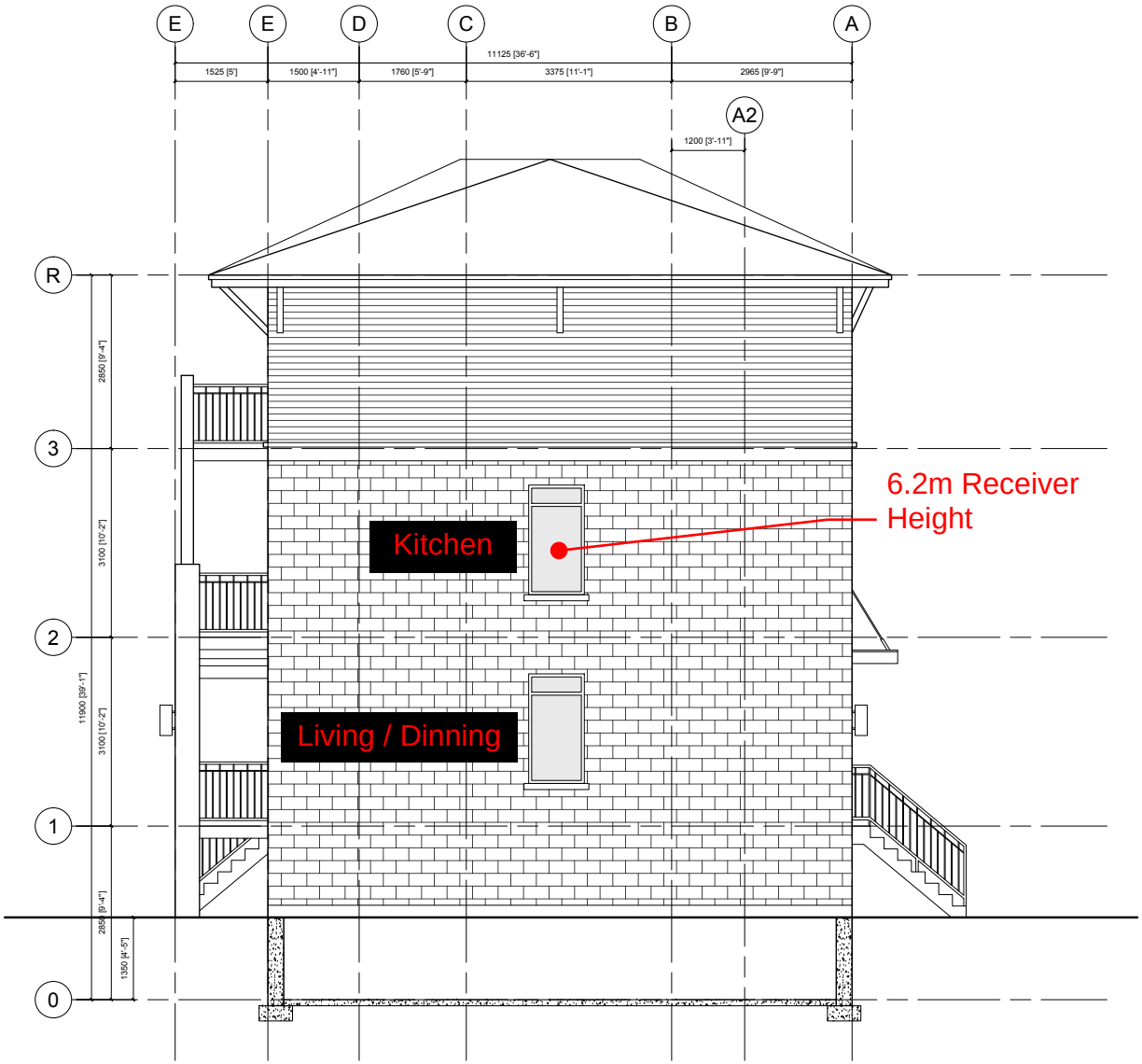
rla/architecture

STACKED TOWNS:
FRONT ELEVATION
DATE:15-02-2019
SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR
HOLDING

05



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STACKED TOWNS:
SIDE ELEVATION
DATE:15-02-2019
SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

06

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STACKED TOWNS:
REAR ELEVATION
DATE:15-02-2019
SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

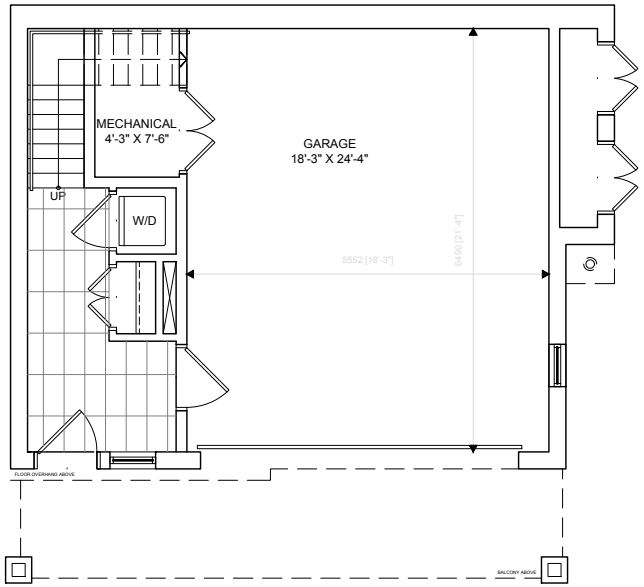
GNCR HOLDING

07

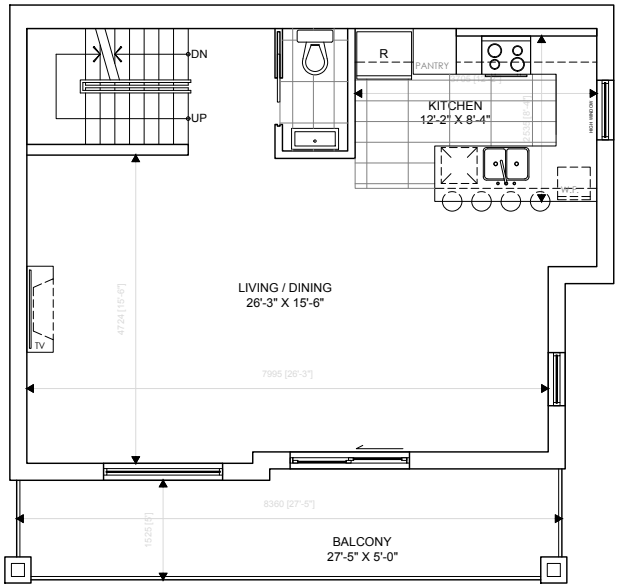
PAPER SIZE: ANSI Full Bleed B (11.00 X 17.00 Inches) PLOT DATE: Thursday, March 07, 2019 PLOT SCALE: 2.5 PLOT STYLE: 1-RLA MASTER-50%.ctb F:\2018\1831 - 5924 Hazeldean (GNCR Holding)\01_Design Development\1831_STACKED TOWNS_22-10-2018.dwg

UNIT A

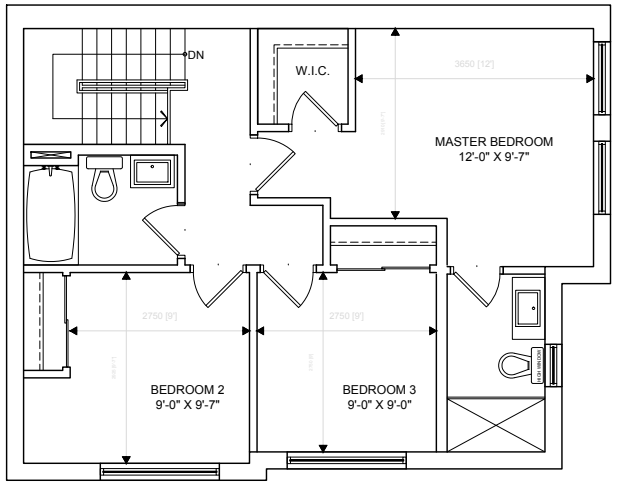
1517 SQ. FT.
3 BEDROOM, 2.5 BATHROOM
DOUBLE CAR GARAGE



GROUND
179 SQ. FT.



MAIN
669 SQ. FT.



UPPER
669 SQ. FT.

rla/architecture

BACK TO BACK: UNIT A
DATE:13-02-2019
SCALE: 1:75

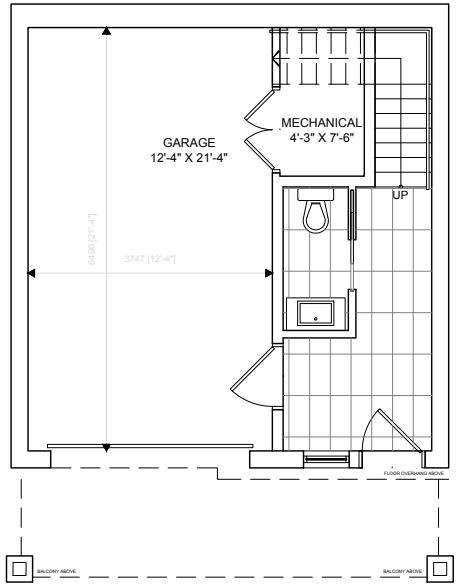
5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

08

UNIT B

1165 SQ. FT.
2 BEDROOM, 2.5 BATHROOM
SINGLE CAR GARAGE



GROUND
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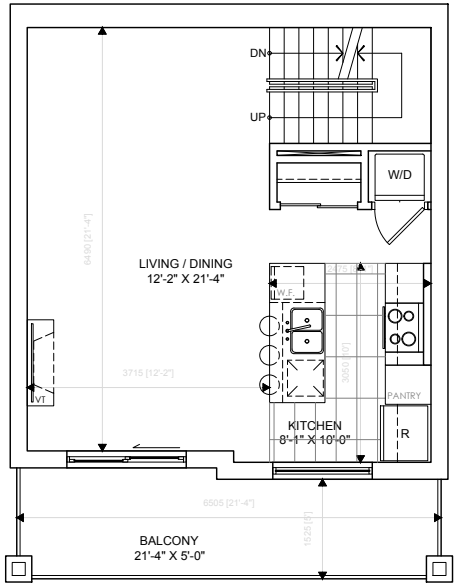
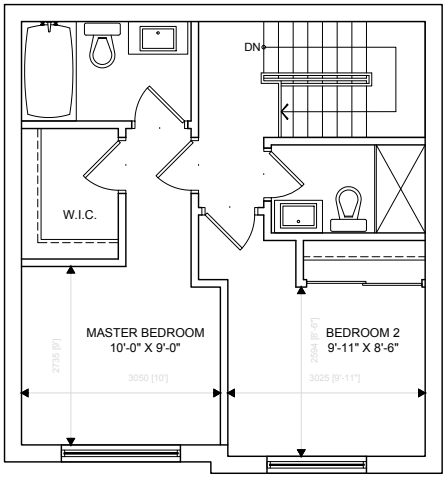


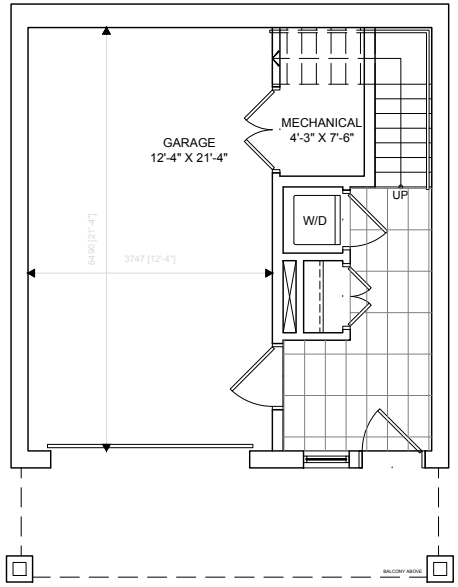
MAIN
493 SQ. FT.



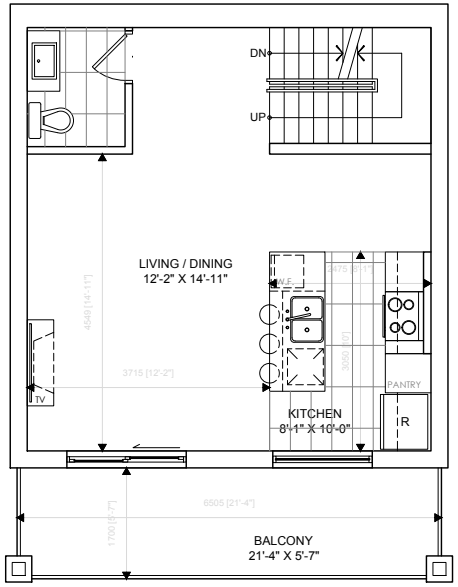
UPPER
493 SQ. FT.

UNIT C

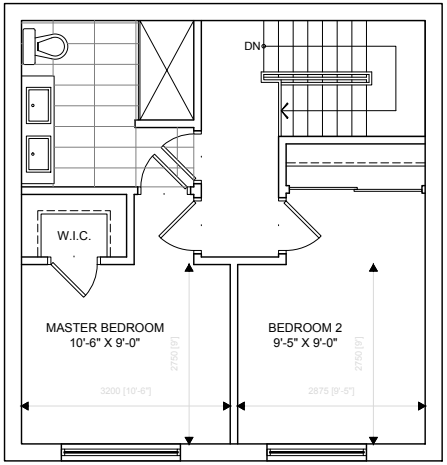
1165 SQ. FT.
2 BEDROOM, 1.5 BATHROOM
SINGLE CAR GARAGE



GROUND
179 SQ. FT.



MAIN
493 SQ. FT.



UPPER
493 SQ. FT.

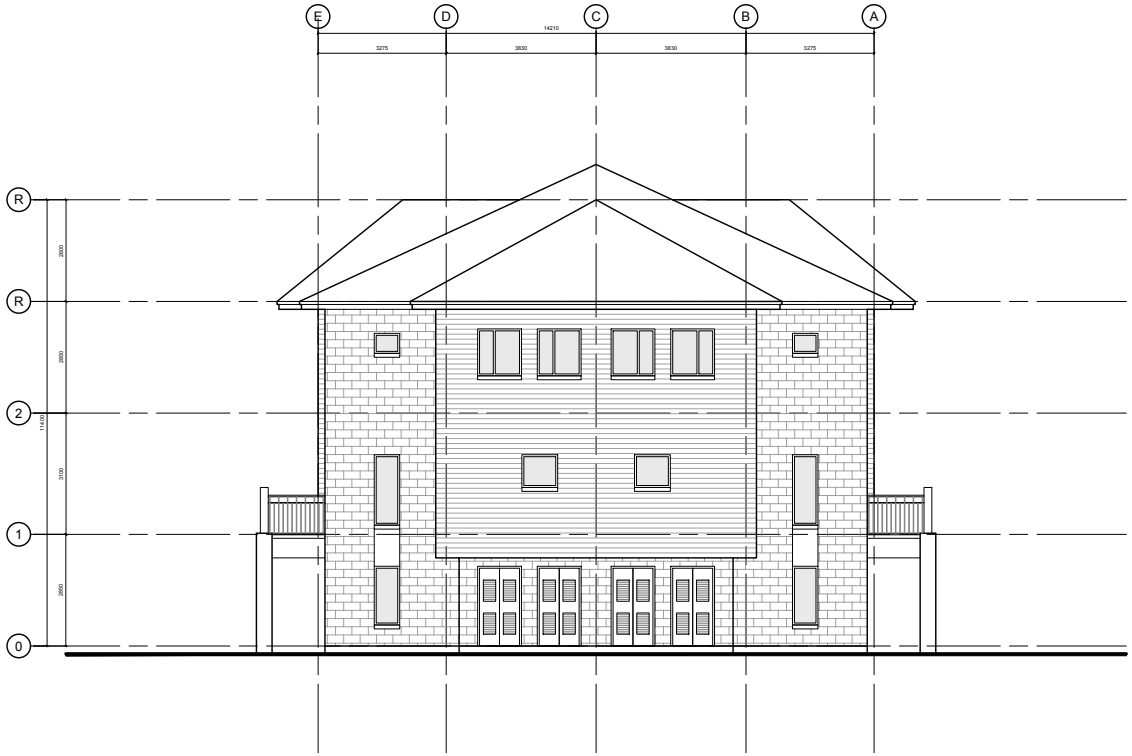
rla/architecture

BACK TO BACK:
FRONT/REAR ELEVATION
DATE:13-02-2019
SCALE: 1:125

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

11



rla/architecture

BACK TO BACK: SIDE ELEVATION

DATE:13-02-2019

SCALE: 1:125

5924 HAZELDEAN RD

OTTAWA ONTARIO

GNCR HOLDING

12

rla/architecture

STACKED TOWNS:
FRONT VIEW
DATE:15-02-2019
SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR
HOLDING

13

rla/architecture

STACKED TOWNS
DATE:15-02-2019
SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

14

rla/architecture

STACKED TOWNS
DATE:15-02-2019
SCALE: 1:75

5924 HAZELDEAN RD
OTTAWA ONTARIO

GNCR HOLDING

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Appendix D – STAMSON Output

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 14:41:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.80 / 15.80 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 28.10 / 28.10 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 69.77 + 0.00) = 69.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.00	0.00	-0.23	0.00	0.00	0.00	0.00	69.77

Segment Leq : 69.77 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 67.27 + 0.00) = 67.27 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.00	0.00	-2.73	0.00	0.00	0.00	0.00	67.27

Segment Leq : 67.27 dBA

Total Leq All Segments: 71.71 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 62.17 + 0.00) = 62.17 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.40	0.00	-0.23	0.00	0.00	0.00	0.00	62.17

Segment Leq : 62.17 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 59.67 + 0.00) = 59.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.40	0.00	-2.73	0.00	0.00	0.00	0.00	59.67

Segment Leq : 59.67 dBA

Total Leq All Segments: 64.11 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.71
(NIGHT): 64.11

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 14:44:56
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 15.20 / 15.20 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : -90.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 27.50 / 27.50 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 69.94 + 0.00) = 69.94 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.00	0.00	-0.06	0.00	0.00	0.00	0.00	69.94

Segment Leq : 69.94 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 67.36 + 0.00) = 67.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	70.00	0.00	-2.63	0.00	0.00	0.00	0.00	67.36

Segment Leq : 67.36 dBA

Total Leq All Segments: 71.85 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 62.34 + 0.00) = 62.34 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.40	0.00	-0.06	0.00	0.00	0.00	0.00	62.34

Segment Leq : 62.34 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 59.77 + 0.00) = 59.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	90	0.00	62.40	0.00	-2.63	0.00	0.00	0.00	0.00	59.77

Segment Leq : 59.77 dBA

Total Leq All Segments: 64.25 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 71.85
(NIGHT): 64.25

STAMSON 5.0 NORMAL REPORT Date: 16-05-2019 10:18:35
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.10 / 20.10 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 32.50 / 32.50 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 65.71 + 0.00) = 65.71 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	70.00	0.00	-1.27	-3.01	0.00	0.00	0.00	65.71

Segment Leq : 65.71 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 63.63 + 0.00) = 63.63 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	70.00	0.00	-3.36	-3.01	0.00	0.00	0.00	63.63

Segment Leq : 63.63 dBA

Total Leq All Segments: 67.80 dBA

Results segment # 1: East B (night)

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	90	0.00	62.40	0.00	-1.27	-3.01	0.00	0.00	0.00	58.12

Segment Leq : 58.12 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 56.03 + 0.00) = 56.03 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	62.40	0.00	-3.36	-3.01	0.00	0.00	0.00	56.03

Segment Leq : 56.03 dBA

Total Leq All Segments: 60.21 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 67.80
(NIGHT): 60.21

STAMSON 5.0 NORMAL REPORT Date: 16-05-2019 10:20:32
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 27.50 / 27.50 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : -45.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 40.00 / 40.00 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 66.11 + 0.00) = 66.11 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.00	70.00	0.00	-2.63	-1.25	0.00	0.00	0.00	66.11

Segment Leq : 66.11 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 64.49 + 0.00) = 64.49 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.00	70.00	0.00	-4.26	-1.25	0.00	0.00	0.00	64.49

Segment Leq : 64.49 dBA

Total Leq All Segments: 68.39 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 58.52 + 0.00) = 58.52 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.00	62.40	0.00	-2.63	-1.25	0.00	0.00	0.00	58.52

Segment Leq : 58.52 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 56.89 + 0.00) = 56.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-45	90	0.00	62.40	0.00	-4.26	-1.25	0.00	0.00	0.00	56.89

Segment Leq : 56.89 dBA

Total Leq All Segments: 60.79 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 68.39
(NIGHT): 60.79

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 14:48:26
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 30.20 / 30.20 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : 0.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 42.80 / 42.80 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 63.95 + 0.00) = 63.95 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	70.00	0.00	-3.04	-3.01	0.00	0.00	0.00	63.95

Segment Leq : 63.95 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 62.43 + 0.00) = 62.43 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	70.00	0.00	-4.55	-3.01	0.00	0.00	0.00	62.43

Segment Leq : 62.43 dBA

Total Leq All Segments: 66.27 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 56.35 + 0.00) = 56.35 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	62.40	0.00	-3.04	-3.01	0.00	0.00	0.00	56.35

Segment Leq : 56.35 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 54.84 + 0.00) = 54.84 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
0	90	0.00	62.40	0.00	-4.55	-3.01	0.00	0.00	0.00	54.84

Segment Leq : 54.84 dBA

Total Leq All Segments: 58.67 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 66.27
(NIGHT): 58.67

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 15:15:02
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: East B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B wall (day/night)

Angle1 Angle2 : -90.00 deg -22.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.20 / 20.20 m
Receiver height : 6.20 / 9.25 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -22.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 7.68 / 7.68 m
Source elevation : 114.75 m
Receiver elevation : 115.10 m
Barrier elevation : 114.91 m
Reference angle : 0.00

↟
Road data, segment # 2: East B open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *

Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: East B open (day/night)

Angle1 Angle2 : -22.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.20 / 20.20 m
Receiver height : 6.20 / 9.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 3: West B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: West B wall (day/night)

Angle1 Angle2 : -90.00 deg -22.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  32.10 / 32.10  m
Receiver height            :   6.20 / 9.25   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : -22.00 deg
Barrier height             :   3.00 m
Barrier receiver distance  :   7.68 / 7.68   m
Source elevation           : 114.64 m
Receiver elevation         : 115.10 m
Barrier elevation          : 114.91 m
Reference angle            :   0.00
```

🡅

```
Road data, segment # 4: West B open (day/night)
-----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: West B open (day/night)
---------------------------------------------
Angle1   Angle2           : -22.00 deg   0.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      0 / 0
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  32.10 / 32.10  m
Receiver height           :   6.20 / 9.25   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

🡅

```
Results segment # 1: East B wall (day)
--------------------------------------

Source height = 1.50 m
```



```
Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.20 !        4.47 !       119.38

ROAD (0.00 + 64.48 + 0.00) = 64.48 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -22   0.00  70.00   0.00  -1.29  -4.23   0.00   0.00  -0.57  63.90*
   -90    -22   0.00  70.00   0.00  -1.29  -4.23   0.00   0.00   0.00  64.48
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 64.48 dBA
```

🡅

```
Results segment # 2: East B open (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 59.58 + 0.00) = 59.58 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -22      0   0.00  70.00   0.00  -1.29  -9.13   0.00   0.00   0.00  59.58
-------------------------------------------------------------------------------

Segment Leq : 59.58 dBA
```

🡅

```
Results segment # 3: West B wall (day)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.20 !        5.15 !       120.06

ROAD (0.00 + 62.46 + 0.00) = 62.46 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
```

-90	-22	0.00	70.00	0.00	-3.30	-4.23	0.00	0.00	-0.30	62.16*
-90	-22	0.00	70.00	0.00	-3.30	-4.23	0.00	0.00	0.00	62.46

* Bright Zone !

Segment Leq : 62.46 dBA

Results segment # 4: West B open (day)

Source height = 1.50 m

ROAD (0.00 + 57.56 + 0.00) = 57.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-22	0	0.00	70.00	0.00	-3.30	-9.13	0.00	0.00	0.00	57.56

Segment Leq : 57.56 dBA

Total Leq All Segments: 67.81 dBA

Results segment # 1: East B wall (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	9.25	6.36	121.27

ROAD (0.00 + 56.88 + 0.00) = 56.88 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-22	0.00	62.40	0.00	-1.29	-4.23	0.00	0.00	-0.12	56.76*
-90	-22	0.00	62.40	0.00	-1.29	-4.23	0.00	0.00	0.00	56.88

* Bright Zone !

Segment Leq : 56.88 dBA

Results segment # 2: East B open (night)

Source height = 1.50 m

ROAD (0.00 + 51.98 + 0.00) = 51.98 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-22	0	0.00	62.40	0.00	-1.29	-9.13	0.00	0.00	0.00	51.98

Segment Leq : 51.98 dBA

Results segment # 3: West B wall (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	9.25	7.47	122.38

ROAD (0.00 + 54.87 + 0.00) = 54.87 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-22	0.00	62.40	0.00	-3.30	-4.23	0.00	0.00	-0.08	54.79*
-90	-22	0.00	62.40	0.00	-3.30	-4.23	0.00	0.00	0.00	54.87

* Bright Zone !

Segment Leq : 54.87 dBA

Results segment # 4: West B open (night)

Source height = 1.50 m

ROAD (0.00 + 49.97 + 0.00) = 49.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-22	0	0.00	62.40	0.00	-3.30	-9.13	0.00	0.00	0.00	49.97

Segment Leq : 49.97 dBA

Total Leq All Segments: 60.22 dBA

♠

TOTAL Leq FROM ALL SOURCES (DAY): 67.81
(NIGHT): 60.22

♠
♠

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 14:57:55
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: East B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B wall (day/night)

Angle1 Angle2 : -90.00 deg -8.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 33.40 / 33.40 m
Receiver height : 6.00 / 9.25 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -8.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 20.90 / 20.90 m
Source elevation : 114.75 m
Receiver elevation : 115.40 m
Barrier elevation : 114.91 m
Reference angle : 0.00

↟
Road data, segment # 2: East B open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *

Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: East B open (day/night)

Angle1 Angle2 : -8.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 33.40 / 33.40 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 3: West B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: West B wall (day/night)

Angle1 Angle2 : -90.00 deg -8.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  45.30 / 45.30  m
Receiver height            :   6.00 / 9.25   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : -8.00 deg
Barrier height             :   3.00 m
Barrier receiver distance  :  20.90 / 20.90  m
Source elevation           : 114.64 m
Receiver elevation         : 115.40 m
Barrier elevation          : 114.91 m
Reference angle            :   0.00
```

🠉

```
Road data, segment # 4: West B open (day/night)
-----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: West B open (day/night)
---------------------------------------------
Angle1   Angle2            :  -8.00 deg   0.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  45.30 / 45.30  m
Receiver height            :   6.00 / 9.25   m
Topography                 :      1       (Flat/gentle slope; no barrier)
Reference angle            :   0.00
```

🠉

```
Results segment # 1: East B wall (day)
--------------------------------------

Source height = 1.50 m
```



```
Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.00 !        3.26 !       118.17

ROAD (0.00 + 63.11 + 0.00) = 63.11 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -8   0.00  70.00   0.00  -3.48  -3.41   0.00   0.00  -4.86  58.25*
   -90     -8   0.00  70.00   0.00  -3.48  -3.41   0.00   0.00   0.00  63.11
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 63.11 dBA
```

🠉

```
Results segment # 2: East B open (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 53.00 + 0.00) = 53.00 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -8      0   0.00  70.00   0.00  -3.48 -13.52   0.00   0.00   0.00  53.00
-------------------------------------------------------------------------------

Segment Leq : 53.00 dBA
```

🠉

```
Results segment # 3: West B wall (day)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.00 !        4.06 !       118.97

ROAD (0.00 + 61.78 + 0.00) = 61.78 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
```

-90	-8	0.00	70.00	0.00	-4.80	-3.41	0.00	0.00	-3.01	58.77*
-90	-8	0.00	70.00	0.00	-4.80	-3.41	0.00	0.00	0.00	61.78

* Bright Zone !

Segment Leq : 61.78 dBA

Results segment # 4: West B open (day)

Source height = 1.50 m

ROAD (0.00 + 51.67 + 0.00) = 51.67 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-8	0	0.00	70.00	0.00	-4.80	-13.52	0.00	0.00	0.00	51.67

Segment Leq : 51.67 dBA

Total Leq All Segments: 65.91 dBA

Results segment # 1: East B wall (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	9.25	4.48	119.39

ROAD (0.00 + 55.51 + 0.00) = 55.51 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.00	62.40	0.00	-3.48	-3.41	0.00	0.00	-0.78	54.73*
-90	-8	0.00	62.40	0.00	-3.48	-3.41	0.00	0.00	0.00	55.51

* Bright Zone !

Segment Leq : 55.51 dBA

Results segment # 2: East B open (night)

Source height = 1.50 m

ROAD (0.00 + 45.40 + 0.00) = 45.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-8	0	0.00	62.40	0.00	-3.48	-13.52	0.00	0.00	0.00	45.40

Segment Leq : 45.40 dBA

Results segment # 3: West B wall (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	9.25	5.81	120.72

ROAD (0.00 + 54.18 + 0.00) = 54.18 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-8	0.00	62.40	0.00	-4.80	-3.41	0.00	0.00	-0.28	53.91*
-90	-8	0.00	62.40	0.00	-4.80	-3.41	0.00	0.00	0.00	54.18

* Bright Zone !

Segment Leq : 54.18 dBA

Results segment # 4: West B open (night)

Source height = 1.50 m

ROAD (0.00 + 44.08 + 0.00) = 44.08 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-8	0	0.00	62.40	0.00	-4.80	-13.52	0.00	0.00	0.00	44.08

Segment Leq : 44.08 dBA

Total Leq All Segments: 58.31 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.91
(NIGHT): 58.31

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 14:57:15
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: East B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B wall (day/night)

Angle1 Angle2 : -90.00 deg -6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 39.10 / 39.10 m
Receiver height : 6.00 / 9.25 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -6.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 26.60 / 26.60 m
Source elevation : 114.75 m
Receiver elevation : 115.40 m
Barrier elevation : 114.91 m
Reference angle : 0.00

↟
Road data, segment # 2: East B open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *

Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: East B open (day/night)

Angle1 Angle2 : -6.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 39.10 / 39.10 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 3: West B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: West B wall (day/night)

Angle1 Angle2 : -90.00 deg -6.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  51.00 / 51.00  m
Receiver height            :   6.00 / 9.25   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : -6.00 deg
Barrier height             :   3.00 m
Barrier receiver distance  :  26.60 / 26.60  m
Source elevation           : 114.64 m
Receiver elevation         : 115.40 m
Barrier elevation          : 114.91 m
Reference angle            :   0.00
```

🠉

```
Road data, segment # 4: West B open (day/night)
-----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: West B open (day/night)
---------------------------------------------
Angle1   Angle2            :  -6.00 deg   0.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  51.00 / 51.00  m
Receiver height            :   6.00 / 9.25   m
Topography                 :      1       (Flat/gentle slope; no barrier)
Reference angle            :   0.00
```

🠉

```
Results segment # 1: East B wall (day)
--------------------------------------

Source height = 1.50 m
```



```
Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.00 !        2.98 !       117.89

ROAD (0.00 + 57.52 + 0.00) = 57.52 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -6   0.00  70.00   0.00  -4.16  -3.31   0.00   0.00  -5.00  57.52
-------------------------------------------------------------------------------

Segment Leq : 57.52 dBA
```

🠉

```
Results segment # 2: East B open (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 51.06 + 0.00) = 51.06 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -6      0   0.00  70.00   0.00  -4.16 -14.77   0.00   0.00   0.00  51.06
-------------------------------------------------------------------------------

Segment Leq : 51.06 dBA
```

🠉

```
Results segment # 3: West B wall (day)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.00 !        3.74 !       118.65

ROAD (0.00 + 61.37 + 0.00) = 61.37 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -6   0.00  70.00   0.00  -5.31  -3.31   0.00   0.00  -4.24  57.13*
   -90     -6   0.00  70.00   0.00  -5.31  -3.31   0.00   0.00   0.00  61.37
-------------------------------------------------------------------------------
```

 * Bright Zone !

Segment Leq : 61.37 dBA

↟
Results segment # 4: West B open (day)

Source height = 1.50 m

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
-6	0	0.00	70.00	0.00	-5.31	-14.77	0.00	0.00	0.00	49.91

Segment Leq : 49.91 dBA

Total Leq All Segments: 63.35 dBA

↟
Results segment # 1: East B wall (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	9.25	4.02	118.93

ROAD (0.00 + 54.93 + 0.00) = 54.93 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-6	0.00	62.40	0.00	-4.16	-3.31	0.00	0.00	-2.47	52.46*
-90	-6	0.00	62.40	0.00	-4.16	-3.31	0.00	0.00	0.00	54.93

 * Bright Zone !

Segment Leq : 54.93 dBA

↟
Results segment # 2: East B open (night)

Source height = 1.50 m

ROAD (0.00 + 43.47 + 0.00) = 43.47 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-6	0	0.00	62.40	0.00	-4.16	-14.77	0.00	0.00	0.00	43.47

Segment Leq : 43.47 dBA

↟
Results segment # 3: West B wall (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	9.25	5.30	120.21

ROAD (0.00 + 53.77 + 0.00) = 53.77 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-6	0.00	62.40	0.00	-5.31	-3.31	0.00	0.00	-0.47	53.31*
-90	-6	0.00	62.40	0.00	-5.31	-3.31	0.00	0.00	0.00	53.77

 * Bright Zone !

Segment Leq : 53.77 dBA

↟
Results segment # 4: West B open (night)

Source height = 1.50 m

ROAD (0.00 + 42.31 + 0.00) = 42.31 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-6	0	0.00	62.40	0.00	-5.31	-14.77	0.00	0.00	0.00	42.31

Segment Leq : 42.31 dBA

Total Leq All Segments: 57.70 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.35
(NIGHT): 57.70

STAMSON 5.0 NORMAL REPORT Date: 15-05-2019 15:07:14
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: East B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B wall (day/night)

Angle1 Angle2 : -90.00 deg -5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 47.20 / 47.20 m
Receiver height : 6.00 / 9.25 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -5.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 34.60 / 34.60 m
Source elevation : 114.44 m
Receiver elevation : 115.40 m
Barrier elevation : 114.91 m
Reference angle : 0.00

↟
Road data, segment # 2: East B open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *

Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: East B open (day/night)

Angle1 Angle2 : -5.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 47.20 / 47.20 m
Receiver height : 6.00 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 3: West B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: West B wall (day/night)

Angle1 Angle2 : -90.00 deg -5.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  59.00 / 59.00  m
Receiver height            :   6.00 / 9.25   m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : -5.00 deg
Barrier height             :   3.00 m
Barrier receiver distance  :  34.60 / 34.60  m
Source elevation           : 114.37 m
Receiver elevation         : 115.50 m
Barrier elevation          : 114.91 m
Reference angle            :   0.00
```

↟

```
Road data, segment # 4: West B open (day/night)
-----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: West B open (day/night)
---------------------------------------------
Angle1   Angle2            :  -5.00 deg   0.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      0 / 0
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  59.00 / 59.00  m
Receiver height            :   6.00 / 9.25   m
Topography                 :      1       (Flat/gentle slope; no barrier)
Reference angle            :   0.00
```

↟

```
Results segment # 1: East B wall (day)
--------------------------------------

Source height = 1.50 m
```



```
Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.00 !        2.48 !       117.39

ROAD (0.00 + 56.33 + 0.00) = 56.33 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -5   0.00  70.00   0.00  -4.98  -3.26   0.00   0.00  -5.43  56.33
-------------------------------------------------------------------------------

Segment Leq : 56.33 dBA
```

↟

```
Results segment # 2: East B open (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 49.45 + 0.00) = 49.45 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    -5      0   0.00  70.00   0.00  -4.98 -15.56   0.00   0.00   0.00  49.45
-------------------------------------------------------------------------------

Segment Leq : 49.45 dBA
```

↟

```
Results segment # 3: West B wall (day)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.00 !        3.29 !       118.20

ROAD (0.00 + 60.79 + 0.00) = 60.79 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90     -5   0.00  70.00   0.00  -5.95  -3.26   0.00   0.00  -4.91  55.88*
   -90     -5   0.00  70.00   0.00  -5.95  -3.26   0.00   0.00   0.00  60.79
-------------------------------------------------------------------------------
```

 * Bright Zone !

Segment Leq : 60.79 dBA

♠
Results segment # 4: West B open (day)

Source height = 1.50 m

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
-5	0	0.00	70.00	0.00	-5.95	-15.56	0.00	0.00	0.00	48.49

Segment Leq : 48.49 dBA

Total Leq All Segments: 62.52 dBA

♠
Results segment # 1: East B wall (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	9.25	3.35	118.26

ROAD (0.00 + 54.16 + 0.00) = 54.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-5	0.00	62.40	0.00	-4.98	-3.26	0.00	0.00	-4.79	49.38*
-90	-5	0.00	62.40	0.00	-4.98	-3.26	0.00	0.00	0.00	54.16

 * Bright Zone !

Segment Leq : 54.16 dBA

♠
Results segment # 2: East B open (night)

Source height = 1.50 m

ROAD (0.00 + 41.86 + 0.00) = 41.86 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	0	0.00	62.40	0.00	-4.98	-15.56	0.00	0.00	0.00	41.86

Segment Leq : 41.86 dBA

♠
Results segment # 3: West B wall (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	9.25	4.63	119.54

ROAD (0.00 + 53.19 + 0.00) = 53.19 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-90	-5	0.00	62.40	0.00	-5.95	-3.26	0.00	0.00	-1.17	52.03*
-90	-5	0.00	62.40	0.00	-5.95	-3.26	0.00	0.00	0.00	53.19

 * Bright Zone !

Segment Leq : 53.19 dBA

♠
Results segment # 4: West B open (night)

Source height = 1.50 m

ROAD (0.00 + 40.89 + 0.00) = 40.89 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-5	0	0.00	62.40	0.00	-5.95	-15.56	0.00	0.00	0.00	40.89

Segment Leq : 40.89 dBA

Total Leq All Segments: 56.96 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 62.52
(NIGHT): 56.96

STAMSON 5.0 SUMMARY REPORT Date: 15-05-2019 15:40:21
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: East B (day/night)

```
Angle1   Angle2           : -48.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  57.50 / 57.50  m
Receiver height           :   6.00 / 9.25   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 2: West B (day/night)

```
Angle1   Angle2           : -48.00 deg   67.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  69.40 / 69.40  m
Receiver height           :   6.00 / 9.25   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	54.94	54.94
2.West B	1.50	54.23	54.23
Total			57.61 dBA

↟

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	47.35	47.35
2.West B	1.50	46.63	46.63
Total			50.02 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 57.61
(NIGHT): 50.02

STAMSON 5.0 NORMAL REPORT Date: 16-05-2019 10:23:18
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

Road data, segment # 1: East B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B wall (day/night)

Angle1 Angle2 : -90.00 deg -40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 34.00 / 34.00 m
Receiver height : 6.20 / 9.25 m
Topography : 2 (Flat/gentle slope; with barrier)
Barrier angle1 : -90.00 deg Angle2 : -40.00 deg
Barrier height : 3.00 m
Barrier receiver distance : 18.20 / 18.20 m
Source elevation : 114.70 m
Receiver elevation : 114.61 m
Barrier elevation : 114.91 m
Reference angle : 0.00

↟
Road data, segment # 2: East B open (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *

Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: East B open (day/night)

Angle1 Angle2 : 73.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 1 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 34.00 / 34.00 m
Receiver height : 6.20 / 9.20 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

↟
Road data, segment # 3: West B wall (day/night)

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 3: West B wall (day/night)

Angle1 Angle2 : -90.00 deg -40.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0

```
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  42.60 / 42.60   m
Receiver height            :   6.20 / 9.25    m
Topography                 :      2       (Flat/gentle slope; with barrier)
Barrier angle1             : -90.00 deg   Angle2 : -40.00 deg
Barrier height             :   3.00 m
Barrier receiver distance  :   7.68 / 7.68    m
Source elevation           : 114.64 m
Receiver elevation         : 115.10 m
Barrier elevation          : 114.91 m
Reference angle            :   0.00
```

🡅

```
Road data, segment # 4: West B open (day/night)
-----------------------------------------------
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00

Data for Segment # 4: West B open (day/night)
---------------------------------------------
Angle1   Angle2            :  73.00 deg   90.00 deg
Wood depth                 :      0       (No woods.)
No of house rows           :      1 / 0
Surface                    :      2       (Reflective ground surface)
Receiver source distance   :  42.60 / 42.60   m
Receiver height            :   6.20 / 9.25    m
Topography                 :      1       (Flat/gentle slope; no barrier)
Reference angle            :   0.00
```

🡅

```
Results segment # 1: East B wall (day)
--------------------------------------

Source height = 1.50 m
```



```
Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.20 !        3.43 !       118.34

ROAD (0.00 + 60.88 + 0.00) = 60.88 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -40   0.00  70.00   0.00  -3.55  -5.56   0.00   0.00  -4.76  56.12*
   -90    -40   0.00  70.00   0.00  -3.55  -5.56   0.00   0.00   0.00  60.88
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 60.88 dBA
```

🡅

```
Results segment # 2: East B open (day)
--------------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.62 + 0.00) = 48.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    73     90   0.00  70.00   0.00  -3.55 -10.25   0.00  -7.57   0.00  48.62
-------------------------------------------------------------------------------

Segment Leq : 48.62 dBA
```

🡅

```
Results segment # 3: West B wall (day)
--------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        6.20 !        5.46 !       120.37

ROAD (0.00 + 59.90 + 0.00) = 59.90 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
```

```
   -90    -40   0.00  70.00   0.00  -4.53  -5.56   0.00   0.00  -0.34  59.56*
   -90    -40   0.00  70.00   0.00  -4.53  -5.56   0.00   0.00   0.00  59.90
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 59.90 dBA

♠
Results segment # 4: West B open (day)
---------------------------------------

Source height = 1.50 m

ROAD (0.00 + 47.75 + 0.00) = 47.75 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    73     90   0.00  70.00   0.00  -4.53 -10.25   0.00  -7.46   0.00  47.75
-------------------------------------------------------------------------------

Segment Leq : 47.75 dBA

Total Leq All Segments: 63.68 dBA

♠
Results segment # 1: East B wall (night)
----------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        9.25 !        4.85 !       119.76

ROAD (0.00 + 53.28 + 0.00) = 53.28 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -40   0.00  62.40   0.00  -3.55  -5.56   0.00   0.00  -0.87  52.41*
   -90    -40   0.00  62.40   0.00  -3.55  -5.56   0.00   0.00   0.00  53.28
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 53.28 dBA
```



```
♠
Results segment # 2: East B open (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 48.60 + 0.00) = 48.60 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    73     90   0.00  62.40   0.00  -3.55 -10.25   0.00   0.00   0.00  48.60
-------------------------------------------------------------------------------

Segment Leq : 48.60 dBA

♠
Results segment # 3: West B wall (night)
----------------------------------------

Source height = 1.50 m

Barrier height for grazing incidence
------------------------------------
Source      ! Receiver    ! Barrier     ! Elevation of
Height  (m) ! Height  (m) ! Height  (m) ! Barrier Top  (m)
------------+-------------+-------------+--------------
       1.50 !        9.25 !        7.96 !       122.87

ROAD (0.00 + 52.30 + 0.00) = 52.30 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
   -90    -40   0.00  62.40   0.00  -4.53  -5.56   0.00   0.00  -0.09  52.21*
   -90    -40   0.00  62.40   0.00  -4.53  -5.56   0.00   0.00   0.00  52.30
-------------------------------------------------------------------------------

 * Bright Zone !

Segment Leq : 52.30 dBA

♠
Results segment # 4: West B open (night)
----------------------------------------

Source height = 1.50 m

ROAD (0.00 + 47.62 + 0.00) = 47.62 dBA
Angle1 Angle2  Alpha RefLeq  P.Adj  D.Adj  F.Adj  W.Adj  H.Adj  B.Adj SubLeq
-------------------------------------------------------------------------------
    73     90   0.00  62.40   0.00  -4.53 -10.25   0.00   0.00   0.00  47.62
```

Segment Leq : 47.62 dBA

Total Leq All Segments: 57.10 dBA

♠

TOTAL Leq FROM ALL SOURCES (DAY): 63.68
(NIGHT): 57.10

♠
♠

STAMSON 5.0 SUMMARY REPORT Date: 15-05-2019 15:42:48
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: East B (day/night)

```
Angle1   Angle2           : -80.00 deg   88.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  43.50 / 43.50  m
Receiver height           :   6.20 / 9.25   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 2: West B (day/night)

```
Angle1   Angle2           : -80.00 deg   88.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  55.70 / 55.70  m
Receiver height           :   6.20 / 9.25   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	57.62	57.62
2.West B	1.50	56.70	56.70
Total			60.19 dBA

↟

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	50.03	50.03
2.West B	1.50	49.11	49.11
Total			52.60 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 60.19
(NIGHT): 52.60

STAMSON 5.0 SUMMARY REPORT Date: 15-05-2019 15:57:09
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: East B (day/night)

```
Angle1   Angle2           : -87.00 deg   33.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  45.20 / 45.20  m
Receiver height           :   4.35 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 2: West B (day/night)

```
Angle1   Angle2           : -87.00 deg   33.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  57.40 / 57.40  m
Receiver height           :   4.35 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	56.02	56.02
2.West B	1.50	55.13	55.13
Total			58.61 dBA

↟

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	48.42	48.42
2.West B	1.50	47.54	47.54
Total			51.01 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 58.61
(NIGHT): 51.01

STAMSON 5.0 SUMMARY REPORT Date: 15-05-2019 15:58:29
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

Filename: r14.te Time Period: Day/Night 16/8 hours
Description:

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 1: East B (day/night)

```
Angle1   Angle2           : -61.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  59.80 / 59.80  m
Receiver height           :   4.35 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

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

```
Car traffic volume  : 12144/1056  veh/TimePeriod  *
Medium truck volume :   966/84    veh/TimePeriod  *
Heavy truck volume  :   690/60    veh/TimePeriod  *
Posted speed limit  :    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):  15000
    Percentage of Annual Growth        :   0.00
    Number of Years of Growth          :   0.00
    Medium Truck % of Total Volume     :   7.00
    Heavy Truck  % of Total Volume     :   5.00
    Day (16 hrs) % of Total Volume     :  92.00
```

Data for Segment # 2: West B (day/night)

```
Angle1   Angle2           : -61.00 deg   30.00 deg
Wood depth                :      0       (No woods.)
No of house rows          :      1 / 1
House density             :     87 %
Surface                   :      2       (Reflective ground surface)
Receiver source distance  :  71.30 / 71.30  m
Receiver height           :   4.35 / 7.50   m
Topography                :      1       (Flat/gentle slope; no barrier)
Reference angle           :   0.00
```

↟

Result summary (day)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	53.79	53.79
2.West B	1.50	53.11	53.11
Total			56.47 dBA

↟

Result summary (night)
---

	source height (m)	Road Leq (dBA)	Total Leq (dBA)
1.East B	1.50	46.19	46.19
2.West B	1.50	45.51	45.51
Total			48.87 dBA

↟

TOTAL Leq FROM ALL SOURCES (DAY): 56.47
(NIGHT): 48.87

STAMSON 5.0 NORMAL REPORT Date: 16-05-2019 10:35:28
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : 15.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 50.00 / 50.00 m
Receiver height : 4.35 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : 15.00 deg 90.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 58.60 / 58.60 m
Receiver height : 4.35 / 7.50 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 60.97 + 0.00) = 60.97 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.00	70.00	0.00	-5.23	-3.80	0.00	0.00	0.00	60.97

Segment Leq : 60.97 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 60.28 + 0.00) = 60.28 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.00	70.00	0.00	-5.92	-3.80	0.00	0.00	0.00	60.28

Segment Leq : 60.28 dBA

Total Leq All Segments: 63.65 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 53.37 + 0.00) = 53.37 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.00	62.40	0.00	-5.23	-3.80	0.00	0.00	0.00	53.37

Segment Leq : 53.37 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 52.68 + 0.00) = 52.68 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
15	90	0.00	62.40	0.00	-5.92	-3.80	0.00	0.00	0.00	52.68

Segment Leq : 52.68 dBA

Total Leq All Segments: 56.05 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.65
(NIGHT): 56.05

STAMSON 5.0 NORMAL REPORT Date: 16-05-2019 10:45:22
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : -51.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.10 / 20.10 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : -51.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 32.50 / 32.50 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 63.25 + 0.00) = 63.25 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	0	0.00	70.00	0.00	-1.27	-5.48	0.00	0.00	0.00	63.25

Segment Leq : 63.25 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 61.16 + 0.00) = 61.16 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	0	0.00	70.00	0.00	-3.36	-5.48	0.00	0.00	0.00	61.16

Segment Leq : 61.16 dBA

Total Leq All Segments: 65.34 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 55.65 + 0.00) = 55.65 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	0	0.00	62.40	0.00	-1.27	-5.48	0.00	0.00	0.00	55.65

Segment Leq : 55.65 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 53.56 + 0.00) = 53.56 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-51	0	0.00	62.40	0.00	-3.36	-5.48	0.00	0.00	0.00	53.56

Segment Leq : 53.56 dBA

Total Leq All Segments: 57.74 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 65.34
(NIGHT): 57.74

STAMSON 5.0 NORMAL REPORT Date: 16-05-2019 10:54:50
MINISTRY OF ENVIRONMENT AND ENERGY / NOISE ASSESSMENT

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

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 1: East B (day/night)

Angle1 Angle2 : -34.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 20.50 / 20.50 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

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

Car traffic volume : 12144/1056 veh/TimePeriod *
Medium truck volume : 966/84 veh/TimePeriod *
Heavy truck volume : 690/60 veh/TimePeriod *
Posted speed limit : 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): 15000
Percentage of Annual Growth : 0.00
Number of Years of Growth : 0.00
Medium Truck % of Total Volume : 7.00
Heavy Truck % of Total Volume : 5.00
Day (16 hrs) % of Total Volume : 92.00

Data for Segment # 2: West B (day/night)

Angle1 Angle2 : -34.00 deg 0.00 deg
Wood depth : 0 (No woods.)
No of house rows : 0 / 0
Surface : 2 (Reflective ground surface)
Receiver source distance : 32.80 / 32.80 m
Receiver height : 6.20 / 9.25 m
Topography : 1 (Flat/gentle slope; no barrier)
Reference angle : 0.00

Results segment # 1: East B (day)

Source height = 1.50 m

ROAD (0.00 + 61.40 + 0.00) = 61.40 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-34	0	0.00	70.00	0.00	-1.36	-7.24	0.00	0.00	0.00	61.40

Segment Leq : 61.40 dBA

Results segment # 2: West B (day)

Source height = 1.50 m

ROAD (0.00 + 59.36 + 0.00) = 59.36 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-34	0	0.00	70.00	0.00	-3.40	-7.24	0.00	0.00	0.00	59.36

Segment Leq : 59.36 dBA

Total Leq All Segments: 63.51 dBA

Results segment # 1: East B (night)

Source height = 1.50 m

ROAD (0.00 + 53.80 + 0.00) = 53.80 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-34	0	0.00	62.40	0.00	-1.36	-7.24	0.00	0.00	0.00	53.80

Segment Leq : 53.80 dBA

Results segment # 2: West B (night)

Source height = 1.50 m

ROAD (0.00 + 51.76 + 0.00) = 51.76 dBA

Angle1	Angle2	Alpha	RefLeq	P.Adj	D.Adj	F.Adj	W.Adj	H.Adj	B.Adj	SubLeq
-34	0	0.00	62.40	0.00	-3.40	-7.24	0.00	0.00	0.00	51.76

Segment Leq : 51.76 dBA

Total Leq All Segments: 55.91 dBA

TOTAL Leq FROM ALL SOURCES (DAY): 63.51
(NIGHT): 55.91